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COMPETITION IN BIDDING MARKETS

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FOREWORD

This document comprises proceedings in the original languages of a Roundtable on Competition in Bidding Markets, held by the Competition Committee in October 2006.

It is published under the responsibility of the Secretary General of the OECD to bring information on this topic to the attention of a wider audience.

This compilation is one of a series of publications entitled "Competition Policy Roundtables".

PRÉFACE

Ce document rassemble la documentation dans la langue d'origine dans laquelle elle a été soumise, relative à une table ronde sur la concurrence sur les marchés d'appel d'offres, qui s'est tenue en octobre 2006 dans le cadre du Comité de la concurrence.

Il est publié sous la responsabilité du Secrétaire général de l'OCDE, afin de porter à la connaissance d'un large public les éléments d'information qui ont été réunis à cette occasion.

Cette compilation fait partie de la série intitulée "Les tables rondes sur la politique de la concurrence".

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EXECUTIVE SUMMARY

by the Secretariat

Considering the discussion at the roundtable, the delegates' submissions and the background paper, several key points emerge:

Merger analysis in bidding markets

- (1) *The term "bidding market" does not contribute to understanding competition in a market.*

Definitions of "bidding markets" typically include the following concepts:

- "Winner takes all," so each supplier either wins all or none of the order. There is therefore no smooth trade-off between the price offered and the quantity sold.
- "Lumpy competition," that is, each contest is large relative to a supplier's total sales in a period.
- "Every contest is a new contest". In other words, there is no "lock-in in" by which the outcome of one contest importantly determines another.
- Sometimes, "entry of new suppliers into the market is easy."
- Involves a bidding process.

Markets having the first three characteristics experience Bertrand price-setting competition, where indeed "two is enough" to ensure a competitive outcome. Markets having the first four characteristics are like contestable markets, where one supplier—and many potential suppliers—is enough to ensure a competitive outcome. The use, or not, of a bidding process is irrelevant. A market that involves a bidding process does not necessarily have any of the other four features. Therefore, one cannot assume that markets where bidding processes are used will have the characteristics implied by Bertrand competition or a contestable market. That is, one cannot assume that bidders have no market power or that any market power can be easily eroded.

- (2). *Merger analysis is not significantly changed by the existence of a bidding process. Markets where bidding processes are used are subject to similar economic forces as those in other markets. As in any merger analysis, it is important to understand the competitive constraints to which the merging parties are subject and to ground the choice of economic model in an analysis of the factual circumstances.*

Most of the instruments competition authorities use in merger analysis are robust and seem to provide good results in markets with bidding processes.

Existing market shares are not always informative about competition in the future, whether in markets with bidding or markets without bidding. It can be useful to separate the concepts of competition *ex ante* and market share *ex post*, and note that the *ex post* market share does not necessarily reflect the intensity of competition in the market during the bidding process.

The key is to identify likely credible bidders in future bidding opportunities. This is equivalent to the standard analysis of existing and potential competition. Likely potential bidders are identified and their likely entry barriers are assessed. It is not necessarily the case that each potential bidder is an equally likely future winner of a bidding competition.

Where there are incumbency advantages, so having sold to a particular customer in the past makes it substantially more likely to sell to him in the future, then a larger existing market share indicates market power in the normal way.

Market definition by use of the SSNIP test (“small but significant and non-transitory increase in price” test) can sometimes be difficult in markets characterised by bidding processes for two reasons. First, the price is different potentially for each contract. The same is true in any other market in which prices are set individually for each contract. Second, there is no obvious price on which to add the SSNIP since competition occurs simultaneously rather than through sequential moves. Notwithstanding these difficulties, the notion of substitutability which underlies the SSNIP test can be used in defining the relevant market. Non-price factors can help to identify the extent of substitutability on both the demand and supply side. These may include *inter alia* distinct product characteristics and uses, unique production facilities or processes, distinct purchasers, specialisation of sellers and the views of industry participants.

In markets with **differentiated products**, the analysis of the impact of a merger revolves around the closeness of competition between the merging parties that is, on whether the merging parties exert important competitive constraints on each other. There may be an important subset of customers for whom the merging parties’ products are their first and second choices and for whom the merger has a competitive effect. Even if there is only a possibility that the merging parties’ products are first and second choice, the merger has a competitive effect. (The same analysis would hold for undifferentiated products where there are cost differences among competitors, perhaps due to differences in transport costs.)

- (3) *Quantitative techniques can be applied to data that come out of the bidding processes to identify competitive constraints.*

One such technique is **frequency analysis**. One can take all, or a large number, of sales of the relevant product to see how frequently the merging parties face each other. Or one may be able to learn how frequently or for which customers the merging parties were the first and second choices. One may also be able to detect patterns where firms do not bid to supply certain customers, which could prompt further investigation as to whether they are unable to supply. Other techniques for assessing the closeness of two differentiated products remain relevant, whether that is assessment of product characteristics, the use of surveys or other instruments to gauge the opinions of customers or, in some occasions, “natural experiments,” i.e., what happens if one product suddenly disappears from the market for temporary reasons. Even if the merging parties offer close substitutes, if a third party always participates in each bidding competition and offers a close substitute, then this would indicate a likely limited competitive effect of the merger.

Another such technique is **reduced form estimation**. This means, for example, to estimate the relationship between the prices (or discount) that are bid and the number of bidders, the identity of bidders and the characteristics of the buyer or product. A possible data problem is that one may not know how many bidders there are, since in an ascending or open auction some bidders may drop out before they actively submit a bid. Another possible data problem is that there may be unobservable factors that cause changes in price rather than, or in addition to, changes in

factors like the number of bidders. For example, there may be characteristics that affect the desirability of winning an auction. While this technique assumes that firms are behaving non-cooperatively, the possible presence of collusion presents a lesser problem for this technique than for structural modelling of competitive effects, like merger simulation. A slightly more subtle issue is “repositioning:” If suppliers offer differentiated products, then the post-merger entity may choose to reposition and offer products with different characteristics from those that were offered pre-merger. This would be a change in competition due to the merger in addition to raising price.

The analysis of an auction can be affected by what the bidders observe during the bidding—do they know the identity of their rivals or what they are offering, and when do they learn that? It can be difficult to learn who knew what when. One example where differences of view about what bidders observe during the bidding had an effect on the choice of economic model, and thus on the merger analysis, was the merger between Oracle and Peoplesoft. In that merger, some analysts found that the bidders knew the identity of their rivals and could submit additional bids to undercut their rivals, but other analysts found that the bidders did not have good information about their rivals to enable them to submit undercutting bids. The first set of analysts modelled the market as open or ascending auctions and the second set as sealed-bid auctions. The different models yielded different predictions of the competitive effect of the merger. It should be noted that various analytical techniques unrelated to bidding were applied to evaluate the merger.

- (4) *Mergers in markets with so-called “common value auctions” increase competition only in special, implausible circumstances.* In a “common value auction,” bidders do not know the value of what they are bidding for. The basic idea is that, by combining the information different bidders have, this gives them greater confidence in estimating the value and therefore they will bid more aggressively. But competition is increased only in special cases which are not very plausible; in general we would expect such a merger to reduce competition for the usual kinds of reasons.
- (5) *Bid-takers may be unable to protect themselves from the anticompetitive effect of a merger by changing the auction rules in their favour.* They may not be able to choose an auction form. They are subject to constraints of various types.
- There are legal constraints. E.g., state aid rules prohibit discrimination in a straightforward way between bidders in the European Union.
 - There may be political constraints.
 - There are organisational constraints. Principal-agent problems may mean that the designer of a bidding process today may design the bidding in a way that is ideal in terms of the short-run effects but may overlook lock-in effects that leave the institution in a very weak position in the future.
 - It may be impossible, for political or organisational reasons, to commit to a particular design. There may be lobbying pressure. Or it may be impossible for the bid taker to commit to its own future behaviour, e.g., in not allowing further bids after the bidding process is supposed to end.

Given these constraints, it cannot be assumed that bid-takers can counter anticompetitive mergers with changes in the design of auctions.

2. The design of auctions and tenders

Choices about auction design can affect how susceptible an auction is to collusion or concerted practices, or how widespread is participation in the auction. Thus, the design of an auction can be the object of lobbying pressure. Auctioneers can also behave strategically, choosing auction formats or practices that favour competition. Other considerations include how costly it is for bidders to take part, how large is the threat of collusion between bid-taker and bidders, and how costly and how much time it takes to run the auction.

- (6) *In designing a bidding process, the competition concerns are the same as for any other market process: entry, coordinated effects, abuse of dominance, and so on.* The analysis of bidding process involves standard economic analysis. But there is no checklist since each situation is different. One must go into the details of the specific situation and bidding process.

The European UMTS auctions are examples where different situations led to different “right answers.” When it was thought that only four licenses would be awarded in the United Kingdom’s auction, the designers, recognizing that there were only four incumbents, proposed a design that had special features to encourage entry, the so-called “Anglo-Dutch design.” Subsequently the technology changed and five licences could be allocated. This guaranteed that an entrant would win, so it guaranteed that entrants would participate in the bidding. Not having to be as concerned about encouraging entry, the designers proposed a standard ascending design that would have greater efficiency. Later, in the Netherlands auction, there were exactly the same number of licenses and incumbents but the entry-detering ascending design was chosen, and this yielded poor results. Yet later, Denmark held an auction with the same number of licenses and incumbents but chose a sealed-bid design. This yielded good results: They were successful in getting entry where otherwise they may not have had it. These were examples of different choices in different circumstances.

Just as in non-bidding situations, **more entry improves competition**. Thus, rule changes to attract more entrants are generally beneficial. Entry could be subsidized, e.g., by paying for proposals in an architectural competition. Or entry can be promoted by providing bidding credits or low-cost financing, or making resale easier. Reducing the cost of bidding, such as providing centralised information about future bidding opportunities, can promote entry. Entry can be promoted by providing information, for example about the costs and risks of performing the contract up for bid, either public information or in the form of scoping contracts to potential bidders in a later competition. In addition, less restrictive tender specifications or pre-selection criteria can enable more bidders to participate in the competitions. Generally, sealed-bid auctions favour entry more than do ascending auctions, all else being equal.

Coordinated effects can be reduced by rule changes.

- Division may be made harder by infrequent repetition, different sizes of auctions, and not announcing a series of auctions in advance.
- Monitoring adherence to coordination can be made more difficult by having multidimensional criteria, thus making it harder to predict exactly how the winner will be chosen. However, decreasing transparency can facilitate corruption or collusion between the bid taker and some bidders. Hence, the advisability of decreasing transparency will depend on the setting.

- Signals and threats may be possible if the auction rules give bidders a language in their bids. In one auction, bidders used insignificant digits in the bid amount to communicate. Changing the rules can eliminate this language.
- Auction theory suggests that sealed bids are less open to collusion than ascending bids, since deviation from coordination is harder to detect and cannot be punished immediately.
- Disclosing the identities of losing bidders helps bidders monitor possible collusion but makes it easier to monitor possible corruption between bid-takers and bidders. Retaining auction data may help in any later bid-rigging prosecution. If so, knowing the data has been retained may help to discourage bid-rigging.
- Imposing a high but credible reserve price, that is, the price above (below) which no sales (purchases) will occur, reduces returns to collusion.
- Procurement procedures can inadvertently make coordination easier. For example, a bid-taker announcing a reference price can provide a price on which rivals can base their coordination. Or requiring split awards reduces rivals' incentives to bid aggressively, as they will still get a partial contract even if their bids are high.

Auction design can **affect competition in other markets**. For example, the auctions for telecommunications 3G (third generation mobile) licenses determined how many competitors there would be in the UMTS markets. Another example is recontracting, where the auction today affects the auction that will occur at the end of the license period.

Collusion between procurement officers and bidders is easier in a sealed bid auction than in an ascending auction. Such collusion is the target of many authorities' actions, not via auction design changes but through punishment and deterrence. For example, a Japanese law is aimed at procurement officials orchestrating bid-rigging. But the law, effective 2003, has been applied in only three cases to date. In Indonesia, the competition and anti-corruption authorities work together in cases involving collusion among bidders and procurement officials. In Korea, centralised public procurement is conducted electronically, reducing the contact between bidders and procurement officials in order to make collusion more difficult. In Turkey, firms found guilty of collusion in the provision of milk to schools defended themselves by pointing to orchestration of the allocation of tenders by the relevant ministry.

SYNTHÈSE

par le Secrétariat

Lorsqu'on examine les discussions de la table ronde, les contributions des délégués et la note de synthèse, plusieurs points se dégagent :

1. Analyse des fusions sur les marchés d'enchères

- (1) *Le terme « marchés d'enchères » ne favorise pas la compréhension de la concurrence sur un marché.*

Les définitions des « marchés d'enchères » font généralement intervenir les concepts suivants :

- « L'attributaire remporte l'ensemble du marché », c'est-à-dire que chaque fournisseur remporte la totalité du marché ou rien du tout. Il n'y a donc pas d'arbitrage simple entre le prix proposé et la quantité vendue.
- La concurrence se fait par gros « blocs », c'est-à-dire que chaque adjudication porte sur une part importante des ventes du fournisseur au cours d'une certaine période.
- « Chaque compétition est une nouvelle compétition ». En d'autres termes, il n'existe aucun « verrouillage » par lequel le résultat d'une adjudication passée influencerait sur la probabilité de remporter les enchères actuelles.
- Parfois, « les barrières à l'entrée sur le marché sont faibles pour les nouveaux fournisseurs ».
- Un marché d'enchères implique bien évidemment un processus d'enchères.

Les marchés qui réunissent les trois premières caractéristiques connaissent une concurrence « à la Bertrand » pour la fixation des prix, où « deux entreprises suffisent » pour garantir un résultat concurrentiel. Les marchés qui ont les quatre premières caractéristiques sont assimilables à des marchés contestables, où la présence d'un seul concurrent — et de nombreux fournisseurs potentiels — suffit pour garantir un résultat concurrentiel. Le recours ou non à un processus d'enchères n'est pas pertinent. Un marché qui fait intervenir un processus d'enchères ne réunit pas forcément une ou plusieurs des quatre autres caractéristiques. On ne peut donc pas postuler que les marchés qui utilisent des processus d'enchères auront les caractéristiques propres à une concurrence à la Bertrand ou à un marché contestable. Cela signifie qu'on ne peut pas supposer que les soumissionnaires n'ont pas de pouvoir de marché ou qu'il est facile de lutter contre un pouvoir de marché existant.

- (2) *L'existence d'un processus d'enchères ne modifie pas fondamentalement l'analyse des fusions. Les marchés qui ont recours à des processus d'enchères sont soumis à des forces économiques similaires à celles qui s'exercent sur d'autres marchés. Comme dans toute analyse de fusion, il est important de comprendre les contraintes concurrentielles qui pèsent sur les parties à la fusion et de baser le choix du modèle économique sur une analyse des circonstances factuelles.*

La plupart des instruments que les autorités de la concurrence utilisent pour analyser les fusions sont robustes et semblent donner de bons résultats pour les marchés d'enchères.

Les parts de marché existantes ne sont pas toujours révélatrices de la concurrence future, sur les marchés d'enchères comme sur les autres. Il peut être utile de distinguer les concepts de concurrence *ex ante* et de part de marché *ex post*, et d'observer que la part de marché *ex post* ne reflète pas nécessairement l'intensité de la concurrence sur le marché au cours du processus d'enchères.

L'important est d'identifier les soumissionnaires crédibles susceptibles de participer aux futures enchères. Cet exercice est comparable à l'analyse standard de la concurrence existante et potentielle. Les soumissionnaires potentiels sont identifiés et les barrières possibles à l'entrée sont évaluées. Tous les soumissionnaires potentiels n'ont pas forcément les mêmes chances de remporter des enchères futures.

Lorsqu'il existe des avantages en faveur de l'entreprise en place, c'est-à-dire si une entreprise qui a vendu à un client donné dans le passé a plus de chances de faire de même à l'avenir, alors une part de marché plus importante indique un pouvoir de marché selon le mécanisme habituel.

Il est parfois difficile de définir le marché en appliquant le critère SSNIP de l'« augmentation de prix faible mais significative et non temporaire » sur les marchés caractérisés par des processus d'enchères, et ce pour deux raisons. Premièrement, le prix est potentiellement différent pour chaque contrat. Il en va de même sur tout autre marché où les prix sont fixés individuellement pour chaque contrat. Deuxièmement, il n'existe aucun prix évident auquel appliquer l'augmentation faible, mais significative et non temporaire dans la mesure où la concurrence s'exerce simultanément et non de façon séquentielle. Malgré ces difficultés, la notion de possibilité de substitution qui sous-tend ce critère peut être utilisée pour définir le marché pertinent. Les facteurs non liés aux prix peuvent aider à déterminer les possibilités de substitution du côté de l'offre et de la demande. Ces facteurs incluent notamment les caractéristiques et les utilisations spécifiques des produits, les infrastructures ou des procédés de production uniques, des acheteurs différents, la spécialisation des vendeurs et les opinions des participants du secteur.

Sur les marchés de **produits différenciés**, l'analyse de l'impact d'une fusion revient à évaluer le degré de la concurrence entre les parties qui fusionnent, c'est-à-dire à déterminer si les parties à la fusion exercent d'importantes pressions concurrentielles l'une sur l'autre. Il peut exister une catégorie importante de clients pour qui les produits des parties à la fusion constituent un choix de prédilection et un deuxième choix et pour qui la fusion a un effet concurrentiel. Même si ce n'est qu'une possibilité, la fusion aura néanmoins un effet concurrentiel (la même analyse serait valable pour des produits non différenciés lorsqu'il existe des différences de coûts entre concurrents, imputables par exemple à des différences dans les coûts de transport).

- (3) *Les techniques quantitatives peuvent être appliquées aux données provenant des processus d'enchères pour identifier les contraintes concurrentielles.*

Une de ces techniques est **l'analyse de fréquence**. On peut se baser sur la totalité ou sur la majeure partie des ventes du produit concerné pour déterminer à quelle fréquence les parties à la fusion entrent en concurrence. On peut aussi déterminer à quelle fréquence ou pour quels clients les parties à la fusion étaient le choix de prédilection et le deuxième choix. On peut enfin déceler des situations dans lesquelles les entreprises ne soumissionnent pas pour approvisionner certains clients, ce qui peut motiver un examen plus poussé quant à leur capacité à le faire. D'autres techniques d'évaluation de la proximité de deux produits différenciés restent tout à fait

adéquates, qu'il s'agisse de l'examen des caractéristiques des produits, de l'utilisation d'enquêtes ou d'autres instruments de mesure de l'opinion des clients ou parfois des « expériences naturelles », à savoir ce qu'il advient si un produit disparaît soudainement du marché pour des raisons temporaires. Même si les parties à la fusion proposent des substituts proches, si une tierce partie n'en continue pas moins de participer à chaque enchère et offre un substitut proche, cela indique que l'effet concurrentiel de la fusion serait probablement limité.

Une autre technique est **l'estimation de forme réduite**. On examine, par exemple, le lien entre l'offre de prix (ou de remise) et le nombre de soumissionnaires, l'identité des soumissionnaires et les caractéristiques de l'acheteur ou du produit. Un problème de données qui est susceptible de se poser est qu'on ne connaît pas forcément le nombre de soumissionnaires, car dans les enchères ascendantes ou ouvertes, certains enchérisseurs peuvent renoncer avant de soumettre effectivement une offre. Par ailleurs, il peut y avoir des facteurs non observables qui modifient les prix au lieu de modifier des facteurs tels que le nombre d'enchérisseurs ou qui modifient les prix tout en modifiant ces derniers facteurs. Certaines caractéristiques peuvent par exemple réduire l'intérêt de remporter une enchère. Bien que cette technique suppose que les entreprises se comportent de manière non coopérative, la présence possible d'une collusion est moins problématique avec cette technique qu'avec la modélisation structurelle des effets concurrentiels, telle que la simulation d'une fusion. Le « repositionnement » pose un problème un peu plus subtil : si les fournisseurs proposent des produits différenciés, l'entité issue de la fusion peut choisir de se repositionner et d'offrir des produits ayant des caractéristiques différentes de celles d'avant la fusion. Cela entraînera un changement de la situation concurrentielle sous l'effet de la fusion, parallèlement à l'augmentation des prix.

L'analyse d'une enchère peut être influencée par ce que les soumissionnaires observent au cours du processus : connaissent-ils l'identité de leurs rivaux ou ce qu'ils proposent, et quand l'apprennent-ils ? Il peut être difficile de déterminer qui savait quoi et quand. La fusion entre Oracle and Peoplesoft illustre le cas où des différences d'appréciation sur ce que les soumissionnaires apprennent au cours des enchères ont eu un effet sur le choix du modèle économique, et donc sur l'analyse de la fusion. Dans cette fusion, certains analystes ont jugé que les soumissionnaires connaissaient l'identité de leurs rivaux et pouvaient soumettre des offres supplémentaires afin de les supplanter, alors que d'autres analystes ont estimé au contraire que les soumissionnaires ne disposaient pas d'informations de qualité sur leurs rivaux pour leur permettre de formuler des offres moins chères. Le premier groupe d'analystes a considéré qu'on se trouvait en présence d'enchères ouvertes ou ascendantes, tandis que le second a opté pour des enchères sous pli scellé. Les différents modèles ont abouti à des prévisions différentes de l'effet concurrentiel de la fusion. Il faut remarquer que diverses techniques d'analyse sans lien avec les enchères ont été appliquées pour évaluer la fusion.

- (4) *Les fusions sur des marchés avec « enchères à valeurs communes » augmentent la concurrence uniquement dans des circonstances spéciales et peu plausibles.* Dans une « enchère à valeurs communes », les soumissionnaires ignorent la valeur de ce pour quoi ils enchérissent. L'idée est que, en associant les informations dont ils disposent, les soumissionnaires sont mieux à même d'estimer cette valeur et se livrent ainsi une concurrence plus agressive. En réalité, la concurrence n'est renforcée que dans des cas particuliers assez peu plausibles ; on doit généralement s'attendre à ce qu'une telle fusion réduise la concurrence pour les raisons habituelles.
- (5) *Les acheteurs peuvent être incapables de se protéger de l'effet anticoncurrentiel d'une fusion en modifiant les règles des enchères en leur faveur.* Ils n'ont pas toujours le pouvoir de choisir la forme des enchères car ils sont soumis à différents types de contraintes.

- Il existe des contraintes juridiques, par exemple les règles sur les aides d'Etat qui interdisent la discrimination directe entre soumissionnaires dans l'Union européenne.
- Il peut y avoir des contraintes politiques.
- Il existe des contraintes organisationnelles. Du fait des problèmes de relation mandant/mandataire, le concepteur des enchères peut mettre au point une procédure idéale quant aux effets à court terme, mais négliger les effets de verrouillage qui compromettent l'avenir de l'organisme concerné.
- Il peut être impossible, pour des raisons politiques ou d'organisation, de s'engager sur une conception en particulier. Des groupes d'intérêts peuvent exercer des pressions. Ou l'acheteur ne peut tout simplement pas s'engager sur son propre comportement futur, par exemple ne pas autoriser les offres supplémentaires après que la procédure d'enchères est supposée être close.

Compte tenu de ces contraintes, on ne peut pas supposer que les acheteurs peuvent contrer les fusions anticoncurrentielles en modifiant la conception des enchères.

2. La conception des enchères et des appels d'offres

Une enchère peut être conçue de manière à réduire la collusion et les pratiques concertées, ou à encourager une participation élargie. La conception de certaines enchères est ainsi susceptible d'être soumise à de fortes pressions de la part de groupes d'intérêts. Les adjudicateurs peuvent de leur côté agir de façon stratégique et choisir des méthodes ou des modalités pratiques favorisant la concurrence. Les autres questions incluent le coût de participation des soumissionnaires, l'importance de la menace de collusion entre l'acheteur et les soumissionnaires, et le coût et le temps nécessaire pour organiser l'enchère.

- (6) *Lorsqu'on organise des enchères, les questions de concurrence qui se posent sont les mêmes que pour n'importe quel autre processus de marché, à savoir les barrières à l'entrée, les effets coordonnés, l'abus de position dominante, etc.* L'analyse du processus d'enchères implique une analyse économique standard, mais on ne peut pas s'appuyer sur une liste de contrôle, car chaque situation est différente. Il faut entrer dans les détails de la situation et du processus d'enchères.

Les enchères UMTS en Europe illustrent le cas où des situations différentes ont conduit à des « bonnes réponses » différentes. Pensant, dans un premier temps, que quatre licences allaient être attribuées au Royaume-Uni, les organisateurs, prenant acte de l'existence de quatre exploitants seulement, ont proposé une conception dont les caractéristiques spécifiques visaient à favoriser l'entrée, la « conception anglo-hollandaise ». La technologie a ensuite évolué et cinq licences pouvaient être attribuées. Cela garantissait qu'un nouvel entrant remporterait une licence, et donc la participation de nouveaux entrants. N'ayant plus à se soucier d'encourager l'entrée, les concepteurs ont proposé des enchères ascendantes classiques susceptibles d'être plus efficaces. Lors des enchères menées plus tard aux Pays-Bas, le nombre de licences et d'exploitants en place était exactement le même, mais le choix s'est porté sur la conception ascendante, ce qui a dissuadé les entrants et donné de mauvais résultats. Plus tard encore, les Danois ont organisé des enchères avec le même nombre de licences et d'exploitants en place, mais ont opté pour des enchères sous pli scellé, avec de bons résultats : ils ont réussi à obtenir de nouvelles entrées, alors que ce n'était pas garanti avec une autre conception. Ce sont des exemples de choix différents dans des situations différentes.

Tout comme sur les marchés sans enchères, **les nouvelles entrées améliorent la concurrence**. C'est pourquoi les changements de règles visant à attirer de nouveaux entrants sont généralement bénéfiques. On peut être amené à subventionner l'entrée, par exemple en rémunérant les offres pour l'adjudication d'un marché dans le secteur de l'architecture. Ou bien on peut octroyer des crédits ou des financements à taux réduit, ou encore faciliter la revente. Réduire le coût des soumissions, par exemple en centralisant les informations sur les adjudications futures, peut favoriser l'entrée ; il en va de même pour la fourniture d'informations, par exemple sur les coûts et risques de soumettre une offre, soit par des informations publiques, soit sous la forme de contrats de cadrage signés avec les soumissionnaires potentiels lors de futures adjudications. En outre, l'assouplissement des spécifications de l'appel d'offres ou des critères de présélection peut permettre à davantage d'enchérisseurs de participer. En règle générale, les enchères sous pli scellé sont plus propices à l'entrée que les enchères ascendantes, toutes choses étant égales par ailleurs.

Des changements de règles peuvent atténuer les **effets coordonnés**.

- La répartition des marchés peut être rendue plus difficile en espaçant les enchères, en organisant des enchères de taille différente et en se gardant d'annoncer à l'avance une série d'enchères.
- L'adoption de critères multidimensionnels peut compliquer la détection des concurrents qui ne jouent pas le jeu de la coordination, et empêche de prévoir exactement comment le gagnant sera désigné. En revanche, une moindre transparence peut encourager la corruption ou la collusion entre l'acheteur et certains soumissionnaires. L'opportunité de réduire la transparence dépendra du contexte.
- Les signaux et les menaces sont possibles si les règles d'enchères permettent aux soumissionnaires de trouver un langage de communication. Lors d'une enchère, des candidats ont utilisé des chiffres non significatifs dans le montant de l'offre pour communiquer entre eux. Modifier les règles peut supprimer ce langage.
- La théorie des enchères suggère que les enchères sous pli scellé sont moins sensibles à la collusion que les enchères ascendantes, car il est plus difficile de déceler les candidats qui refusent de jouer le jeu de la coordination et de les punir immédiatement.
- Divulguer l'identité des perdants aide les soumissionnaires à surveiller les possibilités de collusion mais facilite la détection des tentatives de corruption entre acheteurs et soumissionnaires. Conserver les données relatives aux enchères peut être utile lors de poursuites pénales contre les pratiques de soumissions concertées. Savoir que les données sont conservées peut contribuer à dissuader de telles pratiques.
- Imposer un prix de réserve élevé mais crédible, c'est-à-dire le prix au dessus (au dessous) duquel aucune vente (aucun achat) n'aura lieu, réduit les avantages de la collusion.
- Les procédures de passation des marchés peuvent faciliter malencontreusement la coordination. Par exemple, un acheteur qui annonce un prix de référence peut ainsi fournir un prix sur lequel les concurrents baseront leur coordination. Exiger des attributions fractionnées peut dissuader les rivaux de proposer de meilleures offres, car ils ont la garantie d'obtenir un contrat partiel même si leurs offres sont élevées.

La conception des enchères peut **affecter la concurrence sur d'autres marchés**. Par exemple, les enchères pour les licences de télécommunications 3G (mobiles de troisième génération) ont déterminé le nombre de concurrents sur les marchés UMTS. Autre exemple : le renouvellement du contrat, où l'enchère organisée aujourd'hui influe sur celle qui aura lieu à la fin de la période de validité de la licence.

La **collusion entre adjudicateur et soumissionnaires** est plus facile dans les enchères sous pli scellé que dans les enchères ascendantes. Cette collusion est la cible de nombreuses actions engagées par les autorités, non pas en modifiant la conception des enchères mais en recourant aux sanctions et à la dissuasion. Par exemple, une loi japonaise vise les adjudicateurs qui orchestrent des soumissions concertées. Néanmoins, cette loi entrée en vigueur en 2003 n'a été appliquée que dans trois cas à ce jour. En Indonésie, les autorités de la concurrence et de lutte contre la corruption coopèrent dans des affaires de collusion entre soumissionnaires et adjudicateur. En Corée, la passation centralisée des marchés publics s'effectue par voie électronique, ce qui réduit les contacts entre enchérisseurs et adjudicateurs, rendant la collusion plus difficile. En Turquie, les entreprises jugées coupables de collusion dans la fourniture de lait aux écoles se sont défendues en invoquant l'orchestration de l'attribution des marchés par le ministère compétent.

BACKGROUND NOTE

Introduction

Competition authorities become interested in auctions by a number of routes. In competition advocacy, they may advise other parts of government on how to design auctions in order to improve their efficiency—the degree of competition. They may evaluate mergers and agreements between firms that operate in auction markets. And they may be concerned with collusion and abuse of a dominant position in auctions.

Because their formal rules reduce “noise” and make communication among rivals easier, auctions can promote collusion, compared with ordinary “posted-price” markets. But an auction can be designed to reduce collusion or concerted practices or to promote participation. Thus, the design of an auction can be the object of lobbying pressure. Auctioneers can also behave strategically, choosing auction formats or practices that favour competition.

Two fundamental prescriptions for effective auction design follow from the theoretical literature: Induce bidders to truthfully reveal their valuations by making what they pay not depend entirely on what they bid, and maximize the information available to each participant before he bids. Among the other recommendations that flow from the literature are:

- Where collusion is a significant threat, use sealed-bid rather than ascending bid (or “open”) auctions. Where the information about the true value of the object being auctioned is dispersed among the bidders and there is significant uncertainty, then consider using an ascending auction.
- Impose a high but credible reserve price, i.e., a price below which the auction is cancelled.
- Carefully consider the information provided to bidders and the public, including non-disclosure of the identities of losing bidders and retention of auction data for use in any possible later bid rigging prosecution.
- Consider bundling smaller auctions and refraining from announcing a future schedule of auctions.
- Consider means of reducing bid preparation costs.
- Where promoting “weaker bidders” is an important consideration, use sealed-bid rather than open auctions.
- Consider other means to attract “weaker bidders” to participate in the auction such as set-asides, bidding credits, and splitting objects.

The effects of a merger in “bidding markets” depend on whether the context is “private values” or “common values” In a private values context, a merger among bidders in general leads to less aggressive bidding and lower demand (absent efficiencies), as one would expect from analogy with “ordinary” markets. In a common values context, these reductions in competition might be countered by a reduction in

the “winner’s curse” effect. Whether this effect is sufficient to outweigh the other effects is an empirical matter. Methods for distinguishing private values from common values situations are a subject of ongoing research. Finally, although it is indeed sometimes the case that “two is enough”, that possibility is probably of little empirical importance in merger review.

Auction theory is quite technical. It may therefore be reassuring that a prominent auction theorist and practitioner writes:

“My experience in auction consulting teaches that clever new designs are only very occasionally among the main keys to an auction’s success. Much more often, the keys are to keep the costs of bidding low, encourage the right bidders to participate, ensure the integrity of the process, and take care that the winning bidder is someone who will pay or deliver as promised.” (Milgrom 2004, p. xii)

This paper has three parts and three annexes. The first part introduces key terminology and concepts. The second part is about characteristics of auctions that can harm or help competition, notably with respect to bid rigging and concerted practices, and participation. The third part addresses the evaluation of mergers in bidding markets. The first annex provides a basic introduction to auction theory, which underpins the policy discussions and recommendations. Two technical annexes follow.

1. Terminology and Concepts

1.1 *Standard Auction Types*

There are four standard auction types.

- In an *ascending (or “English”) auction*, the price is raised until only one bidder remains, and he wins at the final price.
- In a *descending (or “Dutch”) auction*, the price is lowered until a bidder cries out, and she wins at the final price.
- In a *first-price sealed-bid auction*, each bidder submits one bid without knowing the other bids, the highest bidder wins and pays his bid.
- In a *second-price sealed-bid auction*, each bidder submits one bid without knowing the other bids, the highest bidder wins and pays the amount of the second-highest bid.

Common variations and details include reserve prices and restrictions on bid increments and on bid timing. Further complications are introduced when multiple objects are being sold, either simultaneously or sequentially.

1.2 *Valuations, Private Values and Common Values*

Information is key to understanding auctions. Indeed, effective auction design can be described as trying to induce bidders to truthfully reveal their value for the object and trying to maximise the information available to bidders at the time they bid. What the object being auctioned is worth to the bidder is called the bidder’s “valuation” of it. The valuation is not necessarily equal to either the amount that is bid or the amount that needs to be paid.

- Bidders have *private values* if each bidder knows her own value of the object and she would not change her valuation if she learned any of her rivals' values.¹
- In a *common values* context, each bidder would change her belief about the value of the object if she knew her rivals' information.
- *Affiliated values* refers to the intermediate situation between pure private values and pure common values (which could be considered special cases of the general concept of affiliated values).

An example of private values would be nondurable consumer goods, where the consumer knows the value to herself and is not influenced by the value to others since there is no possibility of resale. Even in a private values context, a bidder would like to know her rivals' information for strategic reasons, but knowing that information will not cause her to change her beliefs about the value of the object to her. In a common values context, the value of the object is not necessarily the same for all bidders. In *pure common values*, a special case of common values, each bidder has the same value of the object.

An example of common values would be petroleum tracts, where the main uncertainties are how much petroleum there is, how costly it will be to recover and transport to market, and future price, and these uncertainties are common to all the bidders. Bidders may have different information about these uncertainties, so if they learned a rival's information they would use it to modify their beliefs about these uncertain factors. Another example is if the object will be resold. This is likely a common values context because the bidders are likely to have different information about future market conditions. In common values, the information about the object is dispersed among the bidders.

1.3 *Bidding Strategies and Outcomes*

This section describes the bidding strategies and likely outcomes that game theory analysis deduces for the four standard auctions, assuming no collusion and no barriers to entry or participation.

- In an *ascending auction with private values*, each bidder will stay in the bidding until the price reaches the bidder's value. After the bidder with the second-highest valuation drops out, the only remaining active bidder is the one with the highest valuation, who wins at the price equal to (or perhaps just slightly higher than) the second-highest valuation.
- In a *second-price sealed-bid auction with private values*, each bidder will bid his own valuation. The bidder with the highest value wins and pays the second-highest valuation.
- In a *first-price sealed-bid auction with private values*, bidders must trade off bidding higher, thus increasing the probability of winning, against bidding lower and increasing the value of winning, if he wins. The bidder with the highest bid wins and pays his bid, but he is not necessarily the bidder with the highest valuation. His bid is less than his valuation.
- In the *descending auction with private values*, bidders use the same strategies as in the first-price sealed-bid auction, because they have access to the same information and are making the same trade-offs.

In the common values context bids become informative, and theory becomes less certain. The bids reveal information about the bidders' valuations. That information will cause rivals to change their own

¹ Almost always, the assumption is made that these are statistically independent so are more properly termed *independent private values*.

valuations. The ambiguity about beliefs and changes in beliefs about rivals' valuations means that it is far more difficult to make general statements about common values auctions. In addition, bidders in a common values context shade their bids to avoid the winner's curse.

These standard auctions are, in a particular technical sense, very similar. The "revenue equivalence theorem" shows that, under certain conditions, each of the standard auction designs (ascending, descending, first-price sealed-bid and second-price sealed bid) will yield the same expected revenue and results in each bidder making the same expected payment as a function of her information about the value of the object. This theorem follows because bidders act differently in the different auction types. For example, they bid lower in the first-price sealed-bid auction than in a second-price sealed-bid auction. But the revenue equivalence theorem does not mean that all types of auction are equal from the point of view of competition policy.

Another source of significant difference among the auction types is that they imply significant differences in bid preparation for the bidders. For the ascending and second-priced sealed-bid auctions with private values, the bidder need "only" discover his own valuation and either stay in the bidding until that level is reached or submit it to the auctioneer. For the other types of auctions, the bidder must also estimate the number of other bidders and the distribution of their valuations.

1.4 Winner's Curse

The winner's curse is a phenomenon of common values auctions. For example, in a sealed bid auction, the winning bidder is the one who had formed the highest estimate of the object's value. A naïve bidder, upon winning, learns from that fact that everyone else estimated the value to be lower, and would thus revise downwards his own estimate of the true value. On average, the naïve winner regrets winning because on average he pays more than the true value. A sophisticated bidder will take this phenomenon into account. He therefore submit a lower bid than his naïve bid. This bid shading is the winner's curse effect. The winner's curse effect is stronger when there are more rivals. That is, as there are more bidders, bidders shade their bids more. If the winner's curse effect is large enough, then the price paid decreases with more bidders. That decrease could outweigh the effect of increasing competition, of stimulating more aggressive bidding to have a chance of winning. The winner's curse effect has important policy implications, about such issues as when should joint bidding be allowed, when should participation in auctions be restricted, and when are mergers anticompetitive. The empirical significance of the winner's curse effect is the subject of debate and research.

1.5 Non-Standard Auctions

Several variations on these standard auction types are important in practice.

- Auctions for *multiple objects or multiple units* arise frequently. Examples include licenses to use parts of the electromagnetic spectrum for telecommunications and transmission and generation of electricity. Multi-unit or object auctions are more complicated than single unit auctions. Objects may be complements as well as substitutes. Bidders' costs can increase rapidly with the complexity of the auction rules and the relationships among the objects. Efficiency and revenue objectives can involve radical tradeoffs, so policy choices about the objective of the auction make major differences in the design. It is hard to achieve efficient outcomes.
- *Sealed-bid auctions* to sell multiple units can be either *uniform price* or *discriminatory*, also called "pay as bid." In the first, the winners all pay the same price, which is equal to the highest unsuccessful bid. In the second, each winner pays the amount he bid.

- The *simultaneous ascending auction* (SAA) is also a uniform price auction. SAAs have been used to sell rights to use the electromagnetic spectrum. In the SAA, bidders submit bids on the items, and rounds of bidding continue until the closing conditions are met. The advantage of SAAs over sequential ascending auctions is that bidders can arbitrage among the auctions, shifting their bidding to objects that are relatively cheap.
- *Package* and *contingent auctions* are somewhat different from the multi-unit auctions. In a package auction, a bidder would submit a bid for items A and B separately and a bid (lower than the sum of the individual bids for A and B), for the package of A and B. Contingent bids are a generalisation of package bids: for example, a bid for A and a bid for A if the bidder also wins B. The auctioneer chooses the combination of bids that sums to the highest total.
- *Auctions with re-sale* are followed by an opportunity for the winners to resell the objects. This possibility fundamentally changes the bidding practices. With resale, increasing the number of bidders can increase bidder valuation and increases the winning bid.

Annex 1 provides examples and a less compact exposition on these topics. The next sections apply these concepts in the context of pro-competitive auction design and merger review in “bidding markets.”

2. Improving Competition in Auctions

The same competition issues that are important in familiar settings are important in an auction setting. These include keeping barriers to participation low, encouraging the “right” bidders to participate, and suppressing collusion and other impediments to efficient transactions. Auction design affects all of these issues. This part focuses first on collusion and then on participation.

2.1 Collusion and Concerted Practices in Auctions

Bid rigging practices have been uncovered in past prosecutions. Details of several successfully prosecuted cartels are provided in Kovacic *et al* 2006. These practices involve both bid suppression and disguising actions to avoid detection.

Auction design can affect the main elements necessary for successful bid rigging or concerted practice. Bid rigging or concerted practices in auctions can be impeded by direct methods—interfering with communication for reaching a consensus or with enforcement of the agreement—or by indirect methods—making prosecution easier and thereby strengthening deterrence. Methods applied in ordinary markets, such as the one-two punch of significant penalties for collusion and leniency programmes for informants, remain vital, but the focus here is on auction-specific methods.

In sealed-bid auctions, bidding rings must meet before the auction to determine who places the highest value on the object, what he should bid, and then what the others should bid. These “complementary” or “cover” or “courtesy” bids may be “competitive” on price but contain clauses unacceptable to the auctioneer. According to the United States Department of Justice, “Complementary bidding schemes are the most frequently occurring forms of bid rigging and they defraud purchasers by creating the appearance of competition to conceal secretly inflated prices.” (Antitrust Division US DOJ 2005)

In ascending auctions, the corresponding practice is to meet in advance, designate who will win, and instruct the others either to refrain from bidding or, in order to disguise the bid rigging, submit low bids and then drop out.

Bid suppression schemes may be complemented with a system for payments to compensate members. Alternatively, the complementary system could involve knock-out auctions, that is, private auctions in which the cartel member with the highest value “wins” the object (becomes the cartel’s designated winner) and compensates the other members. If side payments, knockout auctions or pre-auction meetings are infeasible, a bidding ring could operate a bid rotation scheme, where each member is the designated winner at certain auctions.

Ascending auctions, in contrast to sealed-bid auctions, also allow ring members to communicate and reach an understanding during the course of the auction. The clarity of bidding rules makes communication easier than in ordinary markets. If ring members are unwilling to run the risk of communicating directly, interrupting bidder signalling makes some bid-rigging more difficult to achieve.

The use of auction theory and auction data to detect collusion is a topic of possible future interest to practitioners. The theory is not yet sufficiently developed to provide a reliable basis for use. (ABA 2005 and Bajari and Summers 2002)

Box 1. Detecting Bid Rigging: Advice to Auctioneers

Indicators of bid rigging are contained in a pamphlet from the Antitrust Division aimed at auctioneers. Among the indicators of bid rigging are:

Bids

- The same company always wins a particular procurement. This may be more suspicious if one or more companies continually submit unsuccessful bids.
- The same suppliers submit bids and each company seems to take a turn being the successful bidder.
- Some bids are much higher than published price lists, previous bids by the same firms, or engineering cost estimates.
- Fewer than the normal number of competitors submit bids.
- A company appears to be bidding substantially higher on some bids than on other bids, with no apparent cost differences to account for the disparity.
- Bid prices drop whenever a new or infrequent bidder submits a bid.
- A successful bidder subcontracts work to competitors that submitted unsuccessful bids on the same project.
- A company withdraws its successful bid and subsequently is subcontracted work by the new winning contractor.

Prices

Identical prices may indicate a price-fixing conspiracy, especially when:

- Prices stay identical [over different auctions for similar products] for long periods of time.
- Prices previously were different.
- Price increases [over different auctions for similar products] do not appear to be supported by increased costs.
- Discounts are eliminated, especially in a market where discounts historically were given.
- Vendors are charging higher prices to local customers than to distant customers. This may indicate local prices are fixed.

...

Suspicious Behaviour

- The proposals or bid forms submitted by different vendors contain irregularities (such as identical calculations or spelling errors) or similar handwriting, typeface, or stationery. This may indicate that the designated low bidder may have prepared some or all of the losing vendor's bid.
- Bid or price documents contain white-outs or other physical alterations indicating last-minute price changes.
- A company requests a bid package for itself and a competitor or submits both its and another's bids.
- A company submits a bid when it is incapable of successfully performing the contract (likely a complementary bid).
- A company brings multiple bids to a bid opening and submits its bid only after determining (or trying to determine) who else is bidding.

2.1.1 Signalling

Bidding rules tightly constrain rivals' conduct as compared with ordinary markets. In ordinary markets, firms can vary quantities, prices, varieties and the like. In auctions, by contrast, the only communications are prices (if the object is defined) or price-quantity pairs (e.g., in some multi-unit auctions). With less "noise," auctions can allow clear communication via bids. This is a key distinction between bidding and ordinary markets.

Signalling allows bidders to announce what they wish to win, to threaten retaliation if thwarted, and thereby to reach an understanding of who will win what. Signalling can be done in media such as newspapers in both auction and ordinary markets,² but in auctions bidders can also use the bidding process to signal.

An example of signalling during the bidding process is the DEF telecommunications license auctions in the United States in 1994. These were simultaneous ascending auctions, so communication was analogous to negotiation among the bidders. The signalling was done by encoding into the last digits of a bid amount the name of other licenses in which either the bidder or the standing high bidder was interested in winning. The signals could be used to indicate which licenses others should quit competing for, or on which licenses retaliation would occur, or, if the bid was made and then withdrawn, proposing an amicable split.³

² One example goes as follows:

--"I'll be satisfied with just two of the 12 blocks of frequency on offer."

--"If the [five other bidders] behaved similarly it should be possible to get the frequencies on sensible terms," but "[I] would bid for a third frequency block if one of [my] rivals did". (Klemperer, p. 136 citing Crossland 2000) In the instance, six firms won two licenses each at low cost.

³ Example of Coded Bidding from Cramton and Schwartz 2002, Table 1, p. 4.

This signalling had an effect. Six of the 153 bidders in the auction regularly signalled. These six won about 40% of the available spectrum in terms of population covered. For the licenses where any bidder could bid, the signalling bidders paid \$2.50/person compared to the \$4.34/person paid by the nonsignalling bidders. Even for the licenses set aside for small bidders, signalling bidders paid significantly less than the nonsignalling bidders. (Cramton and Schwartz 2002) The Antitrust Division brought suit against the colluders.

The auctioneer, the Federal Communications Commission, subsequently changed the auction design to block the signalling. In particular, it specified the bid increment(s) and limited withdrawals to two rounds per bidder.

2.1.2 Bidder Identities

Bid rigging or concerted practices may be interrupted if the auctioneer does not reveal the bidders' identities. If bidders know other bidders' identities, then they can retaliate against cheaters and cooperate better across auctions. Further, bidders can intimidate others. One study found that small bidders avoided bidding against large bidders in the DEF auctions mentioned above, and posited that they did so to avoid

Round	Marshalltown, IA 283 E		Rochester, MN 378 D		Waterloo, IA 452 E		
	McLeod	USWest	McLeod	USWest	AT&T	McLeod	USWest
24	56,000					287,000	
...					
46				568,000			
52			689,000				
55				723,000			
58			795,000				
59				875,000			313,378
60						345,000	
62			963,000				
64		62,378		1,059,000			
65	69,000						
68						371,000	

"Table 1 shows all of the bids that were made on Marshalltown, block E and Waterloo, block E after round 24, and all of the bids on Rochester, block D after round 46. USWest and McLeod were contesting Rochester, trading bids in rounds 52, 55, 58, and 59. Rather than continue to contest Rochester, raising the price for the eventual winner, USWest bumped McLeod from Waterloo in round 59 with a code bid, \$313,378. The "378" signified market 378—Rochester. USWest's bid revealed that McLeod was being punished on Waterloo for bidding on Rochester. In round 60, McLeod retook Waterloo, bidding \$345,000, \$58,000 more than its round 24 bid. But McLeod did not yet concede Rochester—it placed another bid on Rochester in round 62. USWest then used the same technique in round 64, punishing in Marshalltown instead. USWest's bid in round 64 on Rochester won the license. (We have shown only two of the markets on which USWest punished McLeod; USWest had actually punished McLeod on several markets contemporaneously.)" (Cramton and Schwartz 2002, pp. 5-6)

retaliation. If small bidders avoid large bidders, then it makes any agreement among large bidders easier to reach and more effective. (Cramton and Schwartz 2000)

But the auctioneer might also want to reveal bidders' identities in some circumstances. For example, revealing identities might help each bidder to extract useful value information from others' bids. In the DEF auctions, the auctioneer explicitly chose not to suppress bidder identities so that other bidders would be able to evaluate the meaning of other's bids, reduce the winner's curse, and "generally assist[...] sensible bidding." (McAfee and McMillan 1996, p. 170) Also, it was thought that the auction would raise higher revenues since it was thought that bidders' valuation of a license would depend on the identities of the other likely winners in the same geographic area. (Cramton and Schwartz 2000)

2.1.3 Other Auctioneer Actions

Auctioneers may increase reserve prices to reduce collusion. A high reserve price reduces the gains from collusion by increasing the lowest collusive price. In addition, higher reserve prices can reduce the number of rounds in an ascending auction, thereby reducing the opportunity for signalling. Reserve prices may also reduce incentives for demand reduction in sealed-bid uniform price auctions.⁴ On the other hand, higher reserve prices increase the risk that an insufficient number of bidders participate. Also, reserve prices need to be credible to be effective. A reserve price at the opportunity cost (such as the cost of self-provision or extending an existing contract or adapting a substitute) would be credible.

Auctioneers may change the size and timing of auctions to encourage bidding ring break-up through cheating. More predictable auctions schedules and unchanging quantities sold or bought can facilitate bid rotation schemes by helping the bidder riggers find a focal point, a "natural" way to share winning. Lower value and more frequent auctions reduce the incentives to cheat on a cartel.

Information provided by the auctioneer may help bidding rings to monitor compliance. Reducing the information provided, such as the identity and value of losing bids, can increase the difficulty of monitoring. On the other hand, in the case of public procurement, competitors and the public may use information released by the auctioneer to monitor the auctioneer's conduct. Adequately resolving this

⁴

The example is from Cramton and Schwartz 2000. Assume Bidder A has capacity for two units and Bidder B has capacity for one unit. Assume A values winning one unit at \$160 and two units at \$300, and B values winning at \$75. Assume the reserve price is \$0. Assume complete information, but the authors say that the result extends to incomplete information. The only weakly dominated strategy for B is to bid \$75. A knows this. A sees that if she makes one high bid (over \$75) and one bid for \$0, then the clearing price will be \$0 and she will get a payoff of $160-0=\$160$. A sees that if she wishes to win two units then she must bid at least \$75 for both, and she will get a payoff of $300-2*\$75=\150 . Therefore, A prefers to win only one unit. This is demand reduction. If a reserve price of \$20 were imposed, B's strategy remains unchanged. But A's calculation changes. Her payoff if she wins two units remains the same, since B will always bid \$75. But her payoff if she wins one unit falls because now she must pay the reserve price, making her payoff $160-20=\$140$.

		Reserve Price = 0		Reserve Price = 20	
A's Bids	B's Bids	Clearing Price	A's Payoff	Clearing Price	A's Payoff
High, 0	75	0	$160-0=160$	20	$160-20=140$
High, High	75	75	$300-2*75=150$	75	$300-2*75=150$

dilemma may involve the creation of a separate monitoring body to monitor the auctioneer's conduct while limiting the publicly available bidding information.

“[T]he system of sealed bids, publicly opened with full identification of each bidder's price and specifications, is the ideal instrument for the detection of price cutting...collusion will always be more effective against buyers who report correctly and fully the prices tendered them.” (Stigler 1964, p. 48 quoted in McAfee and McMillan 1987, p. 724)

Also, retaining—but not publicising—the bid information for use in a possible future prosecution, and making that fact known to bidders beforehand, may help to deter bidding rings.

Separately, as mentioned elsewhere, the auctioneer can provide information about the value of the object to be auctioned. This can reduce bidders' incentives to collude by reducing their informational rents (let the auctioneer get a better price) in common values contexts.⁵

Box 2. Design Trade-Offs between Collusion and the Winner's Curse Effect

The allocation by auction of the right to enter a given volume of gas into the National Transmission System (NTS) in Britain illustrates the tradeoffs made in actual auction design. The auction system replaced earlier methods of negotiation and grandfathering access under regulated tariffs. Natural gas from under the North Sea is landed in Britain at six major and a number of smaller terminals and sites. Landed gas can either be sold to traders or enter the transmission system. The value of the entry rights is the expected difference between the spot price on the beach and the price at which the gas is traded at the National Balancing Point. Entry capacity for each terminal for each month is auctioned twice each year. There are also daily auctions of firm and interruptible capacity. Since 2003 there are long term capacity auctions as well.

The auction design is simultaneous sealed-bid, multiple-round. It is simultaneous in that all the terminals for all six months are auctioned at the same time. It is multiple-round in that the capacity⁶ of each terminal is divided into quarters and each quarter is sold on successive business days. (There is also a fifth round for any unsold capacity.) The reserve price for each terminal is based on an estimate of long run marginal cost; it is equal to long run marginal cost where there is only one bidder and discounted where there are more bidders. Bids specify the bidder's identity, terminal, month, minimum volume and price. Each bidder can submit up to 20 bids per terminal per month per bidding round. The idea is that the bidders bid a demand schedule with several steps. The auctioneer ranks bids, ignoring the terminal specified, from high to low. Bids with the same bid price are ranked by bid volume. Then capacity is allocated following the descending bid prices. Between each round, bidders are informed about their winning volumes, the highest/lowest bid price of capacity that was allocated and the weighted average price of accepted bids.

...

⁵ Having *better* information about the value of an object than other bidders does not provide an incentive to collude. Rather, rents from information are due to its privacy, not its quality. (Rival bidders with the same information will earn nothing, but another bidder with poorer but private information will earn a rent.) Hence, information provides an additional incentive to collude with those rivals with the same information since the alternative to collusion—competition—eliminates the informational rent. The auctioneer's released information could reduce that information rent.

⁶ “Capacity” is not necessarily the physical capacity of the terminals but reflects also expected network constraints.

The auction was designed to trade-off possible collusion with the winner's curse effect. Low bids due to the winner's curse effect could be expected because bidders' valuations have common sources of uncertainty—future gas prices. Sharing information between rounds is designed to improve bidders' information about others' valuations in subsequent rounds so as to reduce the size of the winner's curse effect. On the other hand, the multiple rounds allows possible colluders to immediately punish cheaters on a cartel (the provision of information between rounds can help in detection of cheating) and the repeated auctions with about the same participants makes possible rather sophisticated collusion. In the event, only at the one capacity constrained terminal do winning bids exceed the reserve price by more than 25 %, and often they exceed the reserve price by less than 15 %. (McDaniel and Neuhoff 2002).

2.1.4 *Joint Bidding*

Joint bidding may not, strictly, belong in a section on collusion, as joint bidding is usually open and collusion usually hidden. However, it does provide the pro-competitive arguments for cooperation among competitors. In general, joint bidding has negative effects on competition in a private values context but can, in theory, have positive effects in a common value context.

Joint bidding may have a number of effects. First, joint bidding reduces the number of bids and therefore reduces competition. For years this was the main argument against joint bidding. But early empirical studies claimed that joint bidding did not, in fact, reduce the number of bids. Indeed, joint bidding was seen as a way to diversify risk, weaken liquidity or capital constraints, and allow the sharing of private information.¹ If bidders share private information about an object of unknown but common value (i.e., a pure common values context), then their estimates are more accurate, the winner's curse effect is diminished and they will bid more aggressively. The influential paper by DeBrock and Smith in 1983 focused on auctions for petroleum leases, for which pure common values and information pooling were reasonable assumptions.² But they also noted that joint bidding could be carried so far that the reduction of competition effect would dominate. In other words, this work found that, in a pure common values context, joint bidding—up to point—can have positive effects on the auctioneer's revenues.³

¹ Perhaps perspective is improved by learning that much of the early work was related to auctions for petroleum leases in the Gulf of Mexico when there had been little drilling and seismic surveys were relatively primitive. In this environment of great uncertainty with common values, oil companies would form bidding consortia to take on these large, risky projects. (On the history of the technology of seismic surveys, see Society of Petroleum Engineers http://www.spe.org/spe/jsp/basic/0,,1104_1714_1004089,00.html) Much more recently and with respect to much smaller projects, Felsö, Baarsma and Mulder (2006) surveyed winning joint bidders and procurement authorities in a sample of Dutch construction procurements. They found that about three-quarters of the reasons for “combinations” (two or more companies agreeing to carry out a project together and therefore bid jointly) related to firms being unable to fulfil the contract separately, including not having special expertise or not having sufficiently large capacity. While bidders and procurement authorities disagreed on the relative weightings among the specific reasons, the three-quarters figure holds for both types of respondents.

² They did not consider the asymmetries that followed from a company having more information about a tract than its rivals because it had more information about adjacent tracts, nor different values due to potentially lower costs made possible by production in adjacent tracts. In addition, they explicitly assumed that the information about the value of a tract was gathered by the companies before they decided whether to bid jointly, so one could reasonably assume “information pooling” rather than simply elimination of a competitor.

³ Recall that, in a pure common values context, overall efficiency does not depend on who wins—pure common values means that the object is worth the same to all the bidders—but public policy in these auctions is often directed toward extracting the maximum revenue in light of the inefficiencies of raising tax revenue.

Only in specific models is there an analytic answer to whether the winner's curse or the reduction in competition effect is larger.⁴ These results rely critically on specific assumptions, and small changes in the assumptions can make it impossible to identify the equilibrium analytically. Klemperer cites several simple examples that suggest that net effect of joint bidding is always anticompetitive. (Klemperer 2005, pp. 19-21)

Various empirical estimates of the size of the winner's curse effect in specific situations have been published. In one study of highway and bridge procurement auctions quoted by NERA the winning bid was 15% higher (i.e., worse for the auctioneer) when the number of bidders increased from three to six. (NERA 2005 citing Hong and Shum 2002)⁵

Other recent theoretical work focused on joint bidding in a uniform price auction with multi-unit demand (Levin 2004). Pure common values were assumed. With multi-unit rather than single-unit demand, a new strategy is available, that of reducing the quantity demanded. In other words, the jointly bidding group can gain by lowering their bids on second and subsequent units. While this increases their probability of not winning those units, this strategy has the benefit of lowering the price they pay for the first unit. (The rules of the uniform price auction mean that all units are sold at the same price, itself determined by the marginal unit.) In addition, Levin shows that, under certain conditions, the information effect is absent in the multi-unit case. In other words, "the pro-competitive benefit from joint bidding in single-unit auctions does not generalise to a multi-unit environment. With [demand reduction], the scope for improved competition [from joint bidding] is further eroded." (Levin 2004) In other words, joint bidding reduces the aggressiveness of bidding in these cases.

Thus, there are three effects from joint bidding: an information effect (from information pooling) promoting more aggressive bidding, a reduced competition effect (from fewer bidders) promoting less aggressive bidding, and, in multi-unit auctions, the demand-reduction effect, also promoting less aggressive bidding. While the reduced-competition and demand-reduction effects are present in a private-values context, the information pooling effect is absent, so joint bidding always leads to less aggressive bidding. But in a common values context, whether joint bidding is less aggressive than individual bidding is largely an empirical matter.⁶

⁴ One of these specific models was examined by Mares and Shor (2003), who examined mergers in an average values auction model. (In an average value model, the object's true value is equal to the mean of all of the signals. It is, therefore, a type of a pure common values auction, itself a type of a common values auction.) In this model, a merger implies that the post-merger firm has both of the signals that were received by the pre-merger firms. A merger thus has two effects, eliminating competition between the merged firms and consolidating information so that the post-merger firm has better information about the true value of the object. The information effect reduces the size of the winner's curse. Mares and Shore tried to answer the question, Is the reduction of competition effect on bids larger than the reduction of winner's curse effect on bids? They used both a first-price sealed-bid auction and second-price sealed-bid auction formats. They found that, for the second-price sealed-bid auction, the competition reduction effect on bids was indeed larger: Bidders bid more aggressively when there were more other bidders. For the first-price sealed-bid auction, only if the number of bidders were large did this result hold. In equilibrium, mergers reduced the expected revenues from the auctions. (By the revenue equivalence theorem, which holds under the assumptions of the model, this is true for both types of auctions examined.)

⁵ The procurements studied by Hong and Shun included two other types of work for which there were significant private value elements. For these procurements, the authors found that more bidders meant a better deal for the State of New Jersey.

⁶ It may be worth noting that it would be problematic to assume that the information pooling effect of joint bidding carries over into mergers. In particular, a post-merger firm may not have the same information as the two pre-merger firms would have had, had they remained separate. I.e., the information pooling effect

Finally, it is worth noting that joint bidding arranged close to the auction date does not allow potential participants time to respond and compete against the cooperating bidders in multi-unit auctions with single unit demand (like telecommunications license auctions). This problem arises when the joint bidders are relatively advantaged so the potential participants chose not to incur bid preparation costs, but would have done so if they had known the advantaged bidders would bid jointly. As well, the auction design may be predicated on a certain number of likely bidders. This problem can be addressed by prohibiting joint bidding arrangements announced just before the auction.

2.1.5 *Ascending versus Sealed-Bid*

Ascending auctions are seen as being more susceptible to collusion than (first-price) sealed-bid auctions because cartel members can more easily cheat in sealed-bid auctions.⁷ The intuition is as follows.

- In an *ascending bid auction*, assume that the bidding ring members agree not to bid against other members. With private values, the collusive gain comes from the reduction in the second-highest valuation—which is the price paid by the winner (see the earlier discussion on standard auctions)—due to the other ring members' withdrawal from bidding. (If an outsider has the second highest valuation, then there is no gain from the cartel.) Ring members will not cheat on this agreement: Since none will bid above his own valuation, the bidder with the highest valuation wins with or without the agreement, the only question is the price. Any potential cheater is simply overbid and knowing that this will happen,⁸ does not cheat.
- In a *first price sealed-bid auction*, assume that the bidding ring members agree to make specific bids. The collusive gain comes from the ring member with the highest valuation submitting a lower bid than he would have absent the agreement. There is thus a temptation for another ring member to submit a higher bid—but not higher than he would have submitted absent the agreement—and win the auction, a feat he would not have accomplished in a competitive auction. He might even win while keeping his identity secret and continue as a bidding ring member in good standing.

Sealed-bid auctions are nevertheless not immune to coordination. Repeated interaction can allow the development of signalling, particularly if the auctioneer provides information about past behaviour.

Recent empirical work suggests that the effect on collusion of using an ascending rather than a sealed-bid format can be large. Indeed, for the auctions studied, the effect of switching between the formats on collusion dwarfs the effect on bidder participation⁹ even when bidders are asymmetric. (Athey, Levin and Seira 2004)¹⁰

may be a one-time or short-term effect, whereas the competition reducing and demand reduction effects are longer term.

⁷ But note that the practice of publicly announcing the result of sealed-bid auctions helps bid-riggers police their cartel by revealing otherwise secret cheating.

⁸ Overbidding the cheater is a cheap way for bid riggers to prevent cheating on a cartel in an ascending auction.

⁹ See the part below on how participation is affected by the choice between sealed-bid and ascending auctions.

¹⁰ The authors studied timber auctions. To provide a sense of scale, they found that, if they ignored bidder participation effects, sealed-bid auctions would generate \$651 (northwestern United States) or \$1018 (California) more revenue than ascending auctions would generate. Higher bidder participation (about 3-6

Also, prosecution of collusion may be easier in a sealed-bid than an ascending auction. A sealed-bid auction leaves a paper trail that identifies all of the bidders and their bids. By contrast, an ascending auction may not formally record all of the bids and, since participants may not have an opportunity to submit their bids before the price becomes too high, there may be no record of who participated. If a cartel depends on non-participation, it would be difficult for prosecutors to identify those who did not participate in an ascending auction. In support of possible later prosecution, “all” aspects of an auction should be retained for a long period of time and, to enhance deterrence, this practice should be publicly announced. (Kovacic *et al* 2006)

2.1.6 Other Design Considerations

Uniform-price multi-unit sealed-bid auctions make possible another bidding strategy which, if all bidders use it, supports a non-competitive price. Consider markets where bidders bid a demand function (that is, they bid a series of quantities and the prices they would pay for those quantities) and the price paid by all bidders is determined by the lowest winning bid. These demand functions can be shaped so as to automatically punish any deviation from a collusive agreement.¹¹ (Klemperer 2004, p. 105)

2.2 Participation

Promoting participation is the second major tool for promoting competition in auctions. As in ordinary markets, auction participants vary in their competitive effects but, surprisingly, weaker bidders can have a significant positive effect on auction outcomes. Participation can be promoted by switching from an ascending to a sealed-bid format, by reducing bid preparation costs, and by favouring weaker bidders in a variety of ways.

The effect of participation on efficiency depends *inter alia* on whether this is a pure common values context. In pure common values, efficiency does not depend on who wins. In pure common values, the most efficient outcome is for the winner to pay the true value of the object. A sealed-bid pure common values auction becomes more efficient as the number of bidders increases.¹² (This assumes no effect on collusion or innovation, which may be unrealistic.)

Even beyond the pure common values case, more participation generally leads to more competitive auctions. In private-value auctions and in many common value auctions, an ascending auction with no reserve price and N+1 symmetric bidders is more profitable than “any auction that can realistically be run” with N bidders. “So it is typically worthwhile for a seller to devote more resources to expanding the market

more per 10 sales) increased revenues from sealed-bid auctions by an average of \$5300 (4% in northwestern United States) and \$26,000 (13% in California). If mills “engage[d] in a mild amount of cooperative competition” in ascending auctions then this generates about \$22,000 less revenue than competitive sealed-bid auctions, or over \$27,000 if participation effects are taken into account. (pp. 36-7) This work was based on timber auctions in the Lolo and Idaho Panhandle National Forests (here called “northwestern United States”) and national forests in the Pacific southwest (here called “California”) in 1982-1990.

¹¹ If the functions are shaped so that bidders must pay a very high price for a slightly smaller quantity than their agreed share, then if anyone cheats and tries to buy more than the agreed share, the price is very high and all bidders are punished.

¹² Holt (1980) shows that for symmetric equilibria, as the number of bidders approaches infinity their bids approach the true value of the object.

than to collecting the information and performing the calculations required to figure out the best mechanism.” (Klemperer p 27, citing result from Bulow and Klemperer 1996)¹³

More bidders can be attracted to an auction by reducing bid preparation costs. This can be accomplished by standardising auction procedures, including across time and jurisdictions. For some but not all aspects of auctions, this may involve a certain trade-off with designing auctions specific to their circumstances. Packaging auctions to spread fixed bid preparation costs across more auctions or splitting objects into several smaller parts may attract more bidders. However, where complements need to work together, splitting up objects may mean that only the first auction is competitive; the incumbent is too advantaged for others to be attracted in subsequent auctions.

As noted by Milgrom:

“[I]n real auctions, bidders frequently refuse to participate if the proposed mechanism seems strange or unfair. ...Precedent and familiarity often limit the set of practically feasible designs.” (Milgrom 2004, p. 166)

Often, promoting participation is aimed at encouraging weaker bidders—i.e., those less likely to win the auction—to participate actively. Generally, sealed-bid auctions are better than ascending auctions in promoting participation. The intuition is that in an ascending auction, only the strongest bidders—those with the highest valuations—will remain near the end of the bidding. The weaker bidders know this and reason that, if they are going to drop out of the bidding late, they are better off not bidding at all and saving the bid preparation cost. Surprisingly, this effect holds even when the difference between the “weak” and the “strong” is small. By contrast, with a sealed-bid auction, weaker bidders may win at a price that the stronger bidder could have beaten, but did not. In a sealed-bid auction, the stronger bidder cannot change his bid once he sees the weaker bidders’ bids, as he can do in an open auction.

Box 3. The Participation Effect of Ascending versus Sealed-Bid in 3G Telecommunications Auctions

The Netherlands, with five incumbent mobile-phone operators, sold five 3G licenses by ascending auction. Bidders could win at most one license each. “Recognizing their weak positions, the strongest potential new entrants made deals with incumbents, and Netherlands competition policy was as dysfunctional as its auction design, allowing firms such as Deutsche Telekom, DoCoMo, and Hutchinson, who were all strong established players in other markets than the Netherlands, to partner with the local incumbents.” In the end, only one potential entrant bid and it withdrew after receiving a threatening letter from an incumbent. The five incumbents won the five licenses, paying about € 3bn, far below the per capita amount in the United Kingdom.

By contrast, Denmark’s auction was considered to be a success. Denmark had four incumbent mobile-phone operators and sold four 3G licenses by auction. Having watched the earlier 3G auctions, a sealed bid format was used in order to attract weaker bidders, promote new entrants and scare incumbents into bidding high. The government kept secret the number of actual bidders, as well as all bids other than the fourth highest. All winners paid the fourth highest bid, worth about € 95 per capita, almost double most expectations. One new entrant was among the winners. (Klemperer pp. 155-6, 163-4)

¹³

A class of affiliated private values first-price auctions are exceptions to this general rule. (Pinske and Tan 2005) In a theoretical paper, the authors assumed that bidders’ valuations were affiliated through a common unknown factor but are independent conditional on that factor. They also assumed risk neutrality and symmetry. The number of bidders was determined exogenously. They found that the equilibrium bidding function could increase with the number of bidders. But they could not determine whether the winning bid always increased with the number of bidders, nor find conditions when the winning bid decreases as the number of rivals increases. In other words, for these auctions, more bidders may or may not result in higher prices.

It may be possible to “strengthen” weaker bidders. One option is *set-asides*, that is, allowing only small enterprises to bid on certain licenses. This was done in the DEF auctions mentioned previously, where some licences could only be won by relatively small bidders. Another method is *bidding credits*, which basically require small enterprises to actually pay only a specified fraction of their winning bids. The analogy is to price discrimination in an ordinary market, which allows a monopolist to sell also to low-value customers. An example of a set-aside, though perhaps aimed more at restricting market power later, would be to prohibit the incumbent from bidding. Another method to promote participation is to *split objects or lots*. Splitting objects can encourage participation, but, if the set of participants is fixed, it may allow bidders to “accommodate” each other and reduce revenues. (Milgrom, pp. 234-239) Some of these options may run afoul of anti-discrimination or anti-State aid rules.

Lock-in occurs when winning one auction provides advantages in another. For example, the winner of a first auction, now the incumbent, may be advantaged in subsequent auctions for the same license. A successful strategy may be to bid below cost in the first auction and earn rents by bidding high, and winning, in subsequent auctions. Rivals will hesitate to bid in an auction against a better informed incumbent. The auctioneer may be able to change the rules to thwart this strategy by favouring participants as mentioned in the previous paragraph.

An example of lock-in and rules changes to counter the effect is the monopoly franchise to run the UK National Lottery. In the first auction, there were eight bidders. The winner had learned-by-having-done and developed a reputation by the time of the second auction. Only one rival showed up to bid against the incumbent. Fears that no rival would show up in 2006 prompted a review by the Department for Culture, Media and Sport and a change in the structure of the franchise. An auction for a single franchise will begin. If, at a certain stage such as after the initial invitation to tender has closed, the National Lottery Commission concludes that “there is no prospect of effective competition,” then it may ask the Government to exercise the option for auctioning additional licenses. (United Kingdom Department of Culture, Media and Sport 2004)

2.3 Other Considerations

Some aspects of auctions do not have an analogue in ordinary markets. First, as noted earlier, the auctioneer may be able to change the rules. However, auction rules are often subject to negotiation or lobbying, sometimes in an anti-competitive direction. For example, an incumbent would lobby in the direction of ascending auctions in order to strengthen his advantages.

Second, auctioneers can intensify competition by changing the information available to bidders. If the auctioneer reveals all of his private information about the value of an object, then it is advantageous in two ways in a common values context. First, it reduces bidders’ rents from their own private information. Second, the additional information makes more precise bidders’ estimates of the value of the object, so they are willing to bid more aggressively.¹⁴

¹⁴

A study of highway construction procurement auctions provides empirical support for this result from auction theory. These auctions took place in Oklahoma and adjacent parts of Texas in 1998-2003. Oklahoma changed its information disclosure policy in April 2000, allowing potential bidders to see the state engineer’s cost estimate for the projects. Texas had no change in policy and serves as a control. For bridge-related projects, where uncertainty about common costs was seen as greater, average bids and winning bids declined by nearly 10% after the change in information policy. For asphalt work, where uncertainty about common costs is smaller, there was no significant change in average or winning bids. A number of states have recently or are considering a policy change toward releasing state engineer’s cost estimates. [DeSilva et al 2005]

Third, differences between almost equal rivals are magnified in an auction format, very unlike in an ordinary market where one might have a somewhat higher market share. One example was described above—an incumbent having informational or cost advantages—but another example involves complements. If one bidder has a slightly higher valuation than other bidders in an auction due to ownership of a complement, this is almost common values. Weaker bidders are discouraged from entering an ascending auction even when their disadvantage is small. If a merger would likely result in a stronger bidder in a subsequent auction, then this likely reduction in competition would yield a negative decision on the merger. This was reportedly part of the reasoning in the BSKyB Manchester United merger decision. (Klemperer 2004, p. 23)

2.4 Conclusions

Auctions are often preferred to posted prices and negotiation because the value of the object is unknown, there is a desire for fairness (to provide an equal opportunity to buy or sell) and to limit price discrimination, and for economic efficiency.

Criteria upon which to judge among auction types include: market power, the cost to run the auction, the cost to bidders of taking part, risks of various types borne by bidders (not winning, not winning enough or the right combination of objects, paying more than necessary), and the time it takes to hold the auction.

Different auction designs can reduce collusion or concerted practices. Different designs may discourage or promote participation. In addition, auctioneers can change the information available to bidders as well as ensure that auction data is available for any possible later use in prosecution.

Important choices in auction design include:

- *How frequently should repeated auctions be held?* More frequent auctions may cost more and allow more collusion, but can better accommodate variations in demand or value. Pre-announcement of a series of auctions can facilitate collusion.
- *How should multiple related items be sold (bought)?* Items can be identical, substitutes to various degrees, or complements to various degrees. Sequential auctions can result in identical items being sold at different prices, which appears to be unfair, and can mean that bidders do not get their desired combination of items, particularly complements, which is inefficient. Simultaneous auctions can result in bidders winning too many or too few substitutes, or not getting the combinations they wish. These problems can be mitigated by multiple bidding rounds. A secondary market after the auction cannot be expected to improve misallocations where there is private information about the objects.
- *Who may bid?* Bidders who cannot perform may win and then default, defeating the purpose of the auction. But excluding too many bidders may inadvertently exclude the bidder with the highest valuation, or allow the exercise of market power by the non-excluded bidders.
- *Do some bidders get special treatment?* Providing incentives to weaker bidders can improve the aggressiveness of stronger bidders. However, this raises issues of fairness and may run afoul of state aid rules.
- *Should auctions be ascending or sealed, i.e., should bidders have multiple opportunities to submit bids?* Collusion is more difficult to sustain in a sealed-bid auction than in an ascending auction because cheating is easier. Participation is likely higher in a sealed-bid auction than an ascending auction because weaker bidders are attracted since they have a chance of winning

against stronger bidders, whereas in an ascending auction they do not. In a sealed-bid (single round) auction, bidders save bid preparation costs since they focus their efforts on identifying their valuation of the object rather than also on deciphering rivals' bidding strategies. On the other hand, the bidder with the highest valuation may not win a sealed-bid auction, though this can be mitigated by an appropriate reserve price. An ascending auction may take more time than a sealed-bid auction, but a descending auction may be the quickest format.

- *How should the price move during the auction? An ascending auction to buy an object allows bidders to learn about rivals' valuations, so it is useful when bidders have poor information about others' valuations or are risk averse. But the seller may get more revenue with a descending (Dutch) auction. Large amounts of goods can be sold quickly with Dutch auctions, a feature important with perishable goods.*
- *What information is revealed to bidders? In a common values context, an ascending auction allows bidders to know who else is bidding and their bids, which helps them learn about their rivals' valuations and reduces the winner's curse effect. However, this facilitates collusion because cheating on a collusive agreement is more difficult. The auctioneer can induce more aggressive bidding by revealing all of his information about the value of the object. Iterative sealed-bid rounds between which the auctioneer announces some information about bids can help reduce the winner's curse problem (see the discussion of British North Sea gas capacity auctions). In repeated auctions, providing information about bids can help monitor the auctioneer but also help bidding rings monitor members' conduct.*
- *What price is paid by the winning bidder? A simple conclusion is not feasible on this point, given the number of considerations which come into play. In a single-unit second-price private values auction, bidders bid their true value and the bidder with the highest valuation wins, which is efficient. However, charging that bidder only the second-highest bid after learning her true value can create political problems. Bidders would also be reluctant to bid their true values in repeated auctions. However, if bidders pay their bid (first price) in either a single or multi-unit private values sealed-bid auction, the bidder with the highest valuation may shade her bid too much and not win, which is inefficient. In a multi-unit pay-as-bid market, different prices may be seen as unfair. In a uniform price multi-unit auction, bidders reduce their bids for the above reasons as well as to pay lower prices on infra-marginal units. In sum, a number of considerations mean that a simple recommendation is not feasible.*

These observations give rise to a number of recommendations:

- *Where collusion is a significant threat, use sealed-bid rather than ascending bid auctions.*
- *Impose a high but credible reserve price.*
- *Carefully consider the information provided to bidders and the public.*
- *Consider bundling smaller auctions and refraining from announcing a future schedule of auctions.*

Promoting participation is another major tool for promoting competition in auctions. Like in ordinary markets, reducing participation costs by lowering bid preparation costs can help. Sealed-bid auctions are more likely to attract weaker bidders than are ascending auctions. Other methods can be used to attract weaker bidders. These include set-asides, bidding credits and splitting objects. However, splitting

objects may promote more collusive outcomes in an environment where the number of participants is fixed.

The application of economic theory is often subject to policy constraints. But it can be useful to at least hear what a current auction theorist says about auction design:

“The auctions literature has provided us with two fundamental prescriptions guiding effective auction design. First, an auction should be structured so that the price paid by a player—conditional on winning—is as independent as possible of her own bids (William Vickrey, 1961). Ideally, the winner’s price should depend solely on opposing participants’ bids—as in the sealed-bid, second-price auction—so that each participant has full incentive to reveal truthfully her value for the good. Second, an auction should be structured in an open fashion that maximises the information made available to each participant at the time she places her bids (Paul R. Milgrom and Robert J. Weber, 1982a). When bidders’ signals are affiliated and there is a common-value component to valuation, an open ascending-bid format may induce participants to bid more aggressively (on average) than in a sealed-bid format, since participants can infer greater information about their opponents’ signals at the time they place their final bids.” (Ausubel 2004)

3. Aspects of Mergers in Bidding Markets

Competition authorities often evaluate mergers in markets governed by auctions. The fundamental issues are the same as in ordinary markets, but “[a]uction markets also provide an opportunity for implausible defenses.” (Waehrer and Perry 2003) After examining such arguments as “two is enough” this part addresses the competitive effects of mergers in common values contexts and private values contexts, taking advantage of the detailed public records from the reviews of the Oracle/PeopleSoft merger, and finally deals with shares.

3.1 *Ideal Bidding Markets*

It is sometimes asserted that competition authorities should evaluate mergers differently when the markets supplied by the merging parties are “bidding markets.” It is variously asserted that “two is enough for competition,” “market shares don’t matter,” and “buyers can redesign the auction to protect themselves from the exercise of market power.” These assertions are addressed in this part of the paper, largely following Klemperer (2005).

These assertions rely on extreme conditions that are not often met in the real world. The assertions invite analogies to more familiar models of Bertrand competition—where one rival is enough to prevent the exercise of market power—and of perfectly contestable markets—where competitive constraints imposed by potential entrants are sufficient to prevent any exercise of market power. While the conditions for Bertrand competition or perfect contestability are rarely met, the models nevertheless are useful to force an examination of the relevant facts. The same can be said about ideal bidding markets.

In a recent paper directly addressing these assertions, Klemperer 2005 offers four criteria for an “ideal” bidding market:

competition is winner-take-all;

competition is lumpy, in the sense that each contest is large relative to a supplier’s total sales over a period;

previous wins do not affect the likelihood of winning the immediate contest, in particular, there is no “lock-in” by which the incumbent is advantaged; and

entry is easy.

Conditions 1 to 3, plus an assumption of identical firms, yield the Bertrand model of competition in which firms compete on the basis of price to sell to a single buyer. With constant marginal cost and no capacity constraint, the equilibrium is perfectly competitive with just two suppliers. So, “two is enough” when these conditions are met.

The ideal bidding market is reminiscent of the perfectly contestable market. The model of perfectly contestable markets relies for its remarkable predictions on the feasibility of large scale “hit and run” entry. In particular, as Schwartz and Reynolds (1983) noted, an entrant must be able to enter at large scale, incur the same costs as incumbents, and both enter and exit before incumbents can respond with a price cut. The similarity of the two models makes the similarity of the models’ predictions unsurprising.¹⁵ The relationship among Bertrand, perfectly contestable, and ideal bidding markets, coupled with the result of competition authorities’ long experience in evaluating the suitability of the Bertrand or perfectly contestable market models to particular markets, suggests that the conditions in which two rivals would be enough to yield an efficient outcome would be rare but not impossible.

The more interesting question is whether mergers in non-ideal bidding markets, meeting only some of these criteria, should be treated differently from “ordinary” markets. The second major part of this paper has shown that the ordinary competition concerns from ordinary markets apply also to markets that use auctions. Should the presence of some of these factors nonetheless lead to a different analysis or conclusion about the possibility of coordinated or a unilateral effect of a merger? Note that the use of an auction mechanism can itself be an indicator of characteristics of a market that increase concerns about competition. For example, auctions may be used where there are transaction-level economies of scale because contracts are large and specialised. If the scale economies are caused by substantial sunk costs, then there is a lock-in effect (winning one auction provides advantages in winning another) and subsequent entry is difficult.

3.2 *The Competitive Effects of Mergers in Common Value Contexts*

The effect on competition of mergers among bidders can be slightly different than that of a merger among rivals in ordinary markets. The usual effects of a merger among bidders would be less aggressive bidding, because there are fewer rivals, and reduction in demand because the marginal units set the price¹⁶.

In addition, and more importantly, the distinction between private values and common values contexts can affect merger analysis. The possible difference has to do with a merger’s effect on bidders’ information and its impact on the winner’s curse effect. The argument is that, in some cases, having fewer competitors—such as result from a merger—yields better prices for the auctioneer. The idea is simple. In a common values context, the merger pools the information of the merging parties. This information pooling can allow the parties to bid more aggressively because they are less exposed to the winner’s curse. If this effect outweighs the other effects of the merger, then the merger improves the prices paid by the bid-taker or auctioneer.

¹⁵ For completeness, the contestable markets model assumes *inter alia* that the buyers do not behave strategically, which is not necessarily true for bidding markets where the auctioneer can make some choices.

¹⁶ In a uniform price multi-unit auction. For both of these effects see the discussion on joint bidding.

There are thus two questions that arise in an auction context. Is the merger taking place in a private values context, in which case there is no winner's curse effect? And if the merger is taking place in a common values context, does the reduction in the winner's curse effect outweigh the other, anticompetitive effects of the merger? Empirically distinguishing private from common values is often impossible, and one must fall back on examining the market and using intuition. This is discussed below. The second question is also an empirical matter to which there is no general answer. Some results about this tradeoff were provided in the discussion of joint bidding above.¹⁷

"In sum, while these issues are still not well understood, the current evidence is that joint bidding is unlikely to be much more benign in common-value auctions than in private-value auctions or in 'ordinary' markets." (Klemperer 2005, p. 22)

3.3 *Common Values or Private Values?*

Since the winner's curse reduction effect does not arise in a private values context, it can be useful to distinguish common values from private values. A large and growing literature addresses this issue.¹⁸

The first tool is intuition: "While it may be possible to differentiate among specific forms of private and common value auctions from the data, intuition may be a better guide in determining whether the private or common value framework is more appropriate. An empirical answer sometimes does not exist." (ABA p. 233)

Auction theory results show that in only certain circumstances can private values and common values be distinguished. The most general result is a negative one: If only bids are available, the number of bidders is fixed and there is no reserve price, then one cannot distinguish common values from private values. (Laffont and Vuong 1996) The reason is that the observed distribution of bids could simply be the distribution of bidders' private values. A more positive result is that if the number of bidders varies exogenously, then common values can be distinguished from private values in sealed-bid auctions.¹⁹ This logic fails in ascending auctions.²⁰ The seemingly simple solution, to look at how bid levels change with the number of bidders to distinguish private from common values, does not work.²¹

¹⁷ In addition to the relevant footnotes, see also Klemperer 2005 pp. 19-22 which summarises the literature.

¹⁸ A technical discussion is in Athey and Haile 2005. Much of this discussion is based on theirs.

¹⁹ The logic is as follows. The winners curse is present only in common values auctions and increases with the number of bidders. Therefore, a bidder in a common value auction shades his bid more when he faces more rivals, but does not do so when he is in a private values auction. Tests detecting this difference in bidding behaviour as the number of rivals increases can distinguish common from private values. Further, for first-price auctions, variation in the level of a binding reserve price can allow common values to be distinguished from private values. [Athey and Haile 2003, p 93]

²⁰ The logic fails for the following reasons. First, in an ascending auction, the winner's valuation is never revealed. Second, bidders are modifying their strategies in the course of the bidding and the exact modifications cannot be observed. Third, there are many equilibria in common values ascending auctions and it is difficult to "choose" among them.

²¹ "One cannot use a reduced-form test on the relationship between bid levels and the number of bids to distinguish between the private- and common-value paradigms in first-price auctions. However, such a reduced-form test works well in second-price and ascending private value auctions since it is then a dominant strategy for a bidder to bid her true valuation." [Pinske and Tan 2005] More recently, Adams et al (2006) argue that even in a second-price auction a reduced-form test will not work due to endogeneity and selection problems.

In summary, whether one can empirically distinguish common values from private values will depend on what auction type was used and what data are available. And often one must fall back onto intuition.

3.4 *The Competitive Effect of Mergers in Private Value Contexts*

When firms merge in a private values context, it may be possible to estimate the effect of the merger directly.

In a merger in a private values context, it is usually assumed that the private value of the merged firm is the maximum of the private values of the merging parties. This implies that the merged firm will win any of the auctions that the merging parties would have won. This assumption has been used to model the “unilateral” effects of mergers between hospitals, mining equipment manufacturers, defence contractors, and others where there were no efficiencies. (Baker 1997) The result of this assumption is that, as a result of the merger, the winning price is different, but the same bidder wins. The auctioneer may be able to partially, but not entirely, protect herself from the price rise by raising the reserve price. (Waehrer and Perry 2003) The estimates of the effect of mergers in private values usually assume no reaction by the bidder and no efficiencies.

It is straightforward to estimate the effect of a merger in a second-price sealed-bid auction with private values because one can use the result that bidders bid their true values. First, one separates the auctions into those in which the merging parties would have bid the highest and second-highest bid, and all other auctions. The merger has no effect on the second group. Second, for the first group of auctions, one measures the difference in the second and third highest bids. (The idea is that the merger, by eliminating the lower of the merging parties’ bids, means that the formerly third-highest bid is now the second-highest bid, setting the price.) By summing this difference across all auctions and dividing by the number of auctions, one can calculate the average effect of the merger. Note that this method requires a significant amount of data, in particular the identities of bidders and their bids, or at least of the three highest bids. An example of this calculation is provided in an Appendix.

Additional assumptions are needed if the data on losing bids are missing. One standard assumption is for second-highest bids to be in proportion to highest bids. For example, if three bidders A, B, and C win 50%, 30% and 20% of the time, then B would be assumed to be the runner-up 60% of the time when A wins but 37.5% of the time when C wins. This assumption is clearly violated when bidders have characteristics that make them significantly closer or more distant competitors, such as different transport costs or technical capabilities.

It is critical to incorporate differences among competitors in modelling the effect of a merger. Thus, in such a situation, each bidder’s value is specified as a function of the characteristics of the bidder and the object being auctioned. For example, if transport costs are significant, then the location of bidders and the object is an important characteristic in the value function. A merger between bidders at different locations would have a smaller effect on competition than a merger of bidders at the same location. (Froeb and Tschantz forthcoming)

It is more difficult to estimate the effect of a merger in first price auctions because bidders do not bid their true values. Instead, a bidder shades his bid to trade off profits if he wins (lower bid) against the probability of winning (higher bid), taking into account that other bidders are making analogous calculations. Additional assumptions must be made. One study reports that “Numerical analysis using [a logit model] finds that, given the merging firms’ pre-merger winning bid share, the price effects of mergers in a sealed-bid auction are almost perfectly predicted by taking 85% of the price effect predicted by the corresponding English [i.e., ascending] auction model.” (Werden and Froeb forthcoming citing Tschantz, Crooke and Froeb 2000)

In a model of descending open procurement auctions with independent private values, Waehrer and Perry allow bidders to be asymmetric in terms of having different costs, which have a natural interpretation as different capacities. They allow the buyer to use a reserve price, and to change the reserve price in response to mergers. The reserve price can significantly protect the buyer from the anticompetitive effects of a merger if the buyer's internal cost is near the suppliers' costs. They obtain a general result that the buyer is made worse off by the merger, despite being able to adjust the reserve price to moderate the effect of the merger. (Waehrer and Perry 2003)

3.5 *Auction Analysis in the Oracle/PeopleSoft Cases*

The Oracle/PeopleSoft case provides an unusually complete public explanation of the precise methodologies used to evaluate the effect of a merger in a bidding market. The two major jurisdictions which reviewed the case reached different conclusions as to whether the method by which the product was sold was better analogised as ascending or sealed-bid auctions. They relied on different datasets, apparently used different econometric techniques, and reached different conclusions. The European Commission and the United States District Court were in agreement on the outcome, though not the underlying model of the market.

In June 2003 Oracle launched a hostile bid for PeopleSoft. In October 2003, it was notified to the European Union. In the United States, the Antitrust Division and several states sued to prevent the acquisition. After a trial in June 2004, the district court judge ruled against the US government in September 2004. The government did not appeal. In Europe, the Commission engaged in a second-phase investigation. A six month suspension allowed the information made available at trial in the United States to be incorporated into the EC's investigation, as well as allowing the American judicial process to come to an end. In October 2004, the EC cleared the merger unconditionally.

Oracle and PeopleSoft competed in the sale of Enterprise Resource Planning (ERP) software also known as Enterprise Application Software (EAS). At issue were Human Relations Management (HRM) software, which deals with pay, benefit and other employee matters, and Financial Management Systems (FMS), which deal with receipts, accounts receivable and the like. Purchasers are large firms. Within these categories, software has different capabilities. The Antitrust Division alleged that high-function HRM and FMS software were separate markets from less-than-high-function HRM and FMS software, and that the geographic market was North America. The European Commission alleged that the relevant market was high-function HRM and FMS software and that the geographic market was worldwide. In its Statement of Objections, the European Commission alleged that the only suppliers in the relevant market were Oracle, PeopleSoft, and SAP AG, but during the course of the investigation the EC found that other suppliers were credible bidders for at least some customers. The Antitrust Division held to the three supplier position. The parties disputed the distinction between high- and medium-functionality and thus the limited list of competitors.

Large companies buy high-function HRM and FMS software. The software is customised, the buyer and seller maintain a relationship, and the licenses prohibit sublicensing. Hence, arbitrage is not possible. The Antitrust Division argued that different customers were charged different prices.

3.5.1 *The Antitrust Division*

The Antitrust Division argued that each procurement of high-function HRM and FMS software constituted an entirely separate competition. The Division argued that the procurement process was like an ascending auction and that the merger would eliminate PeopleSoft as a bidder. The result would be, it argued, that Oracle would be able to win some auctions at higher prices. Different customers would be affected differently by the merger. The expert for the US government, R. Preston McAfee modelled

competition as an ascending auction. His model predicted price increases of 5–11 percent for high-function FMS software and 13–30 percent for high-function HRM software. (Werden forthcoming)

Prof. McAfee performed three separate analyses that allowed him to choose the most appropriate model and to estimate the effect of the merger. First, he examined 25 specific transactions and prepared statistics for the overall set of transactions, finding that Oracle faced competition at least 93 % of the time, and that PeopleSoft was one of the competitors on larger transactions about half the time. Second, he used regressions to estimate the effect of PeopleSoft on the discounts offered by Oracle. He found that Oracle's discounts were larger by, on average, 10 percentage points when competing against PeopleSoft. Since the average discount was about 50 percent, then buyers for whom PeopleSoft was a competitor got on average a discount of 60 percent. Another regression, run on a different dataset, showed that average discounts increased by 7.6 percentage points when PeopleSoft was a competitor and, for transactions over \$0.50 million, the average discount increased by 13.6 percentage points.

Third, he used an economic model, calibrated it for the facts in the case, and estimated the effect on prices of the merger. Prof. McAfee found that the model that fit best the facts of the market was an ascending auction. The relevant facts were that there were multiple rounds of bidding and multiple bidders, and bidders had information, albeit imperfect, on their rivals' pricing strategies. So it was reasonable to conclude that the winner bidder must offer the price of the "best" losing bidder. This is a feature of an English auction. The result of this model was to predict that the merger would increase prices. Predicted price increases were higher in the HRM than in the FMS software because a third party was a much more potent competitor in FMS than in HRM. In particular, the expected price increases for HRM were 13.0%, 16.5%, 20.6%, 25.2% and 30.4% depending on the "competitiveness" parameter. The expected price increases for FMS were 4.6%, 5.7%, 6.8%, 7.9% and 9.0%, again depending on the "competitiveness" parameter.

The court appears to have applied a different model, Bertrand competition with differentiated products, rather than an auction model. Further, the court rejected the merger simulation because it was based on market share statistics which the court had already rejected as a reliable indicator of the suppliers' positions in the ERP market. [*U.S. v. Oracle Corp.*, No. C04-0807 (N.D. Cal. Sept. 9, 2004) Findings of fact, conclusions of law and order thereon.] The court ruled in favour of Oracle.

3.5.2 *The European Commission*

The European Commission concluded that the markets would remain competitive despite the number of major players falling from three to two because there were several smaller yet credible suppliers.

With respect to non-coordinated effects, the EC examined both a market simulation and a number of regressions. The market simulation is described below since it was based on an auction model. However, the model ultimately did not influence the outcome of the case because it was based on a three-to-two merger, a view which was ultimately rejected. (EC paras. 179 and 196)

The regressions were designed to test the extent to which the number and identity of final round bidders affected the discount offered by the respective bidders (PeopleSoft's discount in PeopleSoft's dataset and Oracle's discounts in Oracle's dataset). (EC para. 199) They found that the size of deal affected the discount, but when the size of deal was included as an explanatory variable the number of final bidders did not explain discounts. As well, the presence of a particular bidder did not prompt particularly high discounts, with one minor exception. (EC para. 200-1). The EC warned that the absence of such an effect in the data did not exclude an anticompetitive effect from the merger (EC para. 202) but that the absence of an appreciable effect of the number or identity of bidders makes the bidding data "unsuitable to rely on as proof of an anticompetitive effect of the merger." (EC para. 204)

With respect to coordinated effects, the EC found that the number of potential bidders was too large, the products too differentiated, their market shares too asymmetrical and their structural links too few to sustain coordination. (EC paras. 209-211) With respect to possible coordination among only the major two remaining players, the Commission did not exclude the possibility despite the product heterogeneity and the obscuring effect on market transparency of huge discounts. However, the minor players were seen as credible bidders who could destabilise a duopoly. (EC paras. 212-3)

The market was simulated using a sealed-bid auction model.²² Several market characteristics guided the decision of how to model the market. First, bidders knew the identities of their rivals in given procurements. Second, bidders' marginal costs of fulfilling the contract were seen as close to zero. (Costs were mostly sunk before the competition began.) This implied *inter alia* that any uncertainty about future costs were relatively unimportant. Third, when a bidder submitted his bid he did not know the prices being offered by other bidders nor how much the customer was willing to pay for a better "fit" among the heterogeneous offers. Thus, a further reason to model the market as a sealed-bid format was that the alternative was seen to lead to unrealised predictions. A key factor was "whether bidders can always expect to be given the chance to respond with an improved offer if they are on the verge of being eliminated from the contest, or whether they risk being eliminated even before they have reached their [lowest possible bid]" (Bengtsson 2006, p. 136) Under the finding that marginal costs were zero, it was thought that an English auction would result in prices close to zero. Since these were rarely observed, the auction could not be approximated as an English auction. (*ibid.*, p. 137) As buyers could not credibly commit to transfer information—for example, prices and relative performance of the software—to the bidders, a sealed bid format seemed a better way "to capture the general uncertainty that bidders are facing." (*ibid.*)

The information structure of the model was for the buyer to privately know the value he places on each of the bids, but the bidders to know only that the value of each offer is drawn from a known distribution. (*ibid.*, p. 135)

Calibrating the model using actual market shares, assuming a range of probabilities that customers chose not to buy at all after a bidding competition, and making alternative assumptions about the relative qualities of the three firms' offerings, the model produced predictions about bidding prices, average prices paid, and the expected utility the customers gained by buying the products. Over a range of assumptions, the model predicted substantial price increases and consumer welfare losses. Note again, that this model and its predictions did not affect the outcome of the decision-making process because the model assumed that there were only three suppliers and the investigation concluded that there were in fact many more.

3.5.3 Conclusion on Oracle/PeopleSoft

The three institutions—the European Commission, the Antitrust Division and the US District Court—relied on three different economic models in their analyses—sealed-bid auctions, ascending auctions and apparently Bertrand competition with differentiated products, respectively. The choice among auction models depending on how the competitions were run, i.e., on what information was available to rivals and the number of rounds of bidding. Having each chosen a model based on the information available, the European Commission and Antitrust Division then relied on econometrics to evaluate the likely effect of the merger. (The District Court said that relevant information for a Bertrand competition model had not been presented.) The institutions reached different conclusions, however both the European Commission and the US District Court found that the merger should not be stopped.

²²

The description of the auction model is from Bengtsson 2006.

3.6 *What do market shares mean?*

In merger analysis, market shares are often used as a starting point to assess market power. Further facts can substantially modify the view about market power. But where auctions make a market “lumpy,” with each auction determining the supplier for a large part of the market, shares based on historical sales appear to vary much more than when numerous small buyers make independent decisions. Could these market shares be useful in assessing market power in the future? In auctions, the competition takes place during the bidding process²³ and the sales are just a reflection of the outcome, not necessarily a reflection of the true competitive process.

Distinguishing equilibrium market shares from structural market shares is a start. “In antitrust cases and in the business world, market shares most often are assigned on the basis of revenues, production, and the like, which describe the market equilibrium. Such shares are elements of market performance rather than market structure. Structural market shares, by contrast, are based on the endowments of competitors, for example, on their ownership of assets, such as productive capacity or reserves of an exhaustible resource. [footnote deleted] And structural market shares may differ substantially from equilibrium shares.” (Werden 2002, p. 78)

For example, if company A won a past auction to supply all the water to a particular city, then market shares today and for a number of years of firms A, B, C, ...N would be 100%, 0%, 0%, ...0%. These are the equilibrium market shares. But, if market shares are used to infer competitive significance, however roughly, these should be structural rather than equilibrium market shares.

In this example, perhaps the rivals had a fairly equal probability of winning the auction for the contract. If this were the case, then market shares of $1/N$ would provide a better summary of the competitive situation when the competition was underway.

But more often rivalry is far from symmetric, so it would be wrong to assume that each bidder had an equal chance of winning. Incumbency can confer an advantage in subsequent auctions, for example. If so, then the market shares are likely different from $1/N$. How different could perhaps be estimated by using auction data from a number of similar auctions, perhaps other city water auctions which might allow success rates for entrants bidding against incumbents to be estimated. More generally, where bidders or customers are heterogeneous, information about bids and outcomes in similar auctions could help clarify the competition among companies. But it may be the case that past events do not provide useful indicators, for example when there have been no analogous auctions.

In summary, where an object is sold by auction, the competition occurs during the auction, rather than when sales transactions are effected sometime after the competition is finished. The relevant shares for measuring competitive significance are the structural shares and not the equilibrium shares, as the latter reflect only the outcome of a competition.

4. **Conclusions**

Auctions are simply one way to organise market transactions. The choice of an auction rather than another mechanism can indicate characteristics that might heighten competition concerns, such as scale economies.

²³

Or indeed, the competition might begin with the design of the auction process which can favour one or another participant.

By their imposition of formal rules which reduce “noise” and make communication among rivals easier, auctions promote collusion. Auction designs can reduce collusion or concerted practices or promote participation. For this reason, auction design can be subject to lobbying, such as by incumbents who would prefer a (generally) participation-discouraging ascending (or oral or English) auction to a sealed-bid auction. Auctioneers can also behave strategically, choosing auction formats or practices that favour competition.

Two fundamental prescriptions for effective auction design follow from the theoretical literature: Induce bidders to truthfully reveal their valuations by making what they pay not depend entirely on what they bid, and maximize the information available to each participant before he bids. Among the other recommendations that flow from the literature are:

- Where collusion is a significant threat, use sealed-bid rather than ascending bid (or “open”) auctions. Where the information about the true value of the object being auctioned is dispersed among the bidders and there is significant uncertainty, then consider using an ascending auction.
- Impose a high but credible reserve price.
- Carefully consider the information provided to bidders and the public, including non-disclosure of the identities of losing bidders and retention of auction data for use in any possible later bid rigging prosecution.
- Consider bundling smaller auctions and refraining from announcing a future schedule of auctions
- Consider means of reducing bid preparation costs.
- Where promoting “weaker bidders” is an important consideration, use sealed-bid rather than ascending auctions.
- Consider other means to attract “weaker bidders” to participate in the auction such as set-asides, bidding credits, and splitting objects.

Regarding merger analysis in “bidding markets,” although it is indeed sometimes the case that “two is enough”, that possibility is probably of little empirical importance. In a “private values” context, a merger among bidders in general leads to less aggressive bidding and lower demand (absent efficiencies), as in “ordinary” markets. In a “common values” context, these reductions in competition might be countered by a reduction in the “winner’s curse” effect. Whether this effect is sufficient to outweigh the other effects is an empirical matter. Methods for distinguishing private values from common values situations are a subject of ongoing research.

Auction theory is quite technical. It may therefore be reassuring that a prominent auction theorist and practitioner writes:

“My experience in auction consulting teaches that clever new designs are only very occasionally among the main keys to an auction’s success. Much more often, the keys are to keep the costs of bidding low, encourage the right bidders to participate, ensure the integrity of the process, and take care that the winning bidder is someone who will pay or deliver as promised.” (Milgrom 2004, p. xii)

ANNEX 1.

A PRIMER ON AUCTION THEORY FOR COMPETITION OFFICIALS

The purpose of this part is to provide a basic introduction to auction theory and terminology. It also introduces a few of the variants that bring one closer to the facts in real world auctions, such as multi-unit auctions (used in some electric power sectors, for example) and auctions for resale (used in timber auctions, for example). The variations help to illustrate how seemingly trivial differences in assumptions can lead to important differences in results. This part provides background for the two policy-oriented parts of this paper. A technical appendix accompanies this part.

Types of Auctions

There are four standard auction types.

- In an *ascending or English auction*, the price is raised until only one bidder remains, and he wins at the final price. This type of auction is used for art, for example. This type of auction was by far the most popular type (Milgrom 1989), but with the growth of the internet this is probably no longer true.
- In a *descending auction*, the price is lowered until a bidder cries out, and she wins at the final price. This type of auction is used to sell flowers in the Netherlands, hence is also called a Dutch auction by economists.
- In a *first-price sealed-bid auction*, each bidder submits one bid without knowing the other bids, the highest bidder wins and pays his bid. This is the type of auction that had been most popular for industrial procurements. (Milgrom 1989)
- In a *second-price sealed-bid auction*, each bidder submits one bid without knowing the other bids, the highest bidder wins and pays the amount of the second-highest bid. This type of auction is also called a Vickery auction after William Vickery.

These standard auction types have various strengths and weaknesses which can be important to policymakers concerned with efficiency and competition, notably as concerns collusion and participation.

Variations that can be introduced include reserve prices, restrictions on bid increments and on bid timing. Further complications are introduced when multiple objects are being sold, especially when the objects may be either substitutes or complements, and when bidders compete against each other at several auctions. A relatively common variation combines two formats. In an *Anglo-Dutch auction*, an ascending bid auction is run until only two bidders remain, then they submit sealed bids and the highest bidder wins and pays his bid.

Valuations, Signals, Private Values and Common Values

Information is key to understanding auctions. Indeed, effective auction design can be described as trying to induce bidders to truthfully reveal their value for the object and trying to maximise the information available to bidders at the time they bid.

“Valuation” is the term given to the value a bidder places on the object being auctioned. This is not necessarily the amount that is bid or that needs to be paid. “Signal” is the term given to the information a bidder has about the object being auctioned. It could be, for example, a seismic survey of an oil tract. To avoid confusion with the term “signalling” as used in discussions of collision, in this paper the term “indication” will be used where the auction literature uses “signal.”¹

Bidders have *private values* if each bidder knows her own value of the object and she would not change her valuation if she learned any of her rivals’ values. An example of private values would be nondurable consumer goods, where the consumer knows the value to herself and is not influenced by the value to others since there is no possibility of resale.²

By contrast, in a *common values* context, each bidder would change her belief about the value of the object if she knew her rivals’ information. “The critical distinction [between common values and private values] concerns the nature of bidders’ private information. When each bidder’s private information concerns only idiosyncratic determinants of his own valuation, this is a private values setting.” (Athey & Haile, p. 82) Of course, even in a private values context, a bidder would like to know her rivals’ information for strategic reasons, but knowing that information will not cause her to change her beliefs about the value of the object to her.

In common values, the information about the object is dispersed among the bidders. In general in common values, the value of the object is not necessarily the same for all bidders. In *pure common values*, a special case of common values, each bidder has the same value of the object.^{3 4}

¹ Valuations and indications are linked by the following relationship: A bidder’s expected valuation increases if her indication increases, taking all other bidders’ indications as fixed. Without loss of generality, the expected valuation given the indication can be assumed to be the indication itself.

² Almost always the assumption is made that these are statistically independent, so are more properly termed *independent private values*.

³ Auctions for petroleum tracts are examples of common values contexts: The main uncertainties are how much petroleum there is, how costly it will be to recover and transport to market, and future price, and these uncertainties are common to all the bidders. Bidders may have different information about these uncertainties, so if they learned a rival’s information they would use it to modify their beliefs about these uncertain factors. Another example is if the object will be resold: This is likely a common values context because the bidders are likely to have different information about future market conditions. Note, though, that the existence of factors that affect all bidders’ valuations does not imply common values. (Athey & Haile 2005, p. 82) An example of this would be where art dealers are bidding on a painting, they all know the resale price and this is the only common component in how the bidders value the painting. This would be private values. If, by contrast, the bidders do not know the resale value, then they are likely to have different indications about the resale value so would, if they learned rivals’ indications, use that information to change their own estimate of the resale value. In this second case, this would be common values.

⁴ Auctions often take place where bidders’ valuations have both private values and common values components. The *affiliated values* model by Milgrom and Weber 1982 fills in the gap, having both private values and common values as special cases. *Affiliation* means that a higher value of one indication makes a

It is likely that auctions often occur in common values contexts. For example, if the value of the object depends on later market conditions, such as when timber or artwork will be resold or when work on a procurement will be carried out later, then this implies common values. The reason is that bidders are likely to have different information about future demand and supply of substitutes for the object, either because they have access to different information or because they evaluate the information differently. Bidders in such situations may find their rivals' information or evaluations useful in forming their own valuation. This is a common values context. [Athey & Haile 2005, p. 82]

Note that, in a pure common values context, efficiency does not depend on which bidder wins the auction, so efficiency gains are made by minimising bidders' and the auctioneer's costs, and policy is often oriented toward extracting the highest revenues for the seller.

In addition the private values-common values distinction, there are other important distinctions for understanding auction design.⁵

Bidding

This section describes how bidders bid in the four standard auctions.⁶ In each case, assume that there is no collusion, tacit or otherwise, and no barriers to participation. For the first set of examples, assume independent private values.

higher value of another indication more likely, and this is true over all the possible values of the indications. Affiliation is similar to but stronger than the statistical concept of correlation.

The difference between independent private values and affiliated values is illustrated by the following example:

“Consider the issues that arise in attempting to select an auction to use in selling a painting. If the independent private values model is to be applied, one must make two assumptions: that each bidder knows his value for the painting, and that the values are statistically independent. The first assumption rules out the possibilities: (i) that the painting may be resold later for an unknown price, (ii) that there may be some “prestige” value in owning a painting which is admired by other bidders, and (iii) the authenticity of the painting may be in doubt. The second assumption rules out the possibility that several bidders may have relevant information concerning the painting's authenticity, or that a buyer, thinking that the painting is particularly fine, may conclude that other bidders also are likely to value it highly.” (Milgrom and Weber 1982, p. 1095)

However, affiliated values concept does not appear often in policy documents. Rather, it appears that most authors take the view that it is sufficient to assume common values when bidders' valuations depend in part on other bidders' indications. (See Klemperer 2004, p. 14.)

⁵ A second important distinction among different auction contexts is the joint distribution of indications. That is, bidders' private information may have different relationships, and these differences can feed into different bidding conduct. Two common assumptions are independence and affiliation. *Independence* means that the indications are statistically independent, that is, unrelated. Affiliation has been defined in the previous footnote.

A third distinction is *symmetry*. In auction theory, this means that bidders' indications are all drawn from a common distribution. This is a condition for the revenue equivalence theorem.

⁶ The information structure implies that the appropriate equilibrium concept is Bayes-Nash equilibrium. This is like the Nash equilibrium concept commonly used in antitrust where each player behaves optimally given the moves of the other players. The difference is that players behave optimally given their updated beliefs about the strategies of others. Their beliefs are consistent with equilibrium strategies, and they

- Consider the *ascending auction with private values*. The dominant strategy⁷ for each bidder is to stay in the bidding until the price reaches the bidder's value. After the bidder with the second-highest valuation drops out, the only remaining active bidder is the one with the highest valuation, who wins at the price equal to the second-highest valuation.⁸
- Consider the *second-price sealed-bid auction with private values*. The dominant strategy for each bidder is to bid his own valuation.⁹ This yields the outcome that the bidder with the highest value wins and pays the second-highest valuation.
- Consider the *first-price sealed-bid auction with private values*. In the Nash equilibrium bidding strategy,¹⁰ the bidder trades off bidding higher—increasing the probability of winning—against bidding lower—increasing the value of winning if he wins. The bidder with the highest bid wins and pays his bid, but he is not necessarily the bidder with the highest valuation.¹¹ His bid is less than his valuation.¹²
- Consider the *descending auction with private values*. This auction is similar to the first-price sealed-bid auction because bidders use the same strategies. This is because they have access to the same information and are making the same trade-offs. Hence, the Nash equilibrium bidding strategy is the same as for the first-price sealed-bid auction with private values.

We turn now from private values to common values contexts. This change implies that bids become informative: The bids reveal information about the bidders' valuations and, in the common values context, this information will in general cause rivals to change their own valuations. The initial beliefs about other bidders' valuations and the subsequent changes in beliefs can vary; and if rationality is assumed this imposes certain restrictions on how beliefs should change. But the ambiguity about beliefs and changes in beliefs about rivals' valuations means that it is not possible to be as precise about how rational bidders bid,

update their beliefs according to Bayes rule given equilibrium strategies. In an auction, a player's beliefs will relate to the other bidders' valuations.

⁷ A dominant strategy is a strategy that always yields a better (or equal) payoff than any other strategy, regardless of what other players, such as rival bidders, do.

⁸ Assume the two highest valuations are v_1 (the highest) and v_2 (the second highest). Near the end of the auction, only these two bidders remain active. As soon as the price exceeds v_2 , the bidder with the second highest valuation drops out. The only remaining bidder is the one with valuation v_1 . But he pays only v_2 plus the bid increment, often approximated by v_2 .

⁹ Assume bidder B bids ϵ less than his true value v . Let w be the highest other bid. Then one of the following must be true: $w > v$, $v > w > v - \epsilon$, or $v - \epsilon > w$. In the first case, B loses since the other bid was higher than B's true value. In the third case, B wins and pays w . In both of these cases, the outcome is the same whether B bids v or $v - \epsilon$. However, in the second case, B loses and gets nothing when bidding $v - \epsilon$ but would have won and got $v - w$ if he had bid v . So B would do better to bid his true value v than to underbid $v - \epsilon$. A similar argument holds for bidding $v + \epsilon$.

¹⁰ There were dominant strategies for the ascending and second-price sealed-bid auctions but not for the other auction types. For the other types, a type of Nash equilibrium concept is used. Thus these are the strategies that are optimal given other bidders' strategies.

¹¹ In symmetric auctions the winner does have the highest valuation. A symmetric auction is one in which the bidders' signals are drawn from a common distribution. An example of an asymmetric auction would be one where some but not all bidders already owned complements to the object being sold.

¹² It can be shown that, in a symmetric model where bidders know the distribution of valuations, the bid is equal to his expected value of the second-highest valuation, given his own valuation. (McAfee and McMillan 1987, p. 710)

and even in a symmetric auction there may be multiple equilibria. In addition, bidders in a common values context shade their bids to avoid the winner's curse (see below).

- The ascending *auction with common values* illustrates this updating. A bid reveals to the rivals that the bidder's valuation was at least the amount of the bid. Each rival revises her beliefs about her value of the object. The process continues as more bids are made and each bidder revises her beliefs. A bidder quits when her expected value of winning becomes zero, that is, when her expected valuation of the object if she wins is just equal to her bid.

This section described bidding strategies and outcomes for standard auctions. In the next section, the revenue equivalence theorem shows that these standard auctions are, in a particular sense, very similar.

Revenue Equivalence Theorem

One of the most fundamental results of auction theory is the revenue equivalence theorem. This theorem says that, under certain conditions, each of the standard auction designs (ascending, descending, first-price sealed-bid and second-price sealed bid) will yield the same expected revenue and results in each bidder making the same expected payment as a function of her indication. Roughly speaking, the conditions are that bidders are risk neutral, that their indications are independent and drawn from the same distribution (which implies *inter alia* that bidders are symmetric).¹³ The result applies to private values and to those common values models in which indications are independent. Note that, in general, this result does not apply to common values auctions. Klemperer (2004) contains an easy-to-follow proof and discussion of this theorem.

This result may seem counter-intuitive. For a start, how could the price in the first-price sealed-bid auction be the same as in the second-price sealed-bid auction? The reason is that bidders act differently in the different auction types. For example, they bid lower in the first-price sealed-bid auction.

Despite the revenue equivalence, the auction types (under private values) imply significant differences in bid preparation for the bidders. For the ascending and second-priced sealed-bid auctions, the bidder need "only" discover his own valuation and either stay in the bidding until that level is reached or submit it to the auctioneer. For the other types of auctions, the bidder must also estimate the number of other bidders and the distribution of their valuations.

For policy-makers, the significance of the revenue equivalence theorems¹⁴ is that they are used as benchmarks against which to analyse auctions when the assumptions do not hold.

With certain violations of the assumptions for the revenue equivalence theorems, the revenues can still be ranked. Leaving other assumptions in place, with affiliated values, the descending and first-price sealed-bid auctions are equivalent. When bidders are uncertain, the ascending auction yields higher expected prices than the second-price sealed-bid auction. The reason is that rival bidders reveal information in the course of the bidding. When valuations are statistically dependent, the winning bid is

¹³ Quoting Klemperer (2004), p. 17 to be more precise: "Assume each of a given number of risk-neutral potential buyers of an object has a privately known signal independently drawn from a common, strictly increasing, atomless distribution. Then any auction mechanism in which (i) the object always goes to the buyer with the highest signal, and (ii) any bidder with the lowest-feasible signal expects zero surplus, yields the same expected revenue (and results in each bidder making the same expected payment as a function of her signal)."

¹⁴ There are several revenue equivalence theorems for various special cases. The result is broader than that stated in the text and extends to some non-standard auctions.

higher in the second-price than the first-price sealed-bid auction. Thus, the ranking the auction formats from higher to lowest expected revenues is: ascending, second-price sealed-bid, and first-price sealed-bid tied with descending. (Milgrom and Weber 1982)

Winner's Curse

The winner's curse is a phenomenon of common values auctions. To illustrate the phenomenon, imagine a pure common values sealed-bid auction. (The format of the auction is irrelevant.) Each bidder forms his own estimate of the one true value of the object. The winning bidder—the highest bidder—is the one who had formed the highest estimate of the object's value. All other bidders' estimates were lower. So a naïve bidder will, upon learning that he has won, immediately revise downwards his estimate of the true value of the object. On average, the naïve winner regrets winning because on average he pays more than the true value.

But a sophisticated bidder does better than a naïve bidder. A sophisticated bidder will take into account the fact that if he wins then this means that he had the highest estimate. He therefore shades his bid, bidding lower than his naïve bid. This bid shading is the winner's curse effect.¹⁵ (McAfee and McMillan 1987, pp. 720-1)

The winner's curse effect is stronger when there are more rivals.¹⁶ That is, as there are more bidders, bidders shade their bids more.

The phenomenon of bid shading increasing with the number of rivals is exploited when it is necessary to empirically distinguish common values contexts—where it occurs—from private values contexts—where it does not occur. (See the section on merger evaluation.)

If the winner's curse effect is sufficiently large (an empirical question) then price decreases with more bidders. The winner's curse effect can, in principle, outweigh the effect of increasing competition, i.e., of bidders bidding more aggressively to have a chance of winning an auction. Since it has important policy implications—when should joint bidding be allowed, when should participation in auctions be restricted, when are mergers anticompetitive, etc.—it is fair to say that the empirical significance of the winner's curse effect is the subject of debate and research.

¹⁵ In particular, he assumes that his estimate is higher than any other bidder's. He then sets his bid equal to the value of the second-highest valuation given that all other bidders are making the same calculation. Since losers pay nothing, there is no cost to being wrong in his assumption.

The basis for bid shading is this result from probability theory. Let the i th bidder's information about the true value of the object be x_i where a larger x_i implies a higher true value v . Then $E(v|x_i) \geq E(v|x_i, x_i > x_j \text{ for all } j \neq i)$. (McAfee and McMillan 1987 p. 721 citing Milgrom (1979) *The Structure of Information in Competitive Bidding*, pp. 60-63, and (1981) "Good News and Bad News: Representation Theorems and Applications, *Bell Journal of Economics*)

¹⁶ The winner's curse effect is stronger when there are more bidders because more bidders implies more estimates of the true value of the object. More estimates means the highest estimate is higher. (This result assumes that the estimates are unbiased which means, roughly, that the estimate are correct on average. The idea is as that as the number of estimates increases, then some of the new estimates that are added are higher than any previous estimates, so the highest estimate increases. The same process is at work for the lowest estimate.) A growing highest estimate means a growing difference between the highest estimate and the true value. This growing difference means that a bidder must shade his bid even more below his estimate in order to avoid paying more than the true value.

Non-Standard Auctions

Auctions that are important empirically often differ from the standard auctions described above. The theory of some of these other forms is developing rapidly because these formats are being used more than in the past. One notable form is multi-unit auctions, which are used to sell licenses to use parts of the electromagnetic spectrum for telecommunications and transmission and generation of electricity. A second form described here is auctions with re-sale. This is not an exhaustive list—the variations are almost endless—but it tries to touch upon the empirically important ones.

Multiple Object and Multi-unit Auctions

Auctions for multiple objects or multiple units arise frequently in practice. They are used for allocating radio spectrum, electric generation and gas transmission among other items. The size of markets using multiple object or multi-unit auctions and the commercial benefits to improved bidding strategies may be the impetus behind the substantial ongoing research in this area. The distinction between multiple object and multi-unit auctions is that “units” implies homogeneity. Much of this section follows Milgrom 2004 chapter 7.

Multi-unit or object auctions are more complicated than single unit auctions for a number of reasons. First, they include the problems for single unit auctions of giving bidders incentives for truthful revelation of their valuations and of allocating the objects to the highest value bidder. In addition, the objects may be complements as well as substitutes. Further, bidders’ costs can increase rapidly with the complexity of the auction rules and the relationships among the objects. “The design problems...include not just the usual ones...but also limiting the complexity so that costs incurred by bidders are not too high and the reliability of the system is maintained. Unlike auctions for a single object, in which efficiency and revenue objectives are usually at least roughly aligned, multi-item auctions can involve radical trade-offs between these two objectives.” (Milgrom 2004, p. xiii) If items are not substitutes, then in general there are no market clearing prices. Or, “A main message of much of the current research on multi-unit auctions is that it is very hard to achieve efficient outcomes.” (Klemperer 2004, p. 33)

As with single-unit auctions, there can be first-price sealed-bid, second-price sealed-bid and ascending auctions.

Sealed-bid auctions to sell multiple units can be either *uniform price* or *discriminatory*, also called “pay as bid.” In the first, the winners all pay the same price, which is equal to the highest unsuccessful bid.¹⁷ In the second, each winner pays the amount he bid. The uniform price auction corresponds to the second-price sealed-bid auction when only one unit is for sale, since the amount paid depends on others’ bids (in this case, the price of the highest unsuccessful bid). The discriminatory auction corresponds to the first-price auction in the single-unit case since winners pay what they bid. The England and Wales electricity markets have provided an example of both of these types of auctions.¹⁸

In uniform price auctions, if bidders want to buy more than one unit and they have private information, then in general they will reduce demand, that is, they will bid less than their values for some units. The logic is the same as for a monopsonist, a single buyer, who recognises that reducing the price

¹⁷ This can also be set at the lowest successful bid.

¹⁸ The old Electricity Pool operated as essentially a uniform price auction; the New Electricity Trading Arrangements that replaced the Pool operates a discriminatory auction for the residual balancing market. Many simulations and experiments conducted during the discussion of the NETA aimed at distinguishing the efficiency and level and volatility of prices under the alternative types of auctions. See Newbery and McDaniel 2002 for a summary.

paid for the marginal unit reduces the price of the inframarginal units. Further, in a range of models of uniform price auctions, there are low price equilibria, i.e., not very competitive outcomes, despite a large number of bidders. (Milgrom 2004, pp. 257-264)

For the benchmark case for the revenue equivalence theorem, these two types—uniform price or discriminatory—yield the same revenues. But if bidders are risk averse then the uniform price yields higher revenues, but in common values the discriminatory auction yields higher revenues. (McAfee and McMillan 1987 citing Weber 1983)

Another type of uniform price auction is the *simultaneous ascending auction* (SAA). SAAs have been used to sell rights to use the electromagnetic spectrum in various countries. In the SAA, bidders submit bids on the items, and rounds of bidding continue until the closing conditions are met. The advantage of SAAs over sequential ascending auctions is that bidders can arbitrage among the auctions, shifting their bidding to objects that are relatively cheap. (This arbitrage is why these are classified as uniform price auctions.)

SAAs can yield an outcome similar to competitive equilibria if certain conditions hold, including that all the objects be substitutes for each bidder.¹⁹ On the other hand, if the objects are not substitutes, then there may not even be a competitive equilibrium. The reason for this is the *exposure problem*. That is, a bidder may end up bidding and winning a collection of objects he does not want because the complements have become too expensive.

A possible example of the exposure problem is the 1998 Dutch DCS-1800 auction. Eighteen lots were offered for sale. Two were sufficiently large that an entrant could use them to enter. The other sixteen were smaller. They could be used by incumbents to expand their networks, thus were substitutes for them. Or, if an entrant won four or six lots, they could be assembled to support entry at minimum efficient scale. Thus, for entrants the sixteen lots were complements. The same lots were substitutes for some bidders and complements for others, just the conditions under which a competitive equilibrium does not exist and certain simple bidding rules become infeasible. The result was that the price per unit of bandwidth of the two large lots was more than twice as high as for the sixteen lots. (See Milgrom p. 278 for more details.)

A more recent multi-unit auction design is Ausubel's. (Ausubel 2004) The theoretical results of this design have certain positive attributes related to truthful bidding and efficiency, and the experimental results suggest it would lead to efficient outcomes in practice. He proposed a multi-unit ascending bid auction that would have the two positive properties of inducing bidders to truthfully reveal their value of the objects and of maximising the information available to each bidder when they make their bids.²⁰

¹⁹ "Competitive equilibrium" means, in this case, maximising the total value over all possible allocations (to within a single bid increment). See Milgrom p. 272. I.e., the outcome is Pareto efficient.

²⁰ In this, to the author's knowledge, untried, model the auctioneer announces a price, bidders respond with bids for quantities and the process repeats until there is no excess demand. The design innovation is in determining the winners' payments. The idea is to decouple a bidder's payments for the inframarginal units from her bids for those units, so as to eliminate incentives for demand reduction. The payments are calculated as follows. For each price p , the auctioneer determines, for each bidder i , whether the aggregate of all the rivals' demand at that price is less than the supply. If it is less, then the difference is "clinched" (a term from baseball pennant races) and the newly clinched goods are awarded to bidder i at price p .

Ausubel provides an example in his paper. Assume that two identical objects are available and that three bidders, A, B and C, initially bid for quantities of 2, 1 and 1 respectively. Assume they continue to bid these quantities until the price reaches p , at which point C reduces his demand to 0 and drops out. Bidder A's rivals now collectively demand only one unit (B only wants one unit), so A "clinches" one unit at price p , and the auction for the remaining object continues.

This auction design was favoured by the British gas network owner Transco during consultations about access to gas terminals, described in Box 2, but the design ultimately chosen was a sealed-bid, multi-round auction. The other design was chosen because “it was more familiar and less complex than the Ausubel auction,” and time was limited. (Newbery and McDaniel 2002)

Somewhat different from the multi-unit auctions are *package* and *contingent auctions*. In a package auction, a bidder would submit a bid for items A and B separately and a bid (lower than the sum of the individual bids for A and B), for the package of A and B. Contingent bids are a generalisation of package bids, e.g., a bid for A and a bid for A if the bidder also wins B. The auctioneer chooses the combination of bids that sums to the highest total. Hence, the alternative name of these auctions is *combinatorial auctions*. Such auctions are used in practice. E.g., London bus routes and subsidised Norwegian air transport services are auctioned in combinatorial auctions. However, as this is a complex and rapidly advancing topic, it is outside of the scope of this paper.

In closing this overview of multi-unit and multi-object auctions, it is worth noting that the cost implied by complexity imposes limitations on auction design. In practice, auctions must be simple. They must be simple for bidders to use, so that they will indeed participate, and the outcomes when bidders use simple bidding strategies must be acceptable to the auctioneer. (Milgrom 2004, p. 253)

Box 4. Example of New Zealand Television Licenses

New Zealand sold licenses to deliver television broadcasts using *simultaneous second-price sealed bid* auctions. (Recall that in these auctions, the winner is the higher bidder but he pays the amount of the second-highest bid.) This kind of auction would work well only when the objects for sale are neither substitutes nor complements. But in the event, the licenses could be substitutes or complements, so bidders ran a risk of winning too few or too many licenses. (If a bidder wished to broadcast on only one channel, he would not want to learn he had won two. If a bidder had business strategy that required two channels, he would not want to learn he had won only one.) The actual outcome suggests that the auction was inefficient because the bids show little connection between the demands expressed by bidders, the number of licenses they won or the prices they paid. Also, bidders could not guess each other's values. For example, it appears that neither Sky—who bid much higher than the others—nor Totalisator—who bid NZ\$401,000 for six licenses—made accurate guesses about their competitors' bidding strategies.

The auction could have been improved by having several rounds. The winner would be allowed the number of licenses desired (up to a limit set by antitrust concerns) at its winning bid, the second round would sell the right to choose next, and so on. Or the auction might have bids consisting of prices and quantities where the highest bidder got to fill its bid, then the second until all licenses were gone.

Winning Bids on Nationwide UHF Lots: 8 MHz License Rights

Lot	Winning Bidder	High Bid (NZ\$)	Winning Bid Second Bid (NZ\$)
1	Sky Network TV	2,371,000	401,000
2	Sky Network TV	2,373,000	401,000
3	Sky Network TV	2,373,000	401,000
4	BCL	255,124	200,000
5	Sky Network TV	1,121,000	401,000
6	Totalisator Agency Board	401,000	100,000
7	United Christian Broadcast	685,200	401,000

Source: Hazlett (1998) cited in Milgrom 2004, p. 12.

Box 5. Description of the US Radio Spectrum Auctions

The design of the 1994 Federal Communications Commission auctions to sell spectrum licenses for PCS²¹ has inspired a number of subsequent multi-unit auctions. This box describes the first of those auctions.

There was no off-the-shelf design for auctions of multiple objects with potentially highly interdependent values. (The value of one license depended on whether one already owned a substitute or a complementary license.) Among the difficulties was the fact that some potential bidders wanted nationwide licenses whereas others wanted regional licenses.

The basic design chosen was a *simultaneous ascending auction*. Ten licenses were offered in total, with the country being divided into several large regions. There was an auction for each license. At each round, each bidder would place bids. Bidders did not bid in every auction. At the end of each round, everybody could see each bid that had been made. Bidding increments were set by the FCC at each round. The idea was that bidders could put together their own optimal basket of licenses, taking into account the cost of the various licenses. Thus, at each round, each bidder could re-design its basket of licenses after surveying the current high bid for each license.

The rule for ending the auction, the closing rule, was that the bidding on all licenses ended when there was a round in which there were no bids on any license. The alternative rule that had been discussed was to close the bidding on each license when there had been a round in which there had been no bidding on that license. This alternative rule was not chosen because it meant that a bidder who thought he had won a particular license, but was outbid at the last moment, could not then bid for a substitute license if the bidder there had already closed. To keep the auction from going on for too long, there was a rule that serious bidders either had to have a high bid or place an acceptable new bid in each round. For the same reason, there was also a rule that bidders had to “be active” on a minimum percentage of the auctions for which they were eligible to bid. (Incumbent cellular licensees were barred from holding a PCS license in the same area.) The auction closed after 47 rounds over 5 days. Fears that the process would be never-ending and too complex for the bidders proved to be unfounded.

Subsequent multi-unit licenses have been larger. From this small auction through March 1998, the FCC has held a total of 5,893 auctions. The rules have been changed as both bidders and the government have identified weaknesses. The FCC says, “Prior to [the 1993 law that gave the FCC authority to use competitive bidding], the Commission mainly relied upon comparative hearings and lotteries to select a single licensee from a pool of mutually exclusive applicants for a license. The Commission has found that spectrum auctions more effectively assign licenses than either comparative hearings or lotteries.”

Sources: Milgrom 2004, Cramton and Schwartz 2000, and FCC website fcc.gov/auctions

Sequential ascending auctions are seen as flawed under certain circumstances. The story of the first spectrum auction exposes the flaw of not conforming to the expectation of one price. In 1981 Sotheby was hired to auction the right to use seven functionally identical transponders on the same satellite. The first auction garnered \$14.4 million, and at each subsequent auction the price declined to \$10.7 million for the sixth transponder, and the seventh got \$11.2 million. From the viewpoint of bosses or shareholders, who have the benefit of hindsight, it would appear that the winner of the first transponder overpaid.²² A second problem is that bidders may behave in a predatory manner, bidding up the price of the first unit to discourage later bidding. Third, this format hinders license aggregation. If some licenses are complements, and a firm wins a license complementary to one that has already sold to someone else, then the firm cannot “go back” and bid differently in the earlier auction. Post-auction trading is inefficient given private information and the small numbers of buyers and sellers. (McAfee and McMillan 1996, pp. 162-3)

²¹ PCS, Personal Communication Service, is the name for the 1900 MHz radio band used for digital mobile phone services in Canada and the United States.

²² This *declining price anomaly* is widespread. The cause is the subject of research, but a possible explanation is that some effect analogous to the winner’s curse is at work.

Auctions with Re-Sale

When auctions are followed by an opportunity for the winners to resell the objects, this changes the bidding practices. Recently developed theory shows that “resale can fundamentally change the interpretation of bidding data, a seller’s optimal choice of auction, the effects of a reserve price, and even existence of a separating (i.e., efficient) equilibrium.” (Haile 2001, p. 399) Haile showed that the possibility to resell meant that increasing the number of rivals resulted in an increase in bidder valuations and hence a higher winning bid. He tested this result on data from sales of timber harvesting contracts held by the U.S. Forest Service between 1974 and 1989.²³ (Haile 2001)

When resale is possible, a bidder’s valuation depends not only on the value if the firm uses the object itself (in the timber auction case, harvests and processes the timber itself), but also on the value of the possibility to buy and sell in the resale market. The option to sell a contract later raises the valuation; an option to buy later reduces the valuation. Increasing the number of rival bidders, if that increases the expected number of buyers in the resale market, makes the resale market effect larger.²⁴ That is, having more rival bidders raises each bidder’s valuation.

This result contrasts with that of standard models without resale, in which a bidder’s willingness to pay does not increase with the number of bidders. (Recall that in a private values auctions without resale the number of bidders does not affect a bidder’s willingness to pay, and that in any other affiliated values auction without resale, a bidder’s willingness to pay decreases when the number of bidders increases because the winner’s curse effect becomes larger.) Two caveats of this theoretical model are that it ignores the effect of the same bidders competing against each other in future auctions and it ignores the possibility of collusion.

Other theoretical work shows that a resale opportunity can *inter alia* make bidders’ valuations dependent on the selling mechanism itself and changes which of the standard auctions yields higher expected revenues. (See Haile 2001 for citations.) In sum, the existence of a secondary market should be taken into account in designing auctions.

Auctions of Capacity

It has been argued that auctions for capacity that will be used in subsequent competition should be designed differently. Where capacity that will be used in subsequent competition is auctioned, there will be considerations beyond optimising the auction. For example, if, in the subsequent competition, some firms will be forced to exit, then neither uniform price nor discriminatory (pay your bid) auctions are likely to result in the most efficient firms winning.²⁵ More generally, auction theory has not provided much

²³ Haile modelled the auctions as ascending (English) auctions. He distinguished bidders’ use values (the values they place on the contract, ignoring resale opportunities) from their valuations (the values they place on winning the auction). Since timber mills vary in their equipment and costs, and they have private information about their own sales and inventories of end products, contracts for future sales, and inventories of uncut timber from private timber sales, their use value was modelled as independent and private. The possibility to resell introduced a common value element. The specific practices of the U.S. Forest Service (see the referenced paper for details) meant that there was little private information regarding the common elements in the values firms place on a given contract. This suggested to the author that a private values model would be most appropriate.

²⁴ The idea is that if there are more rivals during the auction, then this is a signal that the expected number of potential buyers in the resale market is higher. This makes being a seller in the resale market more profitable and being a buyer less profitable.

²⁵ The reason for this is as follows. A bidder would prefer to not win any capacity than to win capacity, therefore pay for it, and then later be the weakest competitor in the subsequent competition and be “shaken

guidance in this area, but the “toy models”²⁶ suggest that there may be concerns raised by the asymmetries between entrants and incumbents and among incumbents with different capacities.

Auctions with Asymmetric Information or Valuation

This section is concerned with circumstances where one bidder has better information about the value of an object, or is known to have a slightly higher value for an object. In general these situations are not well-understood, but two models are the drainage tract model and the almost common values model.

The drainage tract model was designed by Wilson (1969) to describe the situation in the first-price sealed-bid auctions to sell the rights to petroleum tracts in the outer continental shelf of the Gulf of Mexico. A *drainage tract* is a tract adjacent to the tract already being developed by an oil company or consortium, the *neighbour*. It is assumed that all bidders have the same valuation, that the neighbour knows with greater precision the true value and that the other bidders have worse information. When there are two bidders, there is a unique equilibrium in which the neighbour has positive expected profits and the non-neighbours have zero expected profits. If there is more than one non-neighbour, there are many equilibria all closely related to the one non-neighbour equilibrium. Oddly, the neighbour’s bidding behaviour and expected payoff are independent of the number of non-neighbours bidding. Other findings are that the neighbour wants it to be known that it is better informed as this induces more timid bidding by the non-neighbours. The non-neighbours, by contrast, wish to keep secret any information they have. Further, if the auctioneer-seller publicises some of the neighbour’s information, then neighbour’s expected profits falls and the seller’s expected revenues rises. (Milgrom 2004, pp. 166-181)

In the *almost common values* model, one bidder (the advantaged bidder) has a slightly higher value than the other bidders, and the other bidders each have the same value of the object. If there are two bidders and the auction is either ascending or second-price sealed-bid, the advantaged bidder wins all the time and greatly decreases auctioneer revenues as compared with the pure common values situation. However, if there is more than one regular bidder in addition to the advantaged bidder, then the advantaged bidder no longer wins all the time although he retains an advantage. Auctioneer revenue may be increased or decreased as compared with the pure common values context. (Levin and Kagel 2003)

Conclusions

This annex has introduced concepts such as private values, common values, winner’s curse and the revenue equivalence theorems as well as the standard auctions. Multi-unit auctions, for which theory is less well-developed, were also introduced with examples in which design trade-offs, using intuition developed from the single-unit auctions, were discussed. The main text applies these concepts in the context of pro-competitive auction design and merger review in “bidding markets.”

out” from the market. So he bids zero. By the same logic, every bidder bids zero. This cannot be an equilibrium since then each bidder would wish to submit a positive bid so they can be in the subsequent market. All equilibria are inefficient. All pay auctions, where every one pays their bid even though only a fixed number win the capacity, can be a solution. (McAfee 1999)

²⁶ A “toy model” a simple economic model that is not intended to be of general application, but is designed to study a specific phenomenon.

ANNEX 2.

VALUATIONS AND SIGNALS

The purpose of this annex is to provide more precise definitions of the concepts, private values, common values, pure common values, and affiliation.

Valuations and Signals

Notation for defining various information structures is as follows. Let U_i be bidder i 's valuation of the object for bidders $i=1,2,\dots,n$. Define $\mathbf{U}=(U_1,\dots,U_n)$. Let X_i be bidder i 's private information or "signal" or "type." An example of a X_i could be private seismic information about a drilling tract. Define $\mathbf{X}=(X_1,\dots,X_n)$. Use the notational convention that $\mathbf{X}_{-i}=(X_1,\dots,X_{i-1},X_{i+1},\dots,X_n)$.

Valuations and signals are linked by the following relationship: A bidder's expected valuation increases if her signal increases, taking all other bidders' signals as fixed. Or in symbols, $E[U_i|X_i=x_i, \mathbf{X}_{-i}=\mathbf{x}_{-i}]$ is increasing in x_i for all realisations of \mathbf{x}_{-i} of i 's rivals' signals. Without loss of generality, the following condition can also be imposed: $X_i = E[U_i|X_i]$. This means, the expected valuation given the signal is the signal itself.

Definitions

Bidders have *private values* if $E[U_i|X_i=x_i, \dots, X_n=x_n] = E[U_i|X_i=x_i]$ for all x_1, \dots, x_n and all i .

Bidders have *common values* if $E[U_i|X_i=x_i, \dots, X_n=x_n]$ strictly increases in x_j for all i, j , and x_j .

Bidders have *pure common values* if $U_i = U_0$ for all i .

The existence of factors that affect all bidders' valuations does not imply common values. For example, if $X_i=U_i=V_0 + \varepsilon_i$, this is private values despite the "common" factor V_0 . V_0 will introduce correlation among bidders' valuations and among bidders' information, and correlation between one bidder's valuation and another's signal. The reason this is private values is that no rival has information that is relevant to a bidder's assessment of his own valuation, given that the bidder has observed his signal. (After bidder i knows $V_0 + \varepsilon_i$, learning about ε_j does not affect U_i .)

The formal definition of *affiliation* for two bidders is as follows. Let x_1' and x_1'' be realisations of X_1 and x_2' and x_2'' be realisations of X_2 . Let $f(X_1, X_2)$ be the joint density function of the signals. X_1 and X_2 are affiliated if for all $x_1' > x_1''$ and $x_2' > x_2''$

$$(1) \quad f(x_1', x_2')f(x_1'', x_2'') \geq f(x_1', x_2'')f(x_1'', x_2').$$

The meaning of inequality (1) becomes clearer when transformed into conditional probabilities.

$f(x_1, x_2)=g(x_1|x_2)h(x_2)$ where $g(\cdot)$ is the conditional density of x_1 given x_2 and $h(\cdot)$ is the density of x_2 . Then the above inequality holds iff

$$(2) \quad g(x_1'|x_2') / g(x_1''|x_2') \geq g(x_1'|x_2'') / g(x_1''|x_2'')$$

also called the Monotone Likelihood Ratio Property, i.e., higher values of x_1 become relatively more likely as x_2 increases.

The above definition of affiliation follows Klemperer (2004) pp. 50-51. A general definition is at Milgrom (2004), 5.4.1. Affiliation, p. 182 and following.

ANNEX 3.

EXAMPLE OF ESTIMATING THE EFFECT OF A MERGER IN A SECOND-PRICE SEALED-BID AUCTION WITH PRIVATE VALUES

Assume firms A and B are the merging parties, and C and D are competitors. Assume the following bid patterns in four auctions.

Auction 1: Merging Parties have highest and second-highest bids

	Bids	Outcome Pre-merger	Outcome Post-merger	Change due to Merger
A	10	A wins, price = 8	A-B wins, price = 7	Price falls from 8 to 7
B	8			
C	7			

Auction 2: Merging parties have highest but not second-highest bid

	Bids	Outcome Pre-merger	Outcome Post-merger	Change due to Merger
A	10	A wins, price=8	A-B wins, price = 8	None
B	7			
C	8			

Auction 3: Merging parties have second-highest but not highest bid

	Bids	Outcome Pre-merger	Outcome Post-merger	Change due to Merger
A	8	C wins, price=8	C wins, price = 8	None
B	7			
C	10			

Auction 4: Merging parties are not among the two highest bids

	Bids	Outcome Pre-merger	Outcome Post-merger	Change due to Merger
A	7	C wins, price = 8	C wins, price = 8	None
B	6			
C	10			
D	8			

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NOTE DE RÉFÉRENCE

Introduction

Les autorités de la concurrence sont amenées à s'intéresser aux enchères pour plusieurs raisons. Elles peuvent, dans le cadre de la promotion des principes de concurrence, conseiller d'autres services de l'État sur la conception des méthodes d'enchères, afin d'améliorer leur efficacité en agissant sur le degré de concurrence. Elles peuvent également contrôler les fusions et accords entre entreprises exerçant leurs activités sur les marchés d'enchères. Enfin, elles peuvent être confrontées à des problèmes de collusion et d'abus de position dominante sur ces marchés.

Les règles formelles qui les régissent atténuant le « bruit » et facilitant la communication entre les concurrents, les enchères peuvent davantage encourager la collusion que les marchés dits « de prix affichés ». Mais une enchère peut être conçue de manière à réduire la collusion et les pratiques concertées, ou à encourager une participation élargie. La conception de certaines enchères est ainsi susceptible d'être soumise à de fortes pressions de la part de groupes d'intérêts. Les adjudicateurs peuvent de leur côté agir de façon stratégique et choisir des méthodes ou des modalités pratiques favorisant la concurrence.

Les recherches théoriques ont permis d'élaborer deux recommandations fondamentales pour des méthodes d'enchères efficaces. Il convient d'une part d'inciter les enchérisseurs à révéler véridiquement leur évaluation, en faisant en sorte que la somme qu'ils paient ne dépende pas entièrement de leur offre, et d'autre part de communiquer aux participants le plus d'informations possible avant qu'ils n'enchérissent. Les différentes études formulent d'autres recommandations, notamment :

- Lorsqu'il y a des risques sérieux de collusion, privilégier les enchères sous pli scellé par rapport aux enchères ascendantes (ou « ouvertes »). Quand les informations sur la valeur réelle de l'élément faisant l'objet d'enchères sont réparties parmi les enchérisseurs et qu'il existe une large incertitude, envisager des enchères ascendantes.
- Imposer un prix de réserve, c'est-à-dire un prix au-dessous duquel les enchères seront annulées, qui soit élevé mais crédible.
- Examiner attentivement les informations fournies aux candidats et au public. Il convient notamment de ne pas divulguer l'identité des enchérisseurs non retenus et de conserver les informations susceptibles d'être utilisées lors d'éventuelles poursuites pénales en cas de soumissions concertées.
- Regrouper les plus petites enchères et ne pas annoncer le programme futur d'enchères.
- Étudier comment réduire les coûts d'élaboration des offres.
- Lorsqu'il est important de favoriser les « enchérisseurs les moins avantagés », privilégier les enchères sous pli scellé par rapport aux enchères ascendantes.
- Envisager d'autres moyens d'encourager les « enchérisseurs les moins avantagés » à participer aux enchères : par exemple, marchés réservés, crédits de soumission et fractionnement des marchés.

Les conséquences d'une fusion sur les « marchés d'enchères » dépendront du fait qu'elle s'inscrive dans un contexte de « valeurs privées » ou de « valeurs communes ». Lorsque des valeurs privées sont en jeu, une fusion entre soumissionnaires aboutit généralement à des enchères moins agressives et à une plus faible demande (en l'absence d'éléments d'efficience), ce qui est analogue à ce qui se passerait sur les marchés ordinaires. Dans le cadre de valeurs communes, on pourra contrecarrer cette réduction du niveau de concurrence en limitant l'effet de la « malédiction du vainqueur ». Que l'importance de ce dernier soit ou non supérieure aux autres effets relève de considérations empiriques. Des recherches portent actuellement sur les méthodes permettant de distinguer les situations relevant de valeurs privées de celles relevant de valeurs communes. Enfin, bien que parfois, en effet, « deux acteurs suffisent à créer une situation de concurrence », cette possibilité est sans doute, en ce qui concerne le contrôle des fusions, peu importante d'un point de vue empirique.

La théorie des enchères est un domaine relativement technique. Cette citation d'un spécialiste, théoricien et praticien de renom, a néanmoins de quoi rassurer :

« Mon expérience dans le conseil en matière d'enchères m'a appris que recourir à de nouvelles méthodes astucieuses n'est que très rarement une des clés du succès. Cette réussite tient bien plus souvent à ce que les coûts de participation soient maintenus à un niveau faible, à ce que les bons candidats soient encouragés à participer, à ce que l'on veille à l'intégrité du processus et à ce que l'adjudicataire soit en mesure de tenir ses engagements de paiement ou de fourniture. » (Milgrom, 2004, p. xii)

Ce document comporte trois parties et trois annexes. Les principaux termes et notions seront tout d'abord présentés. Dans un deuxième temps, on commentera les caractéristiques des enchères qui sont susceptibles d'entraver ou d'encourager la concurrence ; on traitera en particulier de la collusion des soumissionnaires et des pratiques concertées, ainsi que de la participation. La troisième partie examinera la question des fusions sur les marchés d'enchères. La première annexe présente les fondements de la théorie des enchères, qui est au cœur des débats et des recommandations d'action. Les deux autres annexes sont consacrées à des aspects techniques.

1. Termes et notions

1.1 Principaux types d'enchères

On distingue habituellement quatre principaux types d'enchères :

- Dans les *enchères ascendantes* (appelées aussi *enchères « anglaises »*), le prix augmente jusqu'à ce qu'il ne demeure plus qu'un seul enchérisseur, qui remporte l'enchère au dernier prix.
- Dans les *enchères descendantes* (ou « *hollandaises* »), le prix diminue jusqu'à ce qu'un candidat se déclare preneur et remporte les enchères au dernier prix.
- Dans les *enchères sous pli scellé au premier prix*, chaque enchérisseur remet une offre sans connaître les autres soumissions. Le bien est attribué au plus offrant, qui paie le montant offert.
- Dans des *enchères sous pli scellé au deuxième prix*, chaque enchérisseur remet une offre sans connaître les autres soumissions. Le bien est attribué au plus offrant, qui paie le prix offert par le deuxième plus offrant.

L'existence de prix de réserve et de restrictions quant au montant des surenchères et au moment des soumissions sont des variantes et modalités courantes dans ce domaine. Des complications complémentaires apparaissent lorsque plusieurs biens sont vendus, simultanément ou successivement.

1.2 *Évaluations, valeurs privées et valeurs communes*

L'information est fondamentale pour la compréhension des enchères. En effet, une conception efficace des enchères incitera les enchérisseurs à révéler véridiquement leurs évaluations et maximisera les informations dont ils disposent lorsqu'ils enchérissent. L'« évaluation » d'un objet correspond à sa valeur aux yeux de l'enchérisseur. Elle n'est pas nécessairement équivalente au montant qui est offert ou au montant qui doit être payé.

- Les enchérisseurs ont des valeurs privées si chacun d'eux attribue une certaine valeur au bien et ne la modifierait pas s'il connaissait une quelconque évaluation de ses concurrents.¹
- Dans le cas de valeurs communes, chaque enchérisseur serait susceptible de changer d'avis quant à la valeur du bien s'il connaissait les informations dont disposent les autres enchérisseurs.
- Les *valeurs affiliées* représentent une situation intermédiaire entre les valeurs privées pures et les valeurs communes pures (que l'on pourrait considérer comme un cas particulier de la notion générale de valeurs affiliées).

Les biens de consommation non durables sont un exemple de valeurs privées. Le consommateur leur confère une valeur et n'est pas influencée par celle que les autres lui attribuent, car il n'existe aucune possibilité de revente. Même pour les valeurs privées, l'enchérisseur souhaitera connaître pour des raisons stratégiques l'évaluation de ses concurrents, mais ceci n'aura pas pour effet de modifier son opinion quant à la valeur du bien. Dans le cadre de valeurs communes, la valeur du bien n'est pas nécessairement la même pour tous les enchérisseurs. Pour les *valeurs communes pures*, un cas particulier de valeurs communes, chaque enchérisseur attribue la même valeur au bien.

Les zones d'exploitation pétrolière constituent un exemple de valeurs communes. Les principales incertitudes concernent la quantité de pétrole qu'elles recèlent, les coûts d'extraction et de transport ainsi que les cours futurs. Elles sont communes à l'ensemble des enchérisseurs, qui peuvent disposer d'informations différentes sur ces données incertaines. S'ils venaient à connaître l'opinion de leurs concurrents, ils utiliseraient ces informations pour modifier leur opinion sur ces facteurs incertains. On peut également citer le cas où le bien est revendu. On se trouvera vraisemblablement dans un contexte de valeurs communes, car les enchérisseurs auront sans doute des informations différentes sur les futures conditions de marché. Dans le cadre de valeurs communes, les informations relatives au bien sont réparties entre les différents enchérisseurs.

1.3 *Enchères : stratégies et résultats*

Cette section présente les stratégies et les résultats probables qui découlent, selon la théorie des jeux, des quatre principaux types d'enchères, dans l'hypothèse où il n'y a ni collusion ni barrière à l'entrée ou à la participation.

- Dans des *enchères ascendantes avec valeurs privées*, chaque participant continuera à enchérir jusqu'à ce que le prix atteigne la valeur qu'il attribue au bien. Après que l'enchérisseur dont l'évaluation est la deuxième la plus élevée renonce, seul l'enchérisseur dont l'évaluation est la plus élevée demeure en lice. Il remporte les enchères à un prix égal (ou peut-être légèrement supérieur) à la deuxième évaluation la plus élevée.

¹ On se fonde presque toujours sur l'hypothèse que ces valeurs sont statistiquement indépendantes. Il est donc plus approprié de les désigner par le terme *valeurs privées indépendantes*.

- Dans des *enchères sous pli scellé au deuxième prix avec valeurs privées*, l'offre de chaque participant sera égale à sa propre évaluation. L'enchérisseur dont l'évaluation est la plus élevée remporte les enchères et paie le prix correspondant à la deuxième évaluation la plus élevée.
- Dans le cas d'*enchères sous pli scellé au premier prix avec valeurs privées*, l'enchérisseur doit arbitrer entre, d'une part, soumettre une offre plus élevée, ce qui augmente la probabilité de remporter les enchères, et, de l'autre, soumettre une offre plus basse, ce qui lui rapportera plus s'il est gagnant. Le plus offrant remporte les enchères et paie le montant correspondant. Cependant, son évaluation n'est pas nécessairement la plus élevée. Son offre est inférieure à son évaluation.
- Pour les *enchères descendantes avec valeurs privées*, les enchérisseurs utilisent les mêmes stratégies que pour les enchères scellées au premier prix. En effet, ils ont accès aux mêmes informations et procèdent aux mêmes arbitrages.

Dans le contexte de valeurs communes, les offres acquièrent un caractère informatif et il devient plus difficile de tirer des conclusions théoriques. Les offres donnent des informations quant aux évaluations des enchérisseurs. Ces informations conduiront les concurrents à modifier leurs propres évaluations. En raison de l'ambiguïté des différentes opinions et de leur évolution, il est bien plus difficile de généraliser pour les enchères à valeurs communes. De plus, les enchérisseurs opérant dans un tel contexte cherchent à minorer leurs offres pour ne pas subir la « malédiction du vainqueur ».

Ces enchères courantes présentent, d'un point de vue technique, de nombreuses similarités. Le « théorème de l'équivalence du revenu » montre que, sous certaines conditions, toutes les méthodes d'enchères (ascendantes, descendantes, scellées au premier prix et scellées au deuxième prix) aboutiront aux mêmes recettes espérées et feront que chaque enchérisseur paiera le montant espéré en fonction des informations dont il dispose quant à la valeur du bien. Ce théorème découle du fait que les candidats se comportent différemment suivant le type d'enchères. Par exemple, leurs offres sont inférieures pour les enchères scellées au premier prix que pour les enchères scellées au deuxième prix. Mais le théorème de l'équivalence du revenu ne signifie nullement que tous les types d'enchères soient similaires au regard de la politique de la concurrence.

Les différents types d'enchères impliquent en outre pour les candidats d'importantes différences en termes d'élaboration des offres. Pour les enchères ascendantes et les enchères sous pli scellé au deuxième prix avec valeurs privées, l'enchérisseur doit « seulement » déterminer sa propre évaluation pour ensuite surenchérir jusqu'à ce que ce niveau soit atteint ou soumettre cette offre à l'adjudicateur. Pour les autres types d'enchères, l'enchérisseur doit également estimer le nombre d'autres candidats et la distribution de leurs évaluations.

1.4 La malédiction du vainqueur

La « malédiction du vainqueur » est un phénomène qui se produit avec les enchères à valeurs communes. Par exemple, lors d'enchères sous pli scellé, le gagnant est l'enchérisseur qui avait attribué la plus haute valeur au bien. Un enchérisseur « naïf », après avoir remporté les enchères, apprend de ce fait que tous les autres participants ont fait une estimation inférieure. Il reverra donc à la baisse sa propre estimation de valeur réelle du bien. L'enchérisseur naïf regrette ainsi en moyenne d'avoir remporté les enchères car il paie en moyenne un prix supérieur à la valeur réelle. Un enchérisseur « averti » tiendra compte de ce phénomène. Il fera donc une offre inférieure à ce qu'il aurait pu proposer naïvement. Cette minoration des offres est l'effet de la malédiction du vainqueur. Plus les concurrents seront nombreux, plus cet effet jouera. Autrement dit, plus les enchérisseurs seront nombreux, plus ils chercheront à minorer leurs offres. Si cet effet est suffisamment important, le prix payé baissera en fonction de l'augmentation du

nombre d'enchérisseurs. Cette baisse pourra l'emporter sur les effets d'une plus vive concurrence obtenue en encourageant la soumission d'offres plus agressives pour pouvoir remporter les enchères. Cette notion de malédiction du vainqueur a d'importantes conséquences lorsqu'il s'agit entre autre de déterminer s'il faut autoriser les offres conjointes ou restreindre la participation aux enchères, et si une fusion est anticoncurrentielle. L'importance empirique de ce phénomène fait l'objet de débats et de recherches.

1.5 *Enchères : cas particuliers*

Il existe en pratique plusieurs variantes des enchères courantes.

- Il est fréquent que des enchères soient organisées pour des *biens ou des unités multiples*. Les licences pour l'utilisation d'une partie du spectre électromagnétique, dans le domaine des télécommunications, ainsi que pour le transport et la production d'électricité en constituent des exemples. Les enchères pour des biens ou des unités multiples sont plus complexes que celles organisées pour un seul bien ou une seule unité. Les objets peuvent être des compléments, mais également des substituts. Les frais supportés par les enchérisseurs peuvent augmenter rapidement en fonction de la complexité des règles d'enchères et des relations entre les différents biens. Les objectifs d'efficacité et de recettes peuvent faire intervenir d'importants arbitrages, de sorte que le choix de l'objectif des enchères peut entraîner d'amples différences de conception. Il est difficile d'obtenir des résultats efficaces.
- Les *enchères sous pli scellé* pour la vente d'unités multiples peuvent être à *prix uniforme* ou *discriminatoires* (« pay as bid », le paiement s'effectue au prix de l'offre). Dans le premier cas, les attributaires doivent tous payer la même somme, qui est égale à la plus élevée des offres non retenues. Dans le second, chaque attributaire règle le montant de son offre.
- Les *enchères ascendantes simultanées* sont également à prix uniforme. Elles ont notamment été utilisées pour vendre des droits d'utilisation du spectre électromagnétique. Dans ce type d'enchères, les enchérisseurs soumettent des offres pour les biens et les tours se succèdent jusqu'à ce que les conditions de clôture soient réunies. L'avantage de cette méthode par rapport aux enchères ascendantes séquentielles est que les enchérisseurs peuvent arbitrer entre les enchères et choisir de soumissionner pour des biens relativement bon marché.
- Les *enchères combinatoires* et les *enchères contingentes* sont assez différentes des enchères multi-unitaires. Pour les enchères combinatoires, l'enchérisseur soumet deux offres distinctes pour les éléments A et B et une offre groupée (dont le montant est inférieur à la somme des offres distinctes A et B) pour l'ensemble des éléments A et B. Les offres contingentes généralisent le principe des offres combinatoires : une offre pour A et une offre pour A au cas où l'enchérisseur remporte également B. L'adjudicateur choisit la combinaison d'offres dont la somme est la plus élevée.
- Les *enchères avec revente* permettent à l'adjudicataire de revendre les biens, ce qui modifie fondamentalement les pratiques d'enchères. Lorsqu'il existe une possibilité de revente, l'augmentation du nombre d'enchérisseurs peut conduire à une augmentation des évaluations et du montant de l'offre retenue.

L'annexe 1 contient des exemples et aborde ces différentes questions de manière plus approfondie. Les sections suivantes se proposent de mettre en application ces notions dans la perspective de méthodes d'enchères favorables à la concurrence, avant d'aborder la question de l'examen des fusions sur les « marchés d'enchères ».

2. Parvenir à des enchères plus concurrentielles

Les problèmes de concurrence traditionnels se posent également pour les enchères. Il convient ainsi de veiller à ce que les barrières à la participation demeurent faibles, d'encourager les « bons » candidats à participer et d'empêcher la collusion et les autres pratiques entravant l'efficacité des transactions. La conception des enchères influe directement sur tous ces aspects. Nous commencerons par traiter de la collusion, avant d'examiner la question de la participation.

2.1 *La collusion et les pratiques concertées dans les enchères*

Diverses actions pénales ont mis en évidence des pratiques de soumissions concertées. Kovacic *et al* 2006 présentent une série d'exemples d'ententes condamnées par la justice. Les pratiques en cause comprennent notamment la suppression d'offres et le camouflage.

La conception des enchères peut influencer sur les principaux facteurs nécessaires au succès d'opérations de truquage d'offres ou d'autres pratiques concertées. Pour empêcher de telles opérations, on peut utiliser des méthodes directes, comme faire obstacle à la formation du consensus ou à la mise en œuvre de l'accord, ou indirectes, comme faciliter les poursuites pénales et renforcer ainsi la dissuasion. Les méthodes appliquées aux marchés ordinaires, telles que l'association, pour une meilleure efficacité, de lourdes peines pour les pratiques de collusion et de dispositifs de clémence à l'intention des informateurs, jouent aujourd'hui encore un rôle fondamental. Toutefois, ce document aborde principalement les méthodes spécifiques aux enchères.

Pour les enchères sous pli scellé, les membres de l'entente doivent se rencontrer avant la mise en vente afin de déterminer qui accorde le plus de valeur à l'objet et quel devra être le montant de son offre et de celles des autres enchérisseurs. Ces offres « complémentaires », de « camouflage » ou de « complaisance » peuvent être « concurrentielles » en termes de prix, mais comporter des clauses qui ne sauraient être acceptées par l'adjudicateur. Selon le ministère de la Justice des États-Unis, les « systèmes d'offres complémentaires sont les formes les plus courantes de soumissions concertées ; elles trompent les acheteurs en donnant l'impression qu'il existe une véritable concurrence afin de dissimuler le fait que les prix sont gonflés » (Division antitrust du ministère de la Justice des États-Unis, 2005).

Pour les enchères ascendantes, cette pratique consiste pour les enchérisseurs à se rencontrer par avance, désigner un vainqueur et demander aux autres candidats de ne pas soumettre d'offres ou, afin de mieux dissimuler la collusion, de soumettre des offres peu élevées avant de se retirer.

Les systèmes visant à supprimer les offres peuvent se doubler d'un dispositif de compensation pour les autres membres de l'entente. Le système d'offres complémentaires peut également consister en des enchères « éliminatoires », c'est-à-dire des enchères par lesquelles le membre de l'entente le plus offrant « remporte » l'objet (devient l'adjudicataire désigné par l'entente) et indemnise ensuite les autres membres. S'il est impossible de procéder à des versements occultes, de réaliser des enchères éliminatoires ou d'organiser des rencontres préalables, un réseau d'enchérisseurs peut instaurer un roulement, chaque membre étant l'attributaire désigné de certaines enchères.

Les enchères ascendantes, contrairement aux enchères scellées, permettent aux membres de l'entente de communiquer entre eux et de s'entendre durant les enchères. La simplicité des règles applicables facilite la communication par rapport aux marchés ordinaires. Afin de faire obstacle aux soumissions concertées lorsque les membres de l'entente ne souhaitent pas prendre le risque de communiquer directement, on pourra contrecarrer l'utilisation de « signaux ».

L'utilisation de la théorie des enchères et des données sur les enchères pour identifier les cas de collusion est un sujet susceptible d'intéresser à l'avenir les praticiens. La théorie n'est cependant pas

encore suffisamment développée pour pouvoir être exploitée de manière fiable (ABA, 2005 ; Bajari et Summers, 2002).

Encadré 1. Détection des soumissions concertées : conseils aux adjudicateurs

La Division antitrust a rédigé à l'attention des adjudicateurs une brochure présentant différents indicateurs de collusion. En voici quelques exemples.

Offres

- La même société remporte toujours un certain marché. Les soupçons sont d'autant plus fondés si une ou plusieurs entreprises soumettent à chaque fois des offres non retenues.
- Les mêmes fournisseurs soumissionnent et chaque société remporte le marché à tour de rôle.
- Certaines offres sont bien plus élevées que les listes de prix publiées, les offres précédentes de ces mêmes entreprises ou les devis estimatifs.
- Le nombre de concurrents soumettant des offres est inférieur à la normale.
- Une société soumet des offres largement plus élevées pour certaines opérations alors qu'aucune différence de coûts apparente ne semble le justifier.
- Les prix des offres sont moins élevés dès qu'un nouveau soumissionnaire, ou un soumissionnaire inhabituel, soumet une offre.
- Un soumissionnaire ayant remporté le marché sous-traite des travaux à des concurrents qui ont soumis sans succès des offres pour le même projet.
- Une société se retire bien que son offre ait été acceptée et travaille ensuite comme sous-traitant du fournisseur ayant remporté le marché.

Prix

Des prix identiques peuvent indiquer qu'il existe une entente sur les prix, en particulier lorsque :

- les prix demeurent identiques [lors de différentes enchères portant sur des produits similaires] durant de longues périodes ;
- les prix étaient différents à une date antérieure ;
- aucune augmentation des coûts ne semble justifier les augmentations de prix [pour différentes enchères portant sur des produits similaires] ;
- les remises sont supprimées, en particulier alors qu'elles étaient traditionnellement accordées sur ce marché ;
- les fournisseurs facturent aux clients locaux des prix supérieurs à ceux appliqués aux clients éloignés géographiquement ; ceci pourrait indiquer que des prix spécifiques sont fixés au niveau local.

Comportements suspects

- Les propositions ou formulaires soumis par différents fournisseurs comportent des irrégularités (on retrouve les mêmes erreurs de calcul ou fautes d'orthographe) ou encore utilisent une écriture, une police ou du papier et des enveloppes identiques. Ceci pourrait indiquer que le soumissionnaire le moins offrant désigné a préparé tout ou partie de la proposition du soumissionnaire non retenu.
- Les documents concernant les offres ou les prix comportent des suppressions ou d'autres modifications notables indiquant que les prix ont été modifiés à la dernière minute.
- Une société demande à soumettre une offre groupée avec un concurrent ou soumet conjointement son offre et celle d'un autre candidat.
- Une entreprise soumet une offre alors qu'elle n'est pas à même de respecter le contrat (il s'agit alors vraisemblablement d'une soumission complémentaire).
- Une société se présente avec plusieurs offres à l'ouverture d'un appel d'offres et elle ne soumissionne qu'après avoir déterminé (ou cherché à déterminer) quels sont les autres candidats.

2.1.1 Utilisation de signaux

En comparaison avec les marchés ordinaires, les règles qui régissent les enchères restreignent la marge de manœuvre des concurrents. Dans les marchés traditionnels, les entreprises peuvent faire jouer de multiples éléments : quantités, prix, types de produits et de services, etc. Pour les enchères, au contraire, les seules informations communiquées sont les prix (si l'objet est défini) ou les ensembles prix/quantité (par exemple, pour certaines enchères multi-unitaires). Le « bruit » étant moindre dans le cadre d'enchères, des informations peuvent être clairement communiquées par le biais des offres. Il s'agit là d'une distinction fondamentale entre les marchés d'enchères et les marchés ordinaires.

L'utilisation de signaux permet aux enchérisseurs d'annoncer ce qu'ils souhaitent obtenir, de menacer de représailles ceux qui voudraient contrecarrer leur plan, et de s'entendre ainsi pour définir ce que les candidats vont remporter. Les enchérisseurs peuvent émettre des signaux dans les médias, notamment dans la presse, comme c'est le cas pour les marchés ordinaires², mais également par l'intermédiaire même du processus d'enchères.

Des signaux ont ainsi été utilisés aux États-Unis en 1994 au cours des enchères de licences de télécommunications portant sur les blocs D-E-F. Les deux derniers numéros du montant de l'offre constituaient ainsi un code désignant les autres licences que l'enchérisseur ou le plus offrant actuel souhaitait acquérir. Des signaux pouvaient être utilisés afin d'indiquer pour quelles licences les autres candidats devaient se retirer, pour quelles licences des représailles étaient envisagées ou, dans l'éventualité où une offre était soumise puis retirée, pour proposer un partage amical.³

² Voici un exemple de tels signaux :

« Je me contenterai de deux blocs de fréquence sur les douze proposés. (...) Si les [cinq autres enchérisseurs] adoptaient le même comportement, il devrait être possible d'acquérir les fréquences à des conditions raisonnables », toutefois « j'enchérirai sur un troisième bloc de fréquence si un de mes concurrents fait de même » (Klemperer, p. 136, citant les travaux de Crossland, 2000). Dans cet exemple, six sociétés ont remporté à bas prix deux licences chacune.

³ Voici un exemple d'enchères codées (Cramton et Schwartz, 2002, tableau 1, p. 4.) :

Tour	Marshalltown, IA 283 E		Rochester, MN 378 D		Waterloo, IA 452 E		
	McLeod	USWest	McLeod	USWest	AT&T	McLeod	USWest
24	56 000					287 000	
...					
46				568 000			
52			689 000				
55				723 000			
58			795 000				
59				875 000			313 378
60						345 000	
62			963 000				
64		62 378		1 059 000			
65	69 000						
68						371 000	

« Le tableau 1 présente toutes les offres soumises pour Marshalltown, bloc E, et Waterloo, bloc E, après le tour d'enchères numéro 24, et toutes les offres sur Rochester, bloc D, après le tour d'enchères numéro 46. USWest et McLeod étaient en concurrence pour la licence Rochester, enchérissant pour les tours 52, 55, 58, et 59. Plutôt que de continuer à enchérir sur Rochester jusqu'à ce que le vainqueur l'emporte, USWest

Les conséquences de ces signaux ont été tangibles. Sur 153 candidats, six ont utilisé régulièrement de tels signaux. Ces six opérateurs ont remporté environ 40 % du spectre disponible en termes de population couverte. Pour les licences ouvertes à l'ensemble des candidats, ils ont payé 2.50 dollars US par personne contre 4.34 dollars pour les autres enchérisseurs. Même pour les licences réservées aux plus petits enchérisseurs, les candidats ayant utilisé des signaux ont payé des prix largement inférieurs à ceux dont ont dû s'acquitter les autres enchérisseurs (Cramton et Schwartz, 2002). La Division antitrust a intenté une action contre les membres de l'entente.

La Federal Communications Commission, l'adjudicateur, a modifié par la suite la méthode d'enchères afin d'empêcher de tels signaux. Elle a spécifié en particulier le montant des surenchères et imposé aux candidats qu'ils participent à deux tours avant de pouvoir se retirer.

2.1.2 *Identité des enchérisseurs*

Le fait que l'adjudicateur ne révèle pas l'identité des participants peut empêcher les collusions ou pratiques concertées. Si les enchérisseurs savent qui sont les autres candidats, ils peuvent alors exercer des représailles à l'encontre de ceux qui violent l'entente et coopérer plus efficacement lors des différentes enchères. Ils sont en outre en mesure d'intimider les autres candidats. Une étude a ainsi montré que, lors des enchères des blocs D-E-F évoquées ci-dessus, les plus petits candidats avaient évité de soumettre des offres concurrentes à celles des gros candidats afin de ne pas faire l'objet de représailles. Si les petits enchérisseurs évitent les gros enchérisseurs, il est alors plus facile pour ces derniers de parvenir à une entente et celle-ci est plus efficace (Cramton et Schwartz, 2000).

Toutefois, l'adjudicateur peut, dans certains cas, préférer révéler l'identité des candidats. Ceci pourrait, par exemple, aider les enchérisseurs à retirer des informations utiles des autres offres. Pour les enchères des blocs D-E-F, l'adjudicateur avait expressément choisi de ne pas cacher l'identité des candidats afin que les enchérisseurs puissent évaluer les autres offres, réduire la malédiction du vainqueur et « concourir de manière générale (...) à des enchères rationnelles » (McAfee et McMillan, 1996, p. 170). On pensait également que ces enchères conduiraient à une augmentation des recettes, car l'on estimait que l'évaluation de la licence par l'enchérisseur serait fonction de l'identité des autres attributaires potentiels au sein de la même zone géographique. (Cramton et Schwartz, 2000)

2.1.3 *Autres actions de l'adjudicateur*

Pour réduire la collusion, les adjudicateurs ont la possibilité d'augmenter les prix de réserve. Fixer un prix de réserve élevé réduit les gains que procure la collusion en relevant le montant du prix de collusion le moins élevé. En outre, ceci peut conduire, lors d'enchères ascendantes, à une réduction du nombre de tours, et donc à des possibilités moins nombreuses d'utilisation de « signaux ». Lorsqu'il s'agit d'enchères scellées à prix uniforme, les prix de réserve peuvent également atténuer les incitations à une réduction de la demande.⁴ En revanche, si des prix de réserve plus élevés sont pratiqués, ceci augmente le risque que le

chercha à écarter McLeod du marché Waterloo au tour 59 en utilisant une offre codée, « 313 378 ». Le « 378 » désignait le marché n° 378, c'est-à-dire Rochester. L'offre d'USWest a montré que la société punissait McLeod sur le marché Waterloo pour avoir enchéri sur Rochester. Au tour 60, McLeod reprit la main sur Waterloo en proposant 345 000 dollars US, soit 58 000 dollars US de plus que son offre du tour n° 24. Mais McLeod ne concéda pas encore Rochester : il soumit une autre offre sur ce marché lors du tour n° 62. USWest recourut alors la même technique au tour 64, exerçant cette fois-ci ses représailles sur le marché Marshalltown. L'offre soumise par USWest au tour 64 lui permit de remporter la licence (nous ne présentons ici que deux des marchés sur lesquels USWest a puni McLeod, mais ces représailles ont en fait été exercées simultanément sur plusieurs marchés.) » (Cramton et Schwartz, 2002, pages 5-6)

⁴ L'exemple est tiré des travaux de Cramton et Schwartz (2000). Faisons l'hypothèse que l'enchérisseur A ait une capacité de deux unités et l'enchérisseur B une capacité d'une unité. A évalue le fait de remporter

nombre de participants soit insuffisant. De plus, ces planchers doivent être crédibles pour être efficaces. Ainsi, un prix de réserve correspondant au coût d'opportunité (tel que celui d'une autofourniture, de la prorogation d'un contrat existant ou de l'adaptation d'un substitut) serait sans doute crédible.

Les adjudicateurs peuvent modifier la taille des enchères et le moment où elles sont organisées afin de favoriser le démantèlement d'une entente horizontale par la violation des accords tacites. Des calendriers d'enchères plus prévisibles, ainsi que la vente ou l'achat de quantités identiques, peuvent faciliter les systèmes de rotation des offres en aidant les membres de l'entente à trouver un point de convergence, un moyen « naturel » de partager les enchères remportées. Une valeur plus faible et l'organisation d'enchères plus fréquentes auront pour effet de réduire les incitations à violer l'entente.

Les réseaux d'enchérisseurs peuvent utiliser les informations fournies par l'adjudicateur afin de s'assurer que les accords tacites sont bien respectés. Réduire les informations communiquées, relatives par exemple à l'identité des soumissionnaires et à la valeur des offres non retenues, peut rendre cette surveillance difficile. En revanche, pour les marchés publics, les concurrents et le grand public peuvent utiliser les informations fournies par l'adjudicateur afin de surveiller son action. Pour résoudre ce dilemme, on pourrait envisager de créer un organe de contrôle indépendant chargé de surveiller les activités de l'adjudicateur, tout en limitant la diffusion publique des informations relatives aux enchères.

« Le système des enchères sous pli scellé, ouvertes en public avec divulgation complète du prix et des prescriptions techniques de chaque enchérisseur, est un instrument idéal pour détecter les réductions de prix... la collusion sera toujours plus efficace lorsqu'elle est exercée à l'encontre d'acheteurs qui communiquent correctement et complètement le montant des offres qui leur sont soumises. » (Stigler, 1964, p. 48 cité par McAfee et McMillan, 1987, p. 724)

une unité à 160 dollars US et le fait de remporter deux unités à 300 dollars US. B estime que l'offre lui permettant de remporter l'enchère sera de 75 dollars US. Le prix de réserve est nul. Dans cet exemple, les informations seraient complètes. Selon les auteurs toutefois, les résultats seraient également valables si elles étaient incomplètes. Pour B, la seule stratégie faiblement dominée est de faire une offre à 75 dollars US, ce dont A a conscience. A comprend que s'il soumet une offre élevée (supérieure à 75 dollars US) et une offre à 0 dollar US, le prix d'équilibre sera de 0 dollar US et son gain sera de $160-0=160$ dollars. A sait que s'il souhaite remporter les deux unités, il devra proposer au moins 75 dollars US pour celles-ci et que son gain sera alors de $300-(2 \times 75)=150$ dollars US. A préférera donc remporter une seule unité. C'est un cas de réduction de la demande. Si un prix de réserve de 20 dollars US était imposé, la stratégie de B demeurerait inchangée. Mais les calculs de A seraient différents. Son gain s'il remporte les deux unités serait le même, B soumettant toujours une offre de 75 dollars US. Mais il serait inférieur à celui de l'exemple précédent s'il remporte une unité, car il devra désormais payer le prix de réserve. Ce gain sera donc de $160-20=140$ dollars US.

Offres de A	Offres de B	Prix de réserve = 0		Prix de réserve = 20	
		Prix d'équilibre	Gain de A	Prix d'équilibre	Gain de A
Élevée, 0	75	0	$160-0=160$	20	$160-20=140$
Élevée, élevée	75	75	$300-2 \times 75=150$	75	$300-2 \times 75=150$

En outre, conserver (sans les rendre publiques) les informations relatives aux offres en vue de les utiliser si nécessaire dans des actions pénales futures, et le faire savoir par avance aux enchérisseurs, peut avoir un effet dissuasif sur les réseaux d'enchérisseurs.

Comme on l'a déjà indiqué ailleurs, l'adjudicateur peut fournir séparément des informations sur la valeur du bien faisant l'objet d'enchères. Dans un contexte de valeurs communes, ceci peut réduire les incitations à la collusion en diminuant les rentes informationnelles des enchérisseurs (ce qui permet à l'adjudicateur d'obtenir un meilleur prix).⁵

Encadré 2. Conception des enchères : arbitrages entre la collusion la malédiction du vainqueur

L'attribution du droit d'introduire un volume donné de gaz dans le réseau britannique de transport par gazoducs (le National Transmission System, ou NTS), qui s'effectue par adjudication, illustre les arbitrages à opérer lors de la conception des enchères. L'adjudication a remplacé les précédentes méthodes d'attribution de gré à gré et de droits d'accès réservés régis par des tarifs réglementés. En Grande-Bretagne, le gaz naturel provenant de la Mer du Nord est livré sur six sites et terminaux principaux ainsi que sur un certain nombre de sites de moindre envergure. Le gaz peut ensuite être vendu à des négociants ou être introduit directement dans le réseau de transport. La valeur des droits d'entrée correspond à la différence attendue entre le prix au comptant à terre et le prix auquel le gaz est ensuite négocié au National Balancing Point. La capacité d'entrée mensuelle pour chaque terminal fait l'objet d'une adjudication semestrielle. Des enchères sont organisées pour la capacité ferme et la capacité interruptible (adjudication quotidienne) ainsi que, depuis 2003, pour la capacité à long terme.

La méthode utilisée est celle des enchères scellées simultanées à plusieurs tours. Elles sont simultanées car tous les terminaux sont mis aux enchères pour les six mois complets. Elles sont également organisées en plusieurs tours : la capacité de chaque terminal est divisée en quarts qui sont ensuite vendus individuellement jour après jour (un cinquième tour est aussi organisé pour l'éventuelle part invendue). Le prix de réserve de chaque terminal se fonde sur le coût marginal à long terme estimé ; il est exactement égal à celui-ci lorsqu'il existe un seul enchérisseur et moins élevé lorsqu'il existe plusieurs enchérisseurs. Les offres spécifient l'identité de l'enchérisseur, le terminal et le mois de l'opération en question ainsi que le prix et le volume minimum. Chaque enchérisseur peut soumettre jusqu'à 20 offres par terminal, par mois et par tour d'enchères. L'idée est que les enchérisseurs présentent un programme de demande en plusieurs étapes. L'adjudicateur classe les offres en ordre descendant, sans tenir compte du terminal spécifié. Les offres d'un montant identique sont classées par volume. La capacité est ensuite répartie selon les prix d'offre, par ordre descendant. Entre chaque tour, les enchérisseurs ont connaissance des volumes ayant remporté les enchères, des offres les plus élevées et les moins élevées pour la capacité allouée et du prix moyen pondéré des offres retenues.

Ces enchères ont été conçues afin de parvenir à un équilibre entre les possibilités de collusion et l'effet de la malédiction du vainqueur. Il est probable que le montant des offres soumises soit peu élevé en raison des conséquences de la malédiction du vainqueur. En effet, les évaluations des enchérisseurs reposent sur une incertitude commune : les futurs prix du gaz. La communication d'informations entre les tours vise à améliorer la connaissance qu'ont les enchérisseurs des évaluations des autres candidats, et ce, afin de minimiser l'effet de la malédiction du vainqueur. D'un autre côté, l'existence de tours multiples permet aux membres de l'entente de punir immédiatement les candidats qui ne respecteraient par l'accord (la communication d'informations entre séances d'enchères peut permettre de les identifier). L'organisation d'enchères répétées auxquelles participent les mêmes enchérisseurs peut en outre favoriser des stratégies de collusion relativement complexes. Ce n'est donc que pour le terminal dont la capacité est limitée que les offres retenues sont supérieures de plus de 25 % au prix de réserve ; souvent, elles ne dépassent ce plancher que de moins de 15 % (McDaniel et Neuhoff, 2002).

⁵ Disposer de *meilleures* informations que les autres enchérisseurs quant à la valeur d'un objet n'incite pas à la collusion. Les rentes informationnelles s'expliquent plutôt par leur caractère privé que par leur qualité (les concurrents n'auront rien à gagner à disposer des mêmes informations ; mais un autre enchérisseur disposant d'informations privées de moindre qualité bénéficiera d'un avantage). Les participants sont donc incités à la collusion avec des concurrents disposant des mêmes informations. L'alternative à la collusion, c'est-à-dire la concurrence, élimine en effet la rente informationnelle. Les informations diffusées par l'adjudicateur peuvent réduire cette rente informationnelle.

2.1.4 Offres conjointes

La question des offres conjointes ne relève pas au sens strict de la collusion. Les offres conjointes sont en effet le plus souvent soumises en toute transparence, alors que les pratiques de collusion sont généralement dissimulées. Toutefois, elles favorisent la coopération entre concurrents, ce qui est un des arguments mis en avant par ceux souhaitant favoriser la concurrence. En règle générale, les offres conjointes entravent la concurrence dans un contexte de valeurs privées, mais elles peuvent, théoriquement, avoir des effets positifs dans un contexte de valeurs communes.

Les offres conjointes peuvent avoir de nombreuses conséquences

Tout d'abord, les offres conjointes réduisent le nombre de soumissions et, par là même le degré de concurrence. C'est le principal argument qui leur a été opposé pendant de nombreuses années.

Toutefois, à en croire les premières études empiriques menées sur le sujet, les offres conjointes ne réduisaient pas le nombre d'offres. On considérait en effet qu'elles permettaient de diversifier les risques, d'atténuer les problèmes de liquidité ou de capital et de partager des informations privées.⁶ Si les candidats se communiquent des informations privées sur un objet dont la valeur est inconnue, mais commune (il s'agit alors de valeurs communes pures), leurs estimations sont alors plus précises, l'effet de malédiction du vainqueur est moindre et leurs offres sont plus concurrentielles. L'importante étude publiée par DeBrock et Smith en 1983 traitait de l'adjudication des concessions pétrolières, dont on peut raisonnablement penser qu'elle s'inscrit dans le contexte de valeurs communes pures et d'une mise en commun des informations.⁷ Mais ces deux auteurs ont également souligné que les offres conjointes peuvent aller si loin que la réduction de l'effet de concurrence prédomine. En d'autres termes, cette étude

⁶ On comprend sans doute mieux ce point de vue si l'on sait que ces premiers travaux étaient pour la plupart consacrés à l'adjudication de concessions pétrolières dans le Golfe du Mexique, région où peu de forages avaient été réalisés et pour laquelle les études sismiques étaient relativement rudimentaires. Dans un tel environnement, caractérisé par une grande incertitude et des valeurs communes, les compagnies pétrolières étaient amenées à former des consortiums afin de pouvoir s'engager sur des projets aussi importants et risqués. (Sur l'historique des technologies utilisées pour les études sismiques, voir le site Internet de la Society of Petroleum Engineers : http://www.spe.org/spe/jsp/basic/0,,1104_1714_1004089,00.html)

Plus récemment, et concernant des projets de bien moindre envergure, Felsö, Baarsma et Mulder (2006) ont mené une enquête auprès des soumissionnaires conjoints attributaires et des responsables des achats pour un échantillon de marchés de construction. Ils ont constaté que les « combinaisons » (deux sociétés ou plus convenant de mener un projet ensemble et donc de soumissionner conjointement) s'expliquaient les trois-quarts du temps par le fait que les entreprises ne pouvaient répondre séparément aux exigences du contrat, notamment parce qu'elles ne disposaient pas de l'expertise spécifique nécessaire ou d'une capacité suffisante. Les soumissionnaires et les autorités chargées des achats sont d'accord sur cette évaluation générale, mais non sur l'importance relative des raisons spécifiques évoquées.

⁷ Les auteurs n'ont pas tenu compte d'une part des asymétries qui existent lorsqu'une entreprise possède plus d'informations que ses concurrents parce qu'elle connaît mieux les sites adjacents, ni d'autre part des valeurs différentes dues à la baisse potentielle des coûts rendue possible par la production sur ces sites adjacents. En outre, ils considéraient explicitement que les informations sur la valeur d'une zone d'exploitation étaient collectées par les entreprises avant qu'elles décident ou non de soumissionner ensemble ; on pourrait donc raisonnablement considérer qu'il s'agit d'une « mise en commun des informations » plutôt que d'une simple élimination d'un concurrent.

montre que, dans un contexte de valeurs communes pures, les offres conjointes peuvent, jusqu'à un certain point, avoir des effets positifs sur les recettes enregistrées par l'adjudicateur.⁸

Ce n'est que pour certains modèles que l'analyse permet de déterminer si la malédiction du vainqueur ou la réduction de l'effet de concurrence prédomine.⁹ Ces résultats se fondent pour l'essentiel sur des hypothèses spécifiques ; si on y apporte quelques modifications mineures, il peut être impossible de déterminer analytiquement la position d'équilibre. Klemperer cite différents exemples qui tendent à montrer que les offres conjointes ont toujours des conséquences anticoncurrentielles. (Klemperer, 2005, pp. 19-21)

L'importance des conséquences de la malédiction du vainqueur a fait l'objet de diverses estimations empiriques. Dans une analyse des appels d'offres pour la construction d'autoroutes et de ponts citée par le bureau d'études NERA, la meilleure offre était de 15 % supérieure (c'est-à-dire moins avantageuse pour l'adjudicateur) lorsque le nombre de soumissionnaires passait de trois à six (NERA, 2005, citant Hong et Shum, 2002)¹⁰.

D'autres travaux théoriques récents ont porté sur les offres conjointes dans le cadre d'enchères à prix uniforme avec demande multi-unitaire (Levin, 2004). Ils se fondaient sur l'hypothèse de valeurs communes pures. Lorsqu'il s'agit d'une demande multi-unitaire, à la différence d'une demande portant sur une unité simple, une nouvelle stratégie peut être utilisée, consistant à réduire la quantité demandée. Autrement dit, il peut être avantageux pour le groupe soumettant l'offre conjointe de réduire ses offres sur la deuxième unité et les unités suivantes. Bien que ceci augmente la probabilité de ne pas remporter ces unités, cette stratégie présente l'avantage de réduire le prix payé pour la première (en vertu des règles des enchères à prix uniforme, toutes les unités sont vendues au même prix, lui-même déterminé par l'unité marginale). De plus, Levin montre que, sous certaines conditions, les enchères multi-unitaires ne sont pas accompagnées d'un effet informationnel. En d'autres termes, « l'avantage pro concurrentiel que présentent les offres conjointes pour les enchères d'unités uniques ne se retrouvent pas dans un environnement multi-unitaire. [Avec la réduction de la demande], la possibilité qu'il existe une plus grande concurrence [du fait d'offres

⁸ Rappelons que, dans un contexte de valeurs communes pures, l'efficacité globale ne dépend pas de la question de savoir qui remporte les enchères – dans ces circonstances, la valeur du bien est en effet la même pour tous les soumissionnaires – mais les pouvoirs publics s'efforcent souvent pour ce type d'enchères de maximiser les recettes vu les pertes d'efficacité qu'entraîne la collecte de recettes fiscales.

⁹ Mares et Shor (2003) ont examiné un de ces modèles dans leur étude des fusions se situant dans l'optique d'un modèle d'enchères à valeurs moyennes (dans un modèle à valeurs moyennes, la valeur réelle du bien est égale à la moyenne de tous les autres signaux ; il s'agit donc d'un type d'enchères à valeurs communes pures, une variante des enchères à valeurs communes). Dans ce modèle, une fusion implique que la société qui en est issue dispose des signaux reçus par les deux sociétés avant la fusion. Une fusion a donc deux effets : l'élimination de la concurrence entre les sociétés parties à la fusion et la consolidation de l'information, ce qui a pour résultat que la nouvelle société dispose de meilleures informations sur la valeur réelle du bien. Cet effet informationnel réduit l'ampleur du phénomène de « malédiction du vainqueur ». Mares et Shore ont cherché à déterminer si c'est l'effet de réduction de la concurrence ou celui de malédiction du vainqueur qui influence davantage les offres. Ils ont étudié à cet effet des enchères scellées au premier prix et des enchères scellées au deuxième prix. Les résultats ont montré que l'effet de réduction de la concurrence prédominait pour les enchères scellées au deuxième prix, les offres étant plus agressives lorsque les soumissionnaires étaient plus nombreux. Pour les enchères scellées au premier prix, ce n'était le cas que s'il y avait un nombre élevé de participants. A l'équilibre, les fusions avaient pour conséquence de réduire les recettes espérées des enchères (en vertu du théorème de l'équivalence du revenu, qui peut s'appliquer à ce modèle, ceci est vrai pour les deux types d'enchères étudiés).

¹⁰ Les achats étudiés par Hong et Shun incluaient deux autres types de travaux pour lesquels existait une part importante de valeurs privées. Dans ces circonstances, les auteurs ont constaté que plus le nombre de candidats était élevé, plus l'État du New Jersey était susceptible de réaliser une bonne affaire.

conjointes] se trouve encore affaiblie » (Levin 2004). Dans de telles situations, la présence de soumissions conjointes réduit donc le caractère concurrentiel des offres.

Les offres conjointes ont donc trois types de conséquences : un effet informationnel (dû à la mise en commun des informations), qui incite à enchérir de façon plus agressive, mais également un effet de réduction de la concurrence (du fait que les candidats sont moins nombreux) et, pour les enchères multi-unitaires, un effet de réduction de la demande qui encourage également la soumission d'offres moins agressives. On retrouve pour les valeurs privées les effets de réduction de la concurrence et de réduction de la demande, mais pas celui de mise en commun des informations. Les soumissions conjointes conduisent donc toujours à des offres moins concurrentielles. Toutefois, pour des valeurs communes, le fait que l'offre conjointe soit ou non moins agressive que l'offre individuelle relève largement de considérations empiriques.¹¹

On notera enfin que, lorsqu'il s'agit d'enchères multi-unitaires dont la demande porte sur une seule unité (telles les enchères de licences de télécommunication), les participants potentiels ne pourront réagir et concurrencer les enchérisseurs soumettant une offre conjointe si celle-ci intervient peu avant la date des enchères. Ce problème se pose lorsque les enchérisseurs conjoints jouissent d'un avantage relatif, les participants potentiels choisissant alors de ne pas engager les frais de préparation de l'offre, contrairement à ce qui aurait été le cas s'ils avaient su que les enchérisseurs avantagés choisiraient de soumettre une offre commune. Les enchères peuvent être en outre conçues en fonction d'un nombre prédéfini de soumissionnaires probables. On peut, pour résoudre ce problème, interdire l'annonce d'offres conjointes juste avant les enchères.

2.1.5 Enchères ascendantes/enchères scellées

Les enchères ascendantes sont considérées comme favorisant plus largement la collusion que les enchères scellées (au premier prix), où les membres de l'entente peuvent plus facilement violer les accords tacites.¹² Cette opinion repose sur les éléments suivants :

- Dans des *enchères ascendantes*, supposons que les membres du réseau d'enchérisseurs conviennent de ne pas se concurrencer par leurs offres. Dans le cas de valeurs privées, le gain que procure cette collusion est la réduction du montant de la deuxième évaluation la plus élevée (qui correspond au prix payé par le vainqueur ; voir le passage ci-dessus consacré aux principaux types d'enchères), du fait que les autres membres de l'entente ne sont plus en lice. (Si la deuxième meilleure évaluation provient d'un candidat externe, l'entente est alors inutile). Les membres de l'entente ne chercheront pas à enfreindre l'accord tacite : puisqu'aucun d'entre eux ne soumettra une offre supérieure à sa propre évaluation, le soumissionnaire dont l'évaluation est la plus élevée remporte les enchères, qu'il y ait ou non accord, la seule question étant alors celle

¹¹ Il convient de souligner que l'on peut difficilement considérer que l'effet de mise en commun des informations qui découle d'offres conjointes se retrouve pour les fusions. En particulier, une société née d'une fusion peut ne pas disposer des mêmes informations que celles dont auraient bénéficié les deux sociétés si elles étaient demeurées distinctes. Ainsi, l'effet de mise en commun des informations peut être ponctuel ou à court terme, alors que la réduction de la concurrence et de la demande sont des conséquences à plus long terme.

¹² Notons cependant que l'annonce publique des résultats d'enchères scellées, en révélant des violations d'accords tacites qui autrement seraient restées secrètes, permet aux membres de l'entente d'exercer un contrôle plus efficace sur leur réseau.

du prix. Une offre supérieure à celle des enchérisseurs susceptibles de violer l'entente sera tout simplement soumise, et ces enchérisseurs ne chercheront donc pas à enfreindre l'accord¹³.

- Dans le cadre d'*enchères sous pli scellé au premier prix*, supposons que les membres de l'entente conviennent de soumettre des offres spécifiques. Le gain que procure la collusion découle du fait que le membre dont l'évaluation est la plus élevée soumet une offre inférieure à ce qu'elle aurait été en l'absence d'entente. Un autre membre pourrait donc être tenté de soumettre une offre plus élevée – mais pas supérieure à celle qu'il aurait soumise en l'absence d'accord – et remporter les enchères, une bonne opération qu'il n'aurait pu réaliser dans le cadre d'enchères concurrentielles. Il peut même remporter les enchères tout en ne révélant pas son identité et continuer ainsi d'agir comme un membre respecté de l'entente.

Les enchères sous pli scellé ne sont cependant pas à l'abri d'actions coordonnées. Des interactions répétées peuvent favoriser l'utilisation de signaux, en particulier si l'adjudicateur fournit des informations historiques.

Des travaux empiriques récents tendent à montrer que choisir des enchères ascendantes plutôt que scellées peut avoir d'importantes conséquences en matière de collusion. En effet, pour les enchères étudiées, l'effet du passage d'une forme de collusion à une autre est dérisoire au regard de l'effet sur la participation des enchérisseurs¹⁴, même lorsqu'ils sont en situation d'asymétrie. (Athey, Levin et Seira, 2004)¹⁵

Il est également souvent plus facile d'engager des poursuites pénales pour des enchères sous pli scellé que pour des enchères ascendantes. Les enchères scellées laissent une trace écrite qui permet d'identifier tous les enchérisseurs ainsi que leurs offres. Dans le cas d'enchères ascendantes, au contraire, toutes les offres soumises peuvent ne pas être consignées de manière formelle et, les participants n'étant parfois pas en mesure de soumettre leurs offres avant que le prix ne devienne excessif, il est possible qu'aucune trace de leur participation ne subsiste. Si l'entente se fonde sur la non-participation, il sera alors difficile d'identifier les membres qui n'ont pas pris part directement aux enchères ascendantes. Pour étayer les éventuelles poursuites, les éléments concernant « tous » les aspects des enchères devront être conservés durant une longue période. Afin d'amplifier leur effet dissuasif, il convient de faire savoir publiquement que tel sera le cas. (Kovacic *et al*, 2006)

¹³ Lors d'enchères ascendantes, soumettre une offre supérieure à celle du participant qui viole l'entente permet à ses membres de contrer facilement de telles pratiques.

¹⁴ Voir ci-dessous les développements consacrés à la manière dont la participation se trouve influencée par le choix entre enchères scellées et enchères ascendantes.

¹⁵ L'étude portait sur les enchères de bois d'œuvre. Pour donner un ordre d'idées, ces travaux montrent que, sans tenir compte des effets liés à la participation des enchérisseurs, les enchères scellées conduiraient en des recettes supérieures de 651 dollars US (Nord Ouest des États-Unis) ou de 1 018 dollars US (Californie) par rapport à celles d'enchères ascendantes. Une participation plus importante des soumissionnaires (de l'ordre de 3 à 6 concurrents supplémentaires pour 10 ventes) a permis d'augmenter en moyenne les recettes des enchères scellées de 5 300 dollars US (4 %) dans le Nord Ouest des États-Unis et de 26 000 dollars US (13 %) en Californie. Le fait que les entreprises se livrent à l'occasion d'enchères ascendantes « à des activités modérées de coopération » entraîne une baisse des recettes de 22 000 dollars par rapport à des enchères concurrentielles, ou plus de 27 000 dollars si l'on tient compte des effets de la participation (pp. 36-37). Cette étude se basait sur les enchères de bois d'œuvre dans les forêts fédérales de Lolo et de Panhandle (Idaho) (le « Nord Ouest des États-Unis ») et les forêts du Sud-Ouest de la côte Pacifique (la « Californie ») entre 1982 et 1990.

2.1.6 *Autres considérations relatives à la conception*

Les enchères scellées multi-unitaires à prix uniforme permettent une autre stratégie d'offre qui, si tous les enchérisseurs l'utilisent, favorise des prix non concurrentiels. Prenons l'exemple de marchés où les enchérisseurs formulent des offres différenciées en fonction des quantités demandées (en d'autres termes, ils enchérissent pour une série de quantités en fonction du prix qu'ils seraient prêt à payer pour celles-ci) et où le prix payé par tous les enchérisseurs est déterminé par l'offre retenue la moins élevée. Ces offres différenciées peuvent être conçues de manière à sanctionner automatiquement toute défection à un accord de collusion.¹⁶ (Klemperer, 2004, p. 105)

2.2 *Participation*

Encourager la participation est le deuxième principal outil pour promouvoir la concurrence dans les enchères. Comme pour les marchés ordinaires, les conséquences qu'ont sur la concurrence les actions des différents participants sont variables mais, fait étonnant, les enchérisseurs peuvent exercer une forte influence positive sur les résultats. On peut promouvoir la participation en renonçant aux enchères ascendantes au profit d'enchères sous pli scellé, en réduisant les coûts d'élaboration des offres et en favorisant de diverses manières les plus petits enchérisseurs.

Les conséquences de la participation en termes d'efficacité dépendent entre autres du fait qu'elle s'inscrit ou non dans un contexte de valeurs communes « pures ». Le degré d'efficacité n'est alors nullement fonction de qui remporte les enchères : le résultat le plus efficace est que celui qui remporte les enchères paie la valeur réelle de l'objet. Plus les enchérisseurs sont nombreux, plus les enchères scellées à valeurs communes pures sont efficaces.¹⁷ (Selon cette hypothèse, il n'est censé y avoir aucun effet de collusion ou d'innovation, ce qui peut sembler peu réaliste.)

Au-delà même des situations de valeurs communes pures, une plus forte participation conduit généralement à des enchères plus concurrentielles. Dans le cas d'enchères avec valeurs privées, et pour de nombreuses enchères avec valeurs communes, des enchères ascendantes sans prix de réserve et un nombre d'enchérisseurs symétriques $N+1$ dégageront une rentabilité supérieure à « des enchères quelconques pouvant raisonnablement être organisées » avec N participants. « Le vendeur aura habituellement intérêt à consacrer davantage de ressources à l'élargissement du marché qu'à la collecte d'informations et aux calculs nécessaires pour déterminer le meilleur mécanisme. » (Klemperer, p. 27, citant les résultats des travaux de Bulow et Klemperer, 1996)¹⁸

¹⁶ Si les offres sont structurées de telle manière que les enchérisseurs doivent payer un prix très élevé pour une quantité légèrement inférieure à la part convenue, et que tous les acteurs tentent d'acheter une part supérieure à celle-ci, le prix est très élevé et tous les soumissionnaires sont sanctionnés.

¹⁷ Holt (1980) montre que, dans le cas d'équilibres symétriques, plus le nombre d'enchérisseurs tend vers l'infini, plus leurs offres s'approchent de la valeur réelle de l'objet.

¹⁸ Certaines enchères au premier prix avec valeurs privées affiliées sont une exception à cette règle générale (Pinske et Tan, 2005). Dans une étude théorique, Pinske et Tan considèrent que les évaluations privées sont liées par un facteur commun inconnu mais, même si elles lui sont subordonnées, demeurent néanmoins indépendantes. Ils se fondent sur l'hypothèse de neutralité au risque et de situation de symétrie. Le nombre d'enchérisseurs est déterminé de manière exogène. Les auteurs ont constaté que la fonction d'équilibre de l'enchère peut augmenter avec le nombre de participants. Mais ils n'ont pu déterminer si l'offre retenue augmentait toujours en fonction du nombre d'enchérisseurs, ni identifier les circonstances où elle baisse si le nombre de concurrents augmente. En d'autres termes, pour ce type d'enchères, l'augmentation du nombre de participants peut aussi bien entraîner que ne pas entraîner une augmentation des prix.

La réduction des coûts de préparation des offres permet d'inciter davantage d'enchérisseurs à participer aux enchères. On peut à cette fin normaliser les procédures, notamment sur le plan chronologique entre les différentes circonscriptions administratives. Pour certains aspects spécifiques des enchères, ceci pourrait impliquer un arbitrage par rapport à la conception de mécanismes spécifiquement adaptés. Le regroupement d'enchères, pour répartir les frais d'élaboration des offres entre plusieurs opérations, ou encore le fractionnement en plusieurs unités moins importantes, peuvent attirer des participants plus nombreux. Toutefois, lorsque les différentes composantes sont complémentaires, la conséquence d'un tel fractionnement pourrait être que seules les premières enchères soient concurrentielles, l'exploitant en place bénéficiant d'un avantage excessif pour que les autres candidats soient incités à participer aux enchères suivantes.

Comme le remarque Milgrom :

« Dans les enchères effectivement organisées, les enchérisseurs refusent le plus souvent de participer si le mécanisme proposé leur semble étrange ou injuste. Le précédent et l'habitude limitent souvent le nombre de méthodes pouvant être utilisées en pratique. » (Milgrom 2004, p. 166)

Souvent, le processus vise à encourager les enchérisseurs les moins avantagés, c'est-à-dire ceux qui sont le moins susceptibles de remporter les enchères, à participer activement. À ce titre, les enchères scellées sont généralement plus efficaces que les enchères ascendantes. Dans des enchères ascendantes, en effet, seuls les enchérisseurs se trouvant dans la meilleure position, c'est-à-dire ceux dont les évaluations sont les plus élevées, demeureront en lice jusqu'à un moment proche de la fin des enchères. Les candidats les moins avantagés en ont conscience et font le raisonnement suivant : si nous devons nous retirer vers la fin, autant ne pas participer et économiser ainsi les frais d'élaboration de notre offre. Fait étonnant, ceci est vrai même lorsque la différence est ténue entre les enchérisseurs « en position de force » et ceux qui sont les « moins avantagés ». Au contraire, dans le cas d'enchères sous pli scellé, les plus petits enchérisseurs peuvent remporter les enchères à un prix qui aurait pu faire l'objet d'une surenchère du candidat bénéficiant du plus grand avantage. Dans des enchères sous pli scellé, contrairement à des enchères ouvertes, le participant en position de force n'est pas en mesure de modifier son offre après avoir pris connaissance des offres des plus petits enchérisseurs.

Encadré 3. L'effet de participation. Comparaison entre les enchères ascendantes et les enchères scellées pour l'adjudication de licences de télécommunications 3G.

Les Pays-Bas, qui comptaient cinq opérateurs historiques de téléphonie mobile, ont vendu cinq licences 3G par le biais d'enchères ascendantes. Les enchérisseurs pouvaient remporter au maximum une licence chacun. « Les nouveaux entrants potentiels les mieux placés, conscients de la faiblesse de leur position, ont conclu des accords avec les opérateurs en place. Les dysfonctionnements ont été significatifs, tant du point de vue de la politique de concurrence des Pays-Bas que pour la conception même des enchères. En effet, des entreprises telles que Deutsche Telekom, DoCoMo, et Hutchinson, toutes des acteurs importants sur les marchés étrangers, ont pu conclure des partenariats avec les opérateurs historiques locaux. » Finalement, seul un nouvel entrant a soumis une offre. Il a fini par se retirer après avoir reçu une lettre de menaces d'un exploitant en place. Les cinq opérateurs historiques ont remporté les cinq licences, pour environ 3 milliards d'euros, bien en deçà du montant par habitant au Royaume-Uni.

Les enchères organisées au Danemark sont au contraire considérées comme une réussite. Il y avait dans ce pays quatre opérateurs historiques de téléphonie mobile et quatre licences 3G ont été mises aux enchères. Au vu des précédentes enchères de licences 3G, il a été décidé d'utiliser des enchères scellées afin d'attirer les enchérisseurs les moins avantagés, d'encourager la participation de nouveaux entrants et d'empêcher les opérateurs en place de soumettre des offres trop élevées. Les pouvoirs publics ont tenu secret le nombre effectif d'enchérisseurs ainsi que toutes les offres soumises, à l'exception de la quatrième plus élevée. Tous les attributaires ont payé le montant de la quatrième meilleure offre, soit environ 95 euros par personne, somme pratiquement deux fois plus élevée que les prévisions de la plupart des observateurs. Un nouvel entrant figurait parmi les vainqueurs. (Klemperer, pp. 155-156, 163-164).

Pour « renforcer » la position des enchérisseurs les moins avantagés, on peut *réserver* certains marchés, c'est-à-dire autoriser exclusivement les petites entreprises à enchérir sur certaines licences. C'est le choix qui a été fait pour les enchères des blocs D-E-F précédemment mentionnées, où certaines licences ne pouvaient être remportées que par des candidats de taille relativement modeste. Une autre méthode consiste à mettre en place des *crédits de soumission*, dont le principe général est que les petites entreprises ne paient qu'une certaine fraction de leurs offres retenues. Ce système est analogue à la discrimination par les prix sur les marchés ordinaires, qui permet à un monopoleur de vendre également à des clients à faible valeur. Pour réserver un marché, on pourrait par exemple empêcher l'exploitant en place de soumissionner, ce qui viserait toutefois davantage à restreindre ultérieurement son pouvoir de marché. Une autre méthode pour encourager une participation élargie consiste à *fractionner les objets ou les lots*. Un tel 'fractionnement' peut inciter davantage de candidats à soumissionner. Toutefois, si le nombre de participants est fixé par avance, cette méthode peut également offrir aux enchérisseurs des possibilités de « répartition », ce qui se traduit par une réduction des recettes (Milgrom, pp. 234-239). Certaines de ces solutions peuvent tomber sous le coup de règles anti-discrimination ou visant à limiter les aides d'Etat.

On parle de *verrouillage* lorsque le fait de remporter des enchères confère un avantage pour les enchères suivantes. Par exemple, l'attributaire des premières séries d'enchères, qui est désormais l'exploitant en place, bénéficierait d'une position de force pour les prochaines enchères visant la même licence. Une stratégie efficace pourrait consister à soumettre une offre inférieure aux coûts lors de premières enchères et de bénéficier ensuite de rentes en soumettant des offres élevées pour les enchères suivantes. Les concurrents hésiteront à participer à des enchères où ils devront affronter un exploitant en place mieux informé. Comme on l'a vu dans le précédent paragraphe, l'adjudicateur peut, pour contrecarrer cette stratégie, modifier les règles utilisées afin de favoriser certains participants.

L'attribution du monopole d'exploitation de la United Kingdom National Lottery illustre cette situation de verrouillage ainsi que les règles visant à en contrecarrer les effets. Huit enchérisseurs étaient en lice lors des premières enchères. Au moment de la deuxième série d'enchères, l'attributaire avait acquis une expérience pratique ainsi qu'une certaine réputation sur le marché. Seule une offre concurrente a été soumise. Les craintes qu'il n'y ait aucun concurrent en 2006 ont conduit le ministère de la Culture, des médias et des sports à examiner la situation et abouti à une modification de la structure de la franchise. Ainsi, des enchères seront tout d'abord organisées pour une franchise unique. Si, à un certain stade, comme par exemple après la clôture du premier appel d'offres, la National Lottery Commission conclut « que les conditions d'une concurrence effective ne peuvent être satisfaites », elle pourra alors demander aux pouvoirs publics d'exercer leurs prérogatives en organisant des enchères pour des licences supplémentaires (ministère britannique de la Culture, des Médias et des Sports, 2004).

2.3 *Autres considérations*

Certains aspects des enchères ne trouvent pas de pendant sur les marchés ordinaires. Tout d'abord, comme on l'a noté plus tôt, l'adjudicateur peut modifier les règles existantes. Cependant, celles-ci sont souvent sujettes à négociation ou à diverses actions de lobbying, parfois dans une perspective anticoncurrentielle. Par exemple, un opérateur en place pourrait, afin de renforcer sa position, exercer des pressions en faveur d'enchères ascendantes.

Deuxièmement, les adjudicateurs peuvent stimuler la concurrence en jouant sur les informations dont disposent les enchérisseurs. Dans un contexte de valeurs communes, le fait que l'adjudicateur révèle l'ensemble de ses informations privées sur la valeur d'un objet pourra ainsi présenter un double avantage. Tout d'abord, ceci aura pour effet de réduire les rentes que les candidats tirent de leurs propres

informations privées. Ensuite, ces renseignements supplémentaires permettront aux enchérisseurs d'estimer avec une plus grande précision la valeur de l'objet et donc de soumettre des offres plus agressives.¹⁹

Troisièmement, les enchères accentuent les différences existantes entre des concurrents quasiment équivalents, contrairement à un marché ordinaire où un des acteurs pourrait posséder une part de marché sensiblement supérieure. Un exemple de ce type (un opérateur en place disposant d'avantages en termes d'informations ou de coûts) est présenté ci-dessus, mais on pourrait également évoquer le cas des compléments. Lorsque, du fait qu'un enchérisseur possède un complément, son évaluation est légèrement supérieure à celle des autres candidats, la situation relève alors pratiquement de valeurs communes. Les candidats les moins avantagés sont dissuadés de participer à des enchères ascendantes, même lorsque leur handicap est relativement faible. Si une fusion devait probablement renforcer la position d'un candidat lors des prochaines enchères, cette fusion pourrait ne pas être approuvée parce qu'elle conduit à une réduction de la concurrence. Il semble que ceci explique en partie la décision quant à la fusion BSkyB - Manchester United. (Klemperer, 2004, p. 23)

2.4 Conclusions

La méthode des enchères est souvent privilégiée par rapport aux « prix affichés » et aux marchés de gré à gré car, lorsqu'elle est appliquée, la valeur de l'objet est inconnue et on cherche à établir une meilleure égalité des chances (à la vente comme à l'achat) et à limiter la discrimination par les prix. Des raisons d'efficacité économique justifient également cette préférence.

Les critères utilisés pour choisir entre différentes méthodes d'enchères comprennent notamment : le pouvoir de marché, les coûts d'organisation des enchères et de participation des enchérisseurs, les divers types de risques encourus par les candidats (ne pas remporter les enchères, ou une quantité suffisante d'objets ou la combinaison souhaitée, payer plus que nécessaire) et la durée du processus.

Différentes méthodes d'enchères sont susceptibles de limiter les problèmes de collusion ou les pratiques concertées. Elles peuvent viser à dissuader ou à encourager la participation. En outre, les adjudicateurs peuvent jouer sur les informations dont disposent les enchérisseurs et, en vue d'éventuelles poursuites pénales, veiller à conserver les données concernant l'adjudication.

La conception d'enchères implique de répondre à plusieurs questions importantes :

- *À quelle fréquence les enchères successives doivent elles être organisées ?* Des enchères plus fréquentes peuvent impliquer des coûts supérieurs et favoriser la collusion, mais également mieux prendre en compte les variations de la demande ou de la valeur. Annoncer la tenue d'une série d'enchères peut faciliter les pratiques de collusion.

¹⁹

Une étude portant sur les appels d'offres dans le domaine de la construction d'autoroutes confirme empiriquement la validité de ce résultat théorique. Ces enchères se sont déroulées en 1998-2003 dans l'État de l'Oklahoma et dans les zones limitrophes du Texas. L'Oklahoma a modifié sa politique de divulgation des informations en avril 2000 pour permettre aux soumissionnaires d'accéder au devis estimatif de l'ingénieur en charge du projet au niveau de l'État. Le Texas, pour sa part, ne l'avait pas modifiée et pouvait donc servir de référence. Pour les projets liés à la construction de ponts, où l'incertitude quant aux coûts communs était perçue comme supérieure, le montant des offres moyennes et celui des offres retenues ont baissé de 10 % après ce changement de politique. Pour les travaux de goudronnage, où cette incertitude est moindre, aucun changement significatif n'a été constaté, que ce soit pour les offres moyennes ou pour les offres retenues. Plusieurs États ont récemment modifié leur politique afin de communiquer les estimations des ingénieurs ou ont indiqué qu'ils envisageaient de le faire. [DeSilva *et al*, 2005].

- *Comment vendre (ou acheter) des objets liés multiples ?* Les éléments peuvent être identiques, mais également plus ou moins substituables ou complémentaires. La tenue d'enchères séquentielles peut conduire à ce que des éléments identiques soient vendus à des prix différents, ce qui semble injuste, et à ce que les enchérisseurs n'obtiennent pas la combinaison souhaitée d'éléments, en particulier lorsqu'il s'agit de compléments, ce qui est inefficace. Dans le cas d'enchères simultanées, il est possible que les enchérisseurs remportent trop ou trop peu de substituts, ou n'obtiennent pas les combinaisons souhaitées. Le recours à plusieurs tours d'enchères peut permettre d'atténuer ces problèmes. La présence d'un marché secondaire post-enchères n'est nullement susceptible d'améliorer de mauvaises attributions lorsqu'il existe des informations privées sur les objets.
- *Qui sont les candidats possibles ?* Des enchérisseurs qui ne sont pas en mesure d'honorer leurs engagements pourraient remporter les enchères, ce qui irait à l'encontre de l'objectif même d'une adjudication. Toutefois, exclure trop de candidats pourrait amener à refuser la participation de celui dont l'évaluation est la plus élevée, ou encore permettre aux candidats non exclus d'exercer un pouvoir de marché.
- *Certains enchérisseurs doivent-ils bénéficier d'un traitement spécifique ?* Inciter les candidats les moins avantagés à participer peut encourager les enchérisseurs en position de force à soumettre des offres plus concurrentielles. Ces mesures soulèvent toutefois des problèmes du point de vue de l'égalité des chances et peuvent tomber sous le coup de la réglementation relative aux aides d'État.
- *Faut-il favoriser les enchères ascendantes par rapport aux enchères sous pli scellé ? En d'autres termes, faut-il que les candidats puissent soumettre plusieurs offres ?* Les pratiques de collusion sont rendues plus difficiles lors d'enchères sous pli scellé, car il est plus facile pour les candidats de violer un accord tacite. La participation sera vraisemblablement plus élevée pour des enchères sous pli scellé que pour des enchères ascendantes. En effet, les candidats les moins avantagés sont encouragés à participer car ils peuvent remporter le marché face à des enchérisseurs plus puissants, contrairement à ce qui est le cas pour les enchères ascendantes. Dans le cas d'enchères sous pli scellé (à un seul tour), les enchérisseurs économisent certains frais d'élaboration des offres car ils cherchent davantage à déterminer la valeur de l'objet qu'à identifier les stratégies de leurs concurrents. Il est toutefois possible que l'enchérisseur dont l'évaluation est la plus élevée ne remporte pas les enchères lorsque les offres sont remises sous pli cacheté, bien que l'on puisse utiliser un prix de réserve élevé en vue d'empêcher une telle situation. La tenue d'enchères anglaises demandera sans doute plus de temps que des enchères sous pli scellé ; toutefois, les enchères descendantes constituent sans doute la méthode la plus rapide.
- *Comment le prix doit-il évoluer durant les enchères ?* Avec les enchères ascendantes, les enchérisseurs peuvent connaître les évaluations de leurs concurrents. Cette méthode est donc utile lorsque les candidats ont des informations de mauvaise qualité ou sont peu disposés à prendre des risques. Le vendeur peut toutefois tirer un gain supérieur en utilisant des enchères descendantes (ou « enchères hollandaises »). Cette méthode permet de vendre rapidement une grande quantité de biens, ce qui est important lorsqu'il s'agit de denrées périssables.
- *Quelles informations communiquer aux enchérisseurs ?* Dans le contexte de valeurs communes, les enchères ascendantes permettent aux candidats de connaître l'identité des autres enchérisseurs ainsi que leurs offres. Ils bénéficient donc d'une meilleure appréciation des évaluations de leurs concurrents, ce qui atténue les conséquences de la malédiction du vainqueur. Cependant, ceci encourage la collusion car il devient alors plus difficile de violer un accord tacite. L'adjudicateur peut encourager la soumission d'offres plus agressives en révélant toutes les informations qu'il possède sur la valeur de l'objet. Le fait que l'adjudicateur communique certains renseignements entre les différents tours des enchères sous pli scellé peut contribuer à atténuer le problème posé

par la malédiction du vainqueur (voir le passage sur les enchères pour l'attribution de capacités gazières en Mer du Nord britannique). Lors d'enchères successives, les informations fournies sur les différentes offres peuvent aider à contrôler l'action de l'adjudicateur. Toutefois, les ententes horizontales peuvent également les utiliser pour contrôler les activités de leurs membres.

- *Quel est le prix payé par le gagnant ?* Au vu du grand nombre de facteurs en jeu, il est impossible de tirer une conclusion simple sur ce point. Dans le cas d'enchères au deuxième prix et à valeurs privées portant sur une seule unité, les enchérisseurs soumettent une offre correspondant à leur estimation de la valeur réelle de l'élément. L'enchérisseur dont l'évaluation est la plus élevée remporte les enchères, ce qui est un résultat efficient. Toutefois, demander à ce candidat, après avoir pris connaissance de la valeur réelle, de payer un prix correspondant à la deuxième meilleure offre, peut créer des problèmes d'ordre politique. Lors d'enchères successives, les enchérisseurs éprouveront également des réticences à soumettre des offres correspondant à ce qu'ils estiment être la valeur réelle des objets. Toutefois, lorsque des enchères sous pli scellé à valeurs privées portent sur une seule ou plusieurs unités et que les candidats règlent le montant de leur offre (le premier prix), l'enchérisseur dont l'évaluation est la plus élevée peut être amené à trop minorer la sienne et donc à ne pas remporter les enchères. Ce résultat est inefficient. Sur un marché où les prix sont fixés au prix offert (*enchères discriminatoires*), il peut sembler injuste de pratiquer des prix différents. Dans le cas d'enchères multi-unitaires à prix uniforme, les enchérisseurs minorent leurs offres pour les raisons mentionnées précédemment, mais aussi pour payer un prix inférieur pour les unités infra-marginales. Au vu de ces multiples considérations, il est donc impossible de proposer une recommandation simple.

Ces observations nous conduisent à formuler un certain nombre de recommandations :

- Lorsqu'il existe des risques sérieux de collusion, privilégier les enchères sous pli scellé par rapport aux enchères ascendantes.
- Fixer un prix de réserve élevé, mais crédible.
- Examiner attentivement la question des informations à fournir aux candidats et au public.
- Regrouper les plus petites enchères et ne pas annoncer le programme des futures enchères.

Encourager la participation contribue également dans une large mesure à promouvoir la concurrence dans le domaine des enchères. Comme pour les marchés ordinaires, il peut être utile de réduire les coûts de participation en abaissant les coûts d'élaboration des offres. Les enchères sous pli scellé sont davantage susceptibles d'attirer les candidats les moins avantagés que les enchères ascendantes. D'autres méthodes peuvent être utilisées pour les inciter à participer. Il s'agit notamment de réserver certains marchés, de mettre en place des crédits de soumission ou encore de fractionner les objets, technique qui peut cependant inciter à la collusion lorsque le nombre de participants est fixé d'avance.

L'application de la théorie économique est souvent soumise à des contraintes opérationnelles. Il est toutefois utile de connaître, à tout le moins, le point de vue d'un théoricien contemporain sur les méthodes d'enchères :

« Les recherches menées dans le domaine des enchères ont mis en évidence deux lignes directrices pour parvenir à des méthodes efficaces. Tout d'abord, les enchères doivent être structurées de telle manière que le prix payé par un participant donné — s'il est l'attributaire — soit aussi indépendant que possible de ses propres offres (William Vickrey, 1961). Dans l'idéal, le prix réglé par l'attributaire devrait dépendre exclusivement des offres concurrentes (comme pour les enchères sous pli scellé au deuxième prix) afin d'encourager pleinement les différents

participants à révéler véridiquement la valeur qu'ils assignent au bien. Deuxièmement, il convient d'utiliser une structure ouverte, afin que les informations dont disposent les participants lorsqu'ils enchérissent soient aussi nombreuses que possible (Paul R. Milgrom and Robert J. Weber, 1982a). Lorsque les signaux des candidats sont affiliés et que l'évaluation repose en partie sur des valeurs communes, les enchères ascendantes ouvertes vont encourager les participants à soumettre (en général) des offres plus agressives que dans le cas d'enchères sous pli scellé. Les participants vont en effet, au moment où ils soumettent leurs offres finales, pouvoir déduire de plus nombreuses informations des signaux de leurs adversaires » (Ausubel, 2004).

3. Les fusions sur les marchés d'enchères

Les autorités de la concurrence sont souvent amenées à évaluer des fusions sur les marchés d'enchères. La problématique générale est la même que celle des marchés ordinaires, mais « les marchés d'enchères suscitent également des argumentations qui ne sont pas plausibles » (Waehrer et Perry 2003). Cette section commence par examiner les raisonnements tels que celui qui veut que « deux acteurs suffisent à créer une situation de concurrence », avant d'aborder les effets des fusions sur la concurrence, dans un contexte de valeurs communes ou de valeurs privées. Cette dernière analyse s'appuie sur les archives publiques détaillées concernant la fusion Oracle/PeopleSoft. Nous traiterons enfin la question des parts de marché.

3.1 Les marchés d'enchères idéaux

On considère parfois que les autorités de concurrence doivent évaluer différemment les fusions lorsque les marchés approvisionnés par les parties à la fusion sont des « marchés d'enchères ». On fait valoir ainsi que : « deux acteurs suffisent à créer une situation de concurrence », « les parts de marché n'ont aucune importance », « les acheteurs peuvent modifier la méthode d'enchères utilisée pour se protéger d'un pouvoir de marché. » On examinera maintenant ces différentes affirmations, largement à partir des travaux de Klemperer (2005).

Ces affirmations se basent sur des situations extrêmes que l'on rencontre rarement dans la réalité. Elles évoquent deux modèles plus familiers : celui de la concurrence à la Bertrand, où la présence d'un concurrent suffit pour éviter l'exercice d'un pouvoir de marché, et celui des marchés « parfaitement contestables », où les contraintes concurrentielles imposées par les nouveaux entrants potentiels suffisent pour empêcher l'exercice d'un pouvoir de marché. Bien que les conditions d'existence de la concurrence à la Bertrand ou de la contestabilité parfaite soient rarement réunies, ces modèles sont utiles car ils nous amènent à nous intéresser à certains éléments pertinents pour notre analyse. Il en va de même des marchés d'enchères idéaux.

Dans un article de 2005 où il aborde directement ces différents points, Klemperer propose quatre critères pour identifier un marché d'enchères « idéal » :

1. l'attributaire remporte l'ensemble du marché ;
2. la concurrence se fait par gros « blocs », c'est-à-dire que chaque adjudication porte sur une part importante des ventes du fournisseur au cours d'une certaine période ;
3. avoir précédemment remporté des marchés n'influe aucunement la probabilité de remporter les enchères actuelles ; il n'existe en particulier aucun « verrouillage » avantageant l'exploitant en place ;
4. les barrières à l'entrée sont faibles.

Si les trois premières conditions sont satisfaites, et si les sociétés correspondent à un même modèle, il s'agit alors d'un modèle de Bertrand, où les entreprises sont en concurrence sur la base des prix pour vendre à un acheteur unique. Lorsque le coût marginal est constant et qu'il n'y a aucune contrainte de capacité, l'équilibre est parfaitement concurrentiel avec deux fournisseurs. Lorsque ces conditions sont remplies, on peut alors effectivement dire que « deux acteurs suffisent à créer une situation de concurrence ».

La notion de marché d'enchères idéal rappelle celle de marché parfaitement contestable. Le modèle des marchés parfaitement contestables fonde ses prédictions remarquables sur la faisabilité d'« entrées éclair » à grande échelle. En particulier, comme Schwartz et Reynolds (1983) l'ont souligné, un nouvel entrant doit pouvoir pénétrer le marché à grande échelle, supporter les mêmes coûts que les exploitants en place, et à la fois entrer sur le marché et s'en retirer avant que les entreprises en place puissent réagir par une baisse des prix. Au vu des similarités entre ces deux modèles, il n'est pas étonnant qu'ils conduisent à des prévisions comparables.²⁰ La relation existant entre la concurrence à la Bertrand, les marchés parfaitement contestables et les marchés d'enchères idéaux, ainsi que les résultats des travaux des autorités de la concurrence, qui depuis longtemps cherchent à évaluer l'adéquation des modèles de marché « à la Bertrand » ou « parfaitement contestables » à certains marchés particuliers, semblent indiquer que les circonstances où la présence de deux concurrents suffirait à conduire à un résultat efficient sont rares, mais nullement impossibles.

La question la plus intéressante est de savoir s'il convient d'accorder aux fusions relevant de marchés d'enchères non idéaux, ne satisfaisant qu'à certains des critères spécifiés, un traitement différent de celui des marchés « ordinaires ». Nous avons vu, dans la deuxième section de ce document, que les problématiques concernant habituellement la concurrence sur les marchés ordinaires s'appliquent également aux marchés d'enchères. La présence de certains de ces facteurs devrait-elle toutefois conduire à une analyse ou à une conclusion différente quant à la possibilité que la fusion ait des conséquences coordonnées ou unilatérales ? Notons que l'utilisation d'un mécanisme d'enchères peut également indiquer que le marché, de par ses caractéristiques, soulève des craintes en termes de concurrence. Par exemple, l'adjudication peut être utilisée lorsqu'il existe des économies d'échelle au niveau des transactions, les marchés passés étant de grande dimension et spécialisés. Si les économies d'échelles sont dues à d'importants coûts irrécupérables, il existe alors un effet de verrouillage (remporter des enchères donne un avantage pour en remporter d'autres) et il sera difficile d'entrer par la suite sur le marché.

3.2 Conséquences des fusions pour la concurrence : le cas des valeurs communes.

Du point de vue de la concurrence, les conséquences des fusions entre enchérisseurs peuvent être légèrement différentes de celles des fusions entre concurrents sur les marchés ordinaires. Une fusion entre participants conduirait habituellement à la soumission d'offres moins agressives, les concurrents étant moins nombreux, et à une réduction de la demande, les prix étant définis en fonction des unités marginales²¹.

Surtout, la distinction entre valeurs privées et valeurs communes peut influencer sur l'analyse des fusions. La différence possible concerne les conséquences de la fusion pour les informations dont dispose l'enchérisseur ainsi que pour la malédiction du vainqueur. L'argument invoqué est que, dans certains cas, un nombre de concurrents moins élevé (suite à une fusion) aboutit à des prix plus avantageux pour

²⁰ Si l'on veut être complet, le modèle des marchés contestables se fonde entre autres sur l'hypothèse que les acheteurs n'agissent pas stratégiquement, ce qui n'est pas nécessairement vrai des marchés d'enchères, où l'adjudicateur peut opérer certains choix.

²¹ Ceci s'applique à des enchères multi-unitaires à prix uniforme. Pour ces deux effets, voir les commentaires sur les soumissions conjointes.

l'adjudicateur. Le raisonnement est simple. Dans le cadre de valeurs communes, la fusion a pour effet de regrouper les informations des parties. Cette mise en commun peut leur permettre de soumettre des offres plus agressives, car elles sont moins exposées à la malédiction du vainqueur. Si cet effet l'emporte sur les autres conséquences de la fusion, elle améliore les prix payés par le vendeur ou l'adjudicateur.

Deux questions se posent donc lorsque l'on a affaire à un marché d'enchères. La fusion intervient-elle dans le cadre de valeurs privées (auquel cas l'effet de la malédiction du vainqueur est inexistant) ? Si, au contraire, l'opération s'inscrit dans un contexte de valeurs communes, la réduction de l'effet de malédiction du vainqueur l'emporte-t-elle sur les autres conséquences anticoncurrentielles de la fusion ? Il est souvent impossible de distinguer de manière empirique les valeurs privées des valeurs communes, et il convient donc de se replier sur l'examen du marché et sur son intuition propre. Ce point est abordé ci-dessous. La deuxième question est également d'ordre empirique ; il n'existe aucune réponse d'ordre général. Certains résultats concernant cet arbitrage sont présentés plus haut, dans les développements consacrés aux offres conjointes.²²

« En somme, et bien que ces questions soient aujourd'hui encore mal comprises, il apparaît peu probable que les offres conjointes aient des effets beaucoup plus inoffensifs pour les enchères avec valeurs communes que pour les enchères avec valeurs privées ou les marchés 'ordinaires' ». (Klemperer 2005, p. 22)

3.3 Valeurs communes ou valeurs privées ?

L'effet de réduction de la malédiction du vainqueur étant inexistant dans le cadre de valeurs privées, il peut être utile de distinguer les valeurs communes des valeurs privées. Il existe sur cette question un nombre important et croissant de travaux.²³

L'intuition est le premier outil à notre disposition : « Alors que l'on peut, en se fondant sur des données précises, distinguer des formes spécifiques d'enchères à valeurs privées et à valeurs communes, l'intuition est parfois un meilleur guide pour déterminer le cadre le plus approprié. Il est par contre parfois impossible de répondre de manière empirique à ces questions. » (ABA, p. 233)

La théorie des enchères montre que seules certaines circonstances permettent de distinguer les valeurs privées des valeurs communes. Cette distinction est le plus souvent impossible : si seules les offres sont disponibles, s'il existe un nombre fixe d'enchérisseurs et si aucun prix de réserve n'a été fixé, il est impossible de différencier valeurs communes et valeurs privées (Laffont et Vuong, 1996). En effet, la distribution des offres observée pourrait simplement correspondre à la distribution des valeurs privées des enchérisseurs. Le résultat serait plus concluant lorsque le nombre d'enchérisseurs varie de façon exogène ; on pourra alors, s'il s'agit d'enchères sous pli scellé, distinguer entre les deux types de valeurs.²⁴ Ce

²² Outre les notes de bas de page, voir également Klemperer 2005, pages 19-22, pour une synthèse des recherches dans le domaine.

²³ Ces questions sont abordées sous un angle technique par Athey et Haile (2005). Notre réflexion se fonde largement sur ces travaux.

²⁴ La logique est la suivante : le problème de la malédiction du vainqueur ne se pose que pour les enchères à valeurs communes et l'importance du phénomène augmente en fonction du nombre d'enchérisseurs. Un participant à des enchères à valeurs communes minore davantage son offre lorsque ses concurrents sont plus nombreux, contrairement à ce qui se passe lors d'enchères à valeurs privées. Les tests identifiant cette différence dans les offres soumises lorsque le nombre de concurrents augmente permettent de distinguer entre valeurs communes et valeurs privées. En outre, pour les enchères au premier prix, la variation du niveau d'un prix de réserve imposé peut permettre de distinguer les valeurs communes des valeurs privées. [Athey et Haile, 2003, p. 93]

raisonnement ne s'applique pas au cas des enchères ascendantes.²⁵ Il y a en apparence une solution simple pour différencier les valeurs privées des valeurs communes : observer comment les niveaux d'offre varient en fonction du nombre d'enchérisseurs ; mais cette solution n'est pas concluante.²⁶

Pour résumer, la possibilité d'opérer une distinction empirique entre valeurs communes et valeurs privées dépendra du type d'enchères utilisé et des données disponibles. Souvent, il faudra s'en remettre à son intuition.

3.4 *Effet des fusions sur la concurrence : le cas des valeurs privées*

Lorsque les fusions s'inscrivent dans le contexte de valeurs privées, on peut en estimer directement les effets.

Dans une telle situation, on estime généralement que la valeur privée de la société nouvelle correspond à la valeur maximale des valeurs privées des parties à la fusion. Par conséquent, la nouvelle société remportera toutes les enchères que les parties à la fusion auraient pu remporter. Cette hypothèse de travail a été utilisée pour modéliser les effets « unilatéraux » des fusions entre hôpitaux, fabricants de matériel minier, entreprises du secteur de la défense et autres acteurs, lorsqu'il n'existait pas de gains d'efficience (Baker 1997). Son résultat est que, suite à une fusion, le prix d'adjudication est différent, mais c'est le même candidat qui remporte les enchères. L'adjudicateur pourra couvrir partiellement, mais pas entièrement, cet accroissement des prix, en augmentant le prix de réserve (Waehrer et Perry, 2003). Dans un contexte de valeurs privées, on estime généralement que les fusions ne conduiront à aucune réaction de d'adjudicateur ni à aucun gain d'efficience.

Il est facile d'estimer les conséquences d'une fusion lorsqu'il s'agit d'enchères sous pli scellé au second prix avec valeurs privées. En effet, on peut se fonder sur le fait que les enchérisseurs soumettent les valeurs réelles qu'ils attribuent aux objets. On commence par séparer les enchères en deux groupes : celles pour lesquelles les parties à la fusion auraient soumis la meilleure et la deuxième meilleure offre, et toutes les autres. La fusion n'a aucun effet sur ce second groupe. Deuxièmement, pour le premier groupe d'enchères, on mesure la différence entre les deuxième et troisième meilleures offres (le raisonnement sous-jacent est le suivant : la fusion supprimant la moins élevée des offres proposées par les parties à la fusion, ce qui était la troisième meilleure offre correspond désormais à la deuxième meilleure offre, qui fixe le prix). En faisant la somme de ces différences pour l'ensemble des enchères, et en divisant ensuite ce chiffre par le nombre d'enchères, on peut calculer l'effet moyen de la fusion. Notons qu'il est nécessaire pour appliquer cette méthode de disposer d'une quantité importante de données, en particulier concernant l'identité des enchérisseurs et leurs offres, ou à tout le moins sur les trois meilleures offres. Un exemple de ce calcul se trouve en annexe.

²⁵ Ce raisonnement n'est pas valable pour les raisons suivantes. Premièrement, dans des enchères ascendantes, l'évaluation de l'adjudicataire n'est jamais révélée. Deuxièmement, les enchérisseurs modifient leurs stratégies au cours du processus et il est impossible d'identifier ces modifications. Troisièmement, il existe plusieurs équilibres dans les enchères ascendantes à valeurs communes et il est difficile de choisir entre eux.

²⁶ « On ne peut utiliser un test de forme réduite pour la relation entre le niveau des offres et le nombre d'offres afin de distinguer les paradigmes à valeurs privées des paradigmes à valeurs communes dans les enchères sous pli scellé au premier prix. Toutefois, un tel test fonctionne bien pour des enchères à valeurs privées (au second prix et ascendantes). En effet, soumettre une offre équivalente à sa véritable évaluation est alors une stratégie dominante pour l'enchérisseur. » [Pinske et Tan, 2005] Plus récemment, Adams *et al* (2006) estiment qu'en raison de problèmes d'endogénéité et de sélection, un test de forme réduite ne donnera pas de résultats satisfaisants, même dans des enchères au second prix.

Des hypothèses supplémentaires sont nécessaires si l'on ne dispose pas de données sur les offres non retenues. Une hypothèse fréquente est que les deuxièmes meilleures offres sont proportionnelles aux meilleures offres. Par exemple si trois enchérisseurs A, B et C remportent les enchères respectivement 50 %, 30 % et 20 % du temps, B serait alors en deuxième position 60 % du temps lorsque A remporte les enchères mais 37,5 % du temps lorsque C est l'adjudicataire. Cette hypothèse est clairement remise en cause lorsque les caractéristiques des enchérisseurs, telles que leurs frais de transport ou leurs capacités techniques, font qu'ils se trouvent dans des positions sensiblement plus similaires ou plus dissimilaires.

Il est crucial de tenir compte des différences existant entre les concurrents lorsque l'on veut modéliser l'effet d'une fusion. Ainsi, dans une telle situation, la valeur pour chaque enchérisseur dépendra de ses caractéristiques propres et de l'objet mis aux enchères. Par exemple, si les frais de transport sont élevés, la situation géographique des enchérisseurs et de l'objet constitue une caractéristique importante de la fonction de valeur. Une fusion entre des enchérisseurs situés en des lieux différents aurait des conséquences moindres sur la concurrence qu'une fusion d'enchérisseurs ayant la même situation géographique. (Froeb et Tschantz, à paraître)

Il est plus difficile d'évaluer l'effet d'une fusion lorsqu'il s'agit d'enchères au premier prix car l'enchérisseur n'enchère pas en se fondant sur sa véritable évaluation. Au contraire, il minore son offre afin d'arbitrer entre le gain dont il bénéficierait en cas de victoire (offre plus faible) et la probabilité de remporter les enchères (offre plus élevée), compte tenu du fait que les autres enchérisseurs procèdent aux mêmes calculs. Il convient donc d'élaborer des hypothèses supplémentaires. Une étude rapporte que « l'analyse numérique, utilisant un [modèle logit] a montré que, étant donné la part de la meilleure offre dans les offres gagnantes des entreprises qui fusionnent, les effets des fusions sur les prix peuvent être prédits avec une grande exactitude comme correspondant à 85 % de l'effet de prix prévu par le modèle correspondant d'enchères anglaises [c'est-à-dire, ascendantes]. » (Werden et Froeb, à paraître, citant Tschantz, Crooke et Froeb, 2000)

Le modèle d'enchères descendantes ouvertes à valeurs privées indépendantes de Waehrer et Perry autorise l'asymétrie des participants : ils supportent différents coûts et ont donc des capacités différentes. L'acheteur peut utiliser un prix de réserve et le modifier en réaction à des fusions entre les acteurs. Ce « plancher » permet dans une large mesure de protéger l'acheteur des effets anticoncurrentiels d'une fusion si le coût interne encouru par l'acheteur est proche des coûts des fournisseurs. Les auteurs en concluent qu'une fusion affaiblit généralement la position de l'acheteur, bien qu'il soit à même de modifier le prix de réserve afin d'en atténuer l'effet. (Waehrer et Perry, 2003)

3.5 *Analyse des enchères : l'affaire Oracle/PeopleSoft*

L'affaire Oracle/PeopleSoft est un des rares exemples où des données publiques complètes existent sur les méthodologies précises utilisées pour évaluer les conséquences d'une fusion sur un marché d'enchères. Les deux principales autorités amenées à examiner cette affaire sont parvenues à des conclusions différentes sur la question de savoir si la méthode de vente utilisée relevait davantage d'enchères ascendantes ou d'enchères sous pli scellé. Elles ont utilisé des jeux différents de données et des techniques économétriques différentes et sont parvenues à des conclusions différentes. La Commission européenne et le Tribunal de district américain étaient d'accord sur le résultat, mais pas sur le modèle de marché sous-jacent.

Oracle a lancé son offre hostile sur PeopleSoft en juin 2003. L'Union européenne en a reçu notification en octobre 2003. Aux États-Unis, la Division antitrust et plusieurs États ont agi en justice pour empêcher l'acquisition. A l'issue du procès de juin 2004, le juge du Tribunal de district a rejeté en septembre 2004 la demande du gouvernement américain, qui n'a pas fait appel. En Europe, la Commission a ouvert une enquête approfondie. Une suspension de six mois a permis aux enquêteurs de la Commission

d'examiner les informations communiquées lors du procès aux Etats-Unis, tandis que la procédure judiciaire américaine prenait fin. En octobre 2004, la Commission européenne a autorisé sans réserves la fusion entre les deux parties.

Les sociétés Oracle et PeopleSoft vendaient toutes deux des progiciels de gestion intégrés (« PGI »), produits également connus sous le nom de logiciels d'application d'entreprise (« LAE »). Les catégories en cause étaient les systèmes de gestion des ressources humaines (« RH »), qui gèrent les salaires, les avantages sociaux et d'autres données concernant les salariés, et les systèmes de gestion financière (« SGF »), qui traitent les recettes, les comptes clients et d'autres données du même type. Leurs clients étaient de grandes entreprises. Dans ces catégories, les logiciels possèdent différentes fonctionnalités. La Division antitrust a considéré que les logiciels à haute fonctionnalité RH et SGF constituaient des marchés distincts des logiciels RH et SGF à fonctionnalité moindre, et que le marché géographique était l'Amérique du Nord. Selon la Commission européenne, le marché en cause était celui des logiciels RH et SGF à haute fonctionnalité et le marché géographique s'étendait au monde entier. Dans sa communication des griefs, la Commission européenne faisait valoir également que les seuls fournisseurs sur le marché en cause étaient Oracle, PeopleSoft, et SAP AG. La Commission s'est toutefois aperçue au cours de l'enquête que d'autres fournisseurs pourraient être des soumissionnaires crédibles, au moins pour certains clients. La Division antitrust s'en est tenue à un marché à trois fournisseurs. Les parties s'opposaient toutefois sur la distinction entre haute fonctionnalité et fonctionnalité moyenne, et donc sur la liste limitée de concurrents.

Les grandes entreprises achètent des logiciels à haute fonctionnalité RH et SGF. Il s'agit de produits personnalisés, le vendeur et l'acheteur entretiennent une relation commerciale et la concession de sous-licences est interdite. Tout arbitrage est donc impossible. La Division antitrust faisait valoir que les prix étaient différents selon les clients.

3.5.1 *La Division antitrust*

Pour la Division antitrust chaque achat de logiciels RH et SGF constituait une mise en concurrence distincte. Elle estimait que le processus d'appel à concurrence était ici comparable à des enchères ascendantes et que la fusion aurait pour effet de supprimer la présence de Peoplesoft. Le résultat serait donc qu'Oracle pourrait donc remporter certains appels d'offre à des prix plus élevés. Les conséquences de la fusion seraient différentes selon les clients. L'expert du gouvernement américain, le professeur Preston McAfee, estimait que cette situation de concurrence correspondait à un modèle d'enchères ascendantes. Avec son modèle, il prévoyait une augmentation des tarifs de 5 à 11 % pour les logiciels SGF à haute fonctionnalité et de 13 à 30 % pour les logiciels RH à haute fonctionnalité. (Werden, à paraître)

Le professeur Preston McAfee a effectué trois analyses distinctes qui lui ont permis de choisir le modèle le mieux adapté et d'estimer les conséquences de cette fusion. Il a commencé par étudier 25 transactions spécifiques et a établi des statistiques pour l'ensemble des opérations. Selon ces résultats, Oracle était en situation de concurrence dans au moins 93 % des cas, et, pour les transactions les plus importantes, PeopleSoft comptait environ la moitié du temps parmi ses concurrents. Il a utilisé ensuite des régressions afin d'estimer l'effet de PeopleSoft sur les réductions de prix proposés par Oracle. Il a constaté que celles-ci étaient en moyenne supérieures de 10 % lorsque PeopleSoft était en lice. La réduction moyenne étant d'environ 50 % ; les acheteurs que convoitait également PeopleSoft bénéficiaient en moyenne d'une remise de 60 %. Une autre régression, effectuée sur un autre ensemble de données, a fait apparaître que les remises moyennes étaient supérieures à 7.6 % lorsque PeopleSoft était un des concurrents. Ce chiffre ce chiffre passait à 13.6 % pour les transactions d'un montant supérieur à 500 000 dollars.

Troisièmement, le chercheur a utilisé un modèle économique, l'a adapté au cas d'espèce et a estimé l'effet qu'aurait la fusion sur les prix. Il a constaté que le modèle le mieux adapté à ces circonstances était

celui des enchères ascendantes. Les faits pertinents étaient les suivants : il y avait plusieurs tours d'enchères ainsi que plusieurs candidats et les différents participants disposaient, même si elles étaient imparfaites, d'informations sur les stratégies de prix de leurs concurrents. On pouvait donc raisonnablement conclure que l'adjudicataire devait proposer un prix correspondant à celui du « meilleur » enchérisseur non retenu. Il s'agit là d'une caractéristique des enchères anglaises. L'application de ce modèle a permis de conclure qu'une fusion entraînerait une hausse des prix. Les augmentations prévues étaient plus importantes pour les logiciels RH que pour les produits SGF. En effet, un des autres soumissionnaires était un concurrent beaucoup plus sérieux sur le segment des systèmes SGF que sur le segment RH. En particulier, les augmentations de prix prévues pour les systèmes RH étaient de 13 %, 16,5 %, 20,6 %, 25,2 % et 30,4 % selon le degré de concurrence. Les augmentations de prix prévues pour les systèmes SGF étaient de 4,6 % ; 5,7 % ; 6,8 % ; 7,9 % et 9 %, ici encore en fonction de ce paramètre.

Le Tribunal de district a choisi d'utiliser un modèle différent, celui de la concurrence à la Bertrand avec produits différenciés, et pas un modèle d'enchères. De plus, il a écarté la simulation de la fusion au motif qu'elle se fondait sur des statistiques de parts de marché qui ne donnaient pas selon lui une image fiable de la position des fournisseurs sur le marché des progiciels de gestion intégrés (PGI). [voir *U.S. v. Oracle Corp.*, document numéro C04-0807 (District Nord de Californie, 9 septembre 2004) : « Faits, droit et décision »]. Le Tribunal a tranché en faveur d'Oracle.

3.5.2 La Commission européenne

La Commission européenne a conclu que les marchés demeureraient concurrentiels même si le nombre d'acteurs importants passait de trois à deux, car il existait plusieurs fournisseurs crédibles bien que de moindre envergure.

Concernant les effets non coordonnés, la Commission européenne a examiné à la fois une simulation de marché et plusieurs régressions. La simulation de marché est présentée ci-dessous car elle se fondait sur un modèle d'enchères. Toutefois, ce modèle n'a eu en définitive aucune influence sur les résultats, car il se basait sur l'idée d'une fusion « de trois à deux », hypothèse de travail finalement rejetée (document de la Commission, paragraphes 179 et 196).

Les régressions visaient à évaluer dans quelle mesure le nombre et l'identité des soumissionnaires en présence lors de la sélection finale influaient sur les réductions proposées par les différents participants (remises de PeopleSoft pour l'ensemble de données de PeopleSoft, remises d'Oracle pour l'ensemble de données d'Oracle)[*ibid.*, paragraphe 199]. La Commission a constaté que l'importance du marché influait sur la remise proposée, mais que, dès lors qu'elle était prise en compte comme variable explicative, le nombre final de soumissionnaires n'expliquait nullement les remises. En outre, la présence d'un concurrent particulier n'entraînait pas de remises particulièrement élevées, à une exception mineure près (*ibid.*, paragraphe 200-201). La Commission a souligné que le fait qu'un tel effet ne ressorte pas des données ne prouve pas en soi que la concentration n'aura pas de conséquences anticoncurrentielles (paragraphe 202), mais que l'absence d'un effet sensible dû au nombre ou à l'identité des concurrents rend les données sur les appels d'offres « inadaptées en tant que preuve déterminante d'un effet anticoncurrentiel de la concentration » (*ibid.*, paragraphe 204).

En ce qui concerne les effets coordonnés, la Commission a considéré que le nombre de soumissionnaires potentiels était trop élevé, les produits trop différenciés, leurs parts de marché trop asymétriques et leur liens structurels trop peu nombreux pour qu'il puisse y avoir coordination (*ibid.*, paragraphes 209-211). La Commission n'a pas exclu la possibilité qu'il puisse y avoir une coordination entre les deux derniers acteurs en lice, malgré l'hétérogénéité des produits et le fait que les remises importantes réduisent la transparence des prix. Toutefois, les acteurs mineurs étaient considérés comme des soumissionnaires crédibles à même de déstabiliser le duopole (*ibid.*, paragraphes 212-213).

Une simulation de marché a été réalisée, sur la base d'un modèle d'enchères sous pli scellé.²⁷ Plusieurs caractéristiques du marché ont guidé le choix du modèle. Tout d'abord, les soumissionnaires connaissaient l'identité de leurs concurrents lors de certains appels d'offres. Deuxièmement, on estimait que les coûts marginaux supportés par les soumissionnaires pour exécuter le contrat étaient proches de zéro. (Les coûts antérieurs au processus concurrentiel étant pour la plupart irrécupérables.) Ceci sous-tend notamment que les incertitudes quant aux coûts futurs n'avaient que relativement peu d'importance. Troisièmement, lorsqu'un concurrent soumettait son offre, il ne connaissait ni les prix proposés par les autres enchérisseurs, ni combien le client était prêt à payer pour une « meilleure proposition » parmi les offres hétérogènes. Une autre raison d'utiliser un modèle d'enchères sous pli scellé était donc que les autres solutions semblaient conduire à des prévisions non réalisées. Un facteur clé était de déterminer « si les soumissionnaires peuvent toujours réagir en soumettant une offre améliorée lorsqu'ils sont sur le point d'être éliminés, ou s'ils risquent d'être écartés avant même d'avoir proposé [leur offre la moins élevée] » (Bengtsson, 2006, p. 136). Étant donné que les coûts marginaux étaient nuls, on estimait que des enchères anglaises aboutiraient à des prix proches de zéro. Ceux-ci étant rarement observables, l'adjudication ne pouvait être comparée à des enchères anglaises (*ibid.*, p. 137). Les acheteurs ne pouvant selon toute vraisemblance s'engager à communiquer des informations aux soumissionnaires, par exemple sur les prix ou la performance relative du logiciel, la méthode des enchères sous pli scellé semblait être un meilleur moyen de « tenir compte de l'incertitude globale des soumissionnaires » (*ibid.*).

La structure informationnelle du modèle était la suivante : l'acheteur connaît à titre privé la valeur qu'il confère à chacune des offres, mais les soumissionnaires savent seulement que la valeur de chacune découle d'une distribution connue (*ibid.*, p. 135).

En calibrant le modèle en fonction des parts de marché effectives, en intégrant diverses probabilités, y compris celle que les clients choisissent de ne procéder à aucun achat suite à l'appel d'offres, et en posant d'autres hypothèses quant aux qualités relatives des offres des trois sociétés, le modèle a permis d'établir des prévisions sur le prix des offres, les prix moyens payés et le gain d'utilité espéré que représentaient l'achat des produits pour les clients. Pour plusieurs hypothèses, le modèle a prédit des augmentations de prix importantes ainsi que des pertes de bien-être pour le consommateur. Il convient également de noter que ce modèle et ses prévisions n'ont pas influé sur la décision, car le modèle partait du principe qu'il n'y avait que trois fournisseurs, alors que l'enquête a conclu qu'ils étaient en fait bien plus nombreux.

3.5.3 Affaire Oracle/PeopleSoft : conclusion

Les trois institutions (Commission européenne, Division antitrust et Tribunal fédéral de district) ont respectivement utilisé pour leurs analyses trois modèles économiques différents : enchères sous pli scellé, enchères ascendantes et concurrence à la Bertrand avec produits différenciés. Le choix entre ces différents modèles dépendait de la manière dont les adjudications étaient organisées, c'est-à-dire des informations dont disposaient les concurrents et du nombre de tours. Après avoir choisi un modèle en fonction des informations disponibles, la Commission européenne et la Division antitrust ont ensuite utilisé des données économétriques afin d'évaluer les conséquences probables de la fusion (le Tribunal fédéral de district avait indiqué que les informations nécessaires pour un modèle de concurrence à la Bertrand n'étaient pas disponibles). Les trois institutions sont parvenues à des conclusions différentes. Toutefois, la Commission européenne comme le Tribunal de district ont considéré que la fusion ne devait pas être refusée.

3.6 Quel sens donner aux parts de marché ?

Dans le cadre de l'analyse des fusions, les parts de marché sont souvent utilisées comme point de départ pour l'évaluation du pouvoir de marché. D'autres faits sont susceptibles de modifier l'appréciation

²⁷

Nous empruntons la description de ce modèle d'enchères à Bengtsson (2006).

de ce pouvoir. Lorsque les adjudications se traduisent par un marché « concentré » en déterminant le fournisseur d'une partie importante de celui-ci, les parts de marché, telles qu'elles apparaissent au vu des données historiques sur les ventes, varient de façon bien plus que lorsque de nombreux petits acheteurs procèdent à des décisions indépendantes. Ces parts de marché pourront-elles à l'avenir permettre d'évaluer le pouvoir de marché ? Lors des adjudications, la concurrence s'exerce au moment des soumissions²⁸ et les ventes sont simplement un reflet des résultats et non pas nécessairement du véritable processus concurrentiel.

On pourrait commencer par distinguer les parts de marché d'équilibre des parts de marché structurelles. « Dans les affaires antitrust et dans le monde des affaires en général, les parts de marché sont souvent déterminées sur la base de données telles que les recettes, la capacité de production, etc., qui définissent l'équilibre de marché. Ces parts relèvent de la performance du marché plutôt que de sa structure. Les parts de marché structurelles sont au contraire basées sur les ressources des concurrents, comme la propriété d'actifs tels que leurs moyens de production ou leurs réserves d'une ressource épuisable. [note de bas de page supprimée] En outre, les parts de marché structurelles peuvent être sensiblement différentes des parts d'équilibre. » (Werden, 2002, p. 78)

Par exemple, si une société A a remporté un précédent appel d'offres pour la fourniture de la totalité de l'eau d'une ville, les parts de marché seraient pour la société A et pour les sociétés B, C, ... N, à compter d'aujourd'hui et pour un nombre donné d'années de 100 %, 0 %, 0 %, ..., 0 %. Il s'agit là de parts de marché d'équilibre. Mais si l'on doit utiliser les parts de marché pour déterminer, même de façon grossière, l'importance concurrentielle des différents acteurs, il conviendrait plutôt d'utiliser des parts de marché d'équilibre.

Dans cet exemple, les concurrents avaient peut-être une probabilité égale de remporter le marché. Si tel était le cas, des parts de marché de $1/N$ constitueraient une description plus exacte de la situation de concurrence lors de l'appel d'offres.

Mais, le plus souvent, la concurrence est loin d'être symétrique. Considérer que chaque soumissionnaire a une chance de succès égale serait donc une erreur. Le fait d'être l'opérateur en place peut par exemple conférer un avantage pour les enchères suivantes. Si tel est le cas, les parts de marché seront, selon toute vraisemblance, différentes de $1/N$. On peut estimer cette différence en utilisant des données provenant de plusieurs adjudications similaires, concernant peut-être le marché de l'eau, ce qui pourrait permettre d'estimer le taux d'appels d'offres remportés par les nouveaux entrants par rapport aux exploitants en place. De manière plus générale, lorsque les soumissionnaires ou les clients sont hétérogènes, les informations sur des offres soumises lors d'appels d'offres similaires, ainsi que le résultat de ces appels d'offres, peuvent permettre de mieux comprendre le type de concurrence entre ces entreprises. Mais les événements passés ne sont pas toujours des indicateurs utiles, notamment lorsqu'il n'existe pas d'opérations similaires.

Pour résumer, lorsqu'un objet est vendu aux enchères, le processus concurrentiel prend place au moment des enchères et pas lorsque les opérations de vente se trouvent matérialisées, postérieurement. Les parts de marché pertinentes pour évaluer l'importance d'un concurrent sont les parts structurelles et pas les parts d'équilibre, ces dernières n'étant qu'un simple reflet du résultat des enchères.

²⁸

La mise en concurrence pourra bien sûr également débiter dès la conception de la procédure d'enchères, la méthode choisie pouvant favoriser l'un ou l'autre des participants.

4. Conclusions

Les enchères ne constituent qu'une manière d'organiser les transactions de marché. Le choix de l'adjudication plutôt qu'un autre mécanisme peut être l'indice de particularités susceptibles d'accentuer les problèmes de concurrence, par exemple l'existence d'économies d'échelle.

Les règles formelles qui les régissent réduisant le « bruit » et facilitant la communication entre les concurrents, les enchères incitent à la collusion. Les méthodes utilisées peuvent réduire la collusion ou les pratiques concertées, ou promouvoir la participation. La conception des enchères peut ainsi être soumise à des pressions, exercées notamment par les opérateurs en place qui préféreraient que soient utilisées des enchères ascendantes (appelées également « verbales » ou « anglaises »), méthode qui (en général) dissuade la participation, plutôt que des enchères sous pli scellé. Les adjudicateurs peuvent également agir de façon stratégique et choisir des méthodes ou des modalités pratiques favorisant la concurrence.

Les recherches théoriques aboutissent à deux recommandations fondamentales pour des méthodes d'enchères efficaces. Il faut d'une part inciter les enchérisseurs à révéler véridiquement leur évaluation, en faisant en sorte que la somme qu'ils paient ne dépende pas entièrement de leurs offres, et d'autre part communiquer aux participants le plus d'informations possible avant qu'ils n'enchérissent. Les différentes études proposent d'autres conseils, notamment :

- Lorsqu'il y a des risques sérieux de collusion, privilégier les enchères sous pli scellé par rapport aux enchères ascendantes. Quand les informations sur la valeur réelle de l'objet vendu aux enchères sont réparties entre les enchérisseurs et qu'il existe une large incertitude, envisager des enchères ascendantes.
- Imposer un prix de réserve élevé, mais crédible.
- Examiner attentivement les informations fournies aux candidats et au public. Il convient notamment de ne pas divulguer l'identité des enchérisseurs non retenus et de conserver les informations susceptibles d'être utilisées lors d'éventuelles poursuites pénales en cas de soumissions concertées.
- Regrouper les plus petites enchères et ne pas annoncer le programme futur d'enchères.
- Étudier comment réduire les coûts d'élaboration des offres.
- Lorsqu'il est important de favoriser les « enchérisseurs les moins avantagés », privilégier les enchères sous pli scellé par rapport aux enchères ascendantes.
- Envisager d'autres moyens d'encourager les « enchérisseurs les moins avantagés » à participer aux enchères : par exemple, marchés réservés, crédits de soumission et fractionnement des objets.

Concernant l'analyse des fusions sur les « marchés d'enchères », bien que parfois, en effet, « deux acteurs suffisent à créer une situation de concurrence », cette possibilité est sans doute, en cas de fusion, peu significative d'un point de vue empirique. Lorsque des valeurs privées sont en jeu, une fusion entre soumissionnaires aboutit généralement à des enchères moins agressives et à une plus faible demande (en l'absence d'éléments d'efficacité), tout comme sur les marchés « ordinaires ». Dans le cadre de valeurs communes, on pourra contrecarrer ces réductions du niveau de concurrence en atténuant l'effet de la « malédiction du vainqueur ». Que l'importance de ce dernier soit ou non supérieure à celles des autres effets relève de considérations empiriques. Plusieurs études examinent aujourd'hui les méthodes permettant de distinguer les situations relevant de valeurs privées de celles mettant en jeu des valeurs communes.

La théorie des enchères est un domaine relativement technique. Cette citation d'un spécialiste, théoricien et praticien de renom, a néanmoins de quoi rassurer :

« Mon expérience dans le conseil en matière d'enchères m'a appris que recourir à de nouvelles méthodes astucieuses n'est que très rarement une des clés du succès. Cette réussite tient bien plus souvent à ce que les coûts de participation soient maintenus à un faible niveau, à ce que les bons candidats soient encouragés à participer, à ce que l'on veille à l'intégrité du processus et à ce que l'adjudicataire soit en mesure de tenir ses engagements en matière de paiement ou de fourniture. »
(Milgrom, 2004, p. xii)

ANNEXE 1

PRÉCIS DE THÉORIE DES ENCHÈRES À L'INTENTION DES RESPONSABLES CHARGÉS DES QUESTIONS DE CONCURRENCE

Cette annexe est une introduction générale à la théorie des enchères et à sa terminologie. Elle présente également quelques variantes qui nous permettront de mieux appréhender certains aspects concrets des enchères, telles que les enchères multi-unitaires (utilisées par exemple dans certains secteurs de l'électricité) et les enchères pour revente (utilisées notamment dans les ventes aux enchères de bois d'œuvre). Ces variantes nous permettront également de mieux comprendre comment des différences apparemment insignifiantes entre les hypothèses peuvent aboutir à des résultats très différents. Cette annexe propose en outre un cadre général pour les deux sections de ce document essentiellement consacrées à l'action des pouvoirs publics. Un appendice technique la complète.

Les différents types d'enchères

On distingue quatre principaux types d'enchères :

- Dans les *enchères ascendantes* ou *enchères anglaises*, le prix augmente jusqu'à ce qu'il ne demeure plus qu'un seul enchérisseur, qui remporte l'enchère au dernier prix. On les utilise notamment pour les œuvres d'art. Ce type d'enchères était de loin le plus répandu (Milgrom, 1989) ; cependant, avec le développement de l'Internet, cela n'est probablement plus le cas.
- Pour les *enchères descendantes*, le prix diminue jusqu'à ce qu'un candidat se déclare preneur et remporte les enchères au dernier prix. On utilise ce type d'enchères aux Pays-Bas, ce qui explique que les économistes la nomment également *enchères hollandaises*.
- Dans les *enchères sous pli scellé au premier prix*, chaque enchérisseur remet une offre sans connaître les autres soumissions. Le bien est attribué au plus offrant, qui paie le montant offert. Ce type d'enchères est le plus répandu pour les appels d'offres industriels (Milgrom 1989).
- Dans les *enchères sous pli scellé au deuxième prix*, chaque enchérisseur remet une offre sans connaître les autres soumissions. Le bien est attribué au plus offrant qui paie le prix offert par le deuxième plus offrant. Ce type d'enchères porte également parfois le nom d'enchères Vickrey (de William Vickrey).

Chacun de ces différents types d'enchères a ses points forts et ses points faibles, qui peuvent être importants pour les responsables soucieux d'efficacité et de concurrence et qui souhaitent en particulier empêcher les collusions et favoriser la participation.

Les variantes possibles consistent à introduire des prix de réserve ainsi que des restrictions portant sur le montant des surenchères et sur le moment des soumissions. Des complications supplémentaires apparaissent lorsque plusieurs biens sont proposés à la vente, particulièrement s'il s'agit de substituts ou de compléments, et lorsque certains enchérisseurs participent à plusieurs enchères. La combinaison de deux formules est une variante relativement commune. Dans une *enchère anglo-hollandaise*, on conduit une enchère sous pli scellé au premier prix jusqu'à ce qu'il ne reste que deux enchérisseurs. Ceux-ci soumettent deux offres sous pli scellé et le bien est alors attribué au plus offrant, qui paie le montant offert.

Évaluations, signaux, valeurs privées et valeurs communes

L'information est fondamentale pour la compréhension des enchères. En effet, une conception efficace des enchères incitera les enchérisseurs à révéler véridiquement leur évaluation et maximisera la quantité d'informations dont ils disposent lorsqu'ils enchérissent.

On entend par « évaluation » la valeur qu'attribue l'enchérisseur à l'objet sur lequel portent les enchères. Il ne s'agit pas nécessairement du montant proposé, ni de celui qui doit être payé. « Signal » désigne les informations dont dispose un enchérisseur sur l'objet mis aux enchères. Par exemple, dans le cas d'une zone pétrolifère, il pourra s'agir d'une étude sismique. Afin d'éviter toute confusion entre l'expression « émettre des signaux » telle qu'utilisée dans les travaux sur la collusion, nous utiliserons ici le terme « indication » plutôt que celui de « signal », qu'emploient généralement les auteurs spécialisés¹.

Les enchérisseurs ont des *valeurs privées* si chacun d'eux attribue une valeur à l'objet et ne la modifierait pas s'il connaissait une quelconque évaluation de ses concurrents. Les biens de consommation non durables sont un exemple de valeurs privées : le consommateur leur confère une valeur et n'est pas influencé par celle que les autres consommateurs lui attribuent, car il n'y a aucune possibilité de revente².

Par contre, dans le cas de *valeurs communes*, chaque enchérisseur serait susceptible de changer d'avis quant à la valeur de l'objet s'il connaissait les informations dont disposent les autres enchérisseurs. « La différence essentielle [entre valeurs communes et valeurs privées] dépend de la nature des informations privées dont disposent l'enchérisseur. Lorsque celles-ci ne concernent que les déterminants idiosyncratiques de la propre évaluation de chaque enchérisseur, on peut alors parler de valeurs privées. » (Athey et Haile, p. 82). Naturellement, même dans le cas de valeurs privées, l'enchérisseur souhaitera connaître pour des raisons stratégiques les informations de ses concurrents, mais celles-ci n'auront pas pour effet de modifier sa propre opinion quant à la valeur de l'objet.

Dans le cadre de valeurs communes, les informations relatives à l'objet sont réparties entre les différents enchérisseurs. Généralement, dans le contexte de valeurs communes, la valeur de l'objet n'est pas nécessairement la même pour tous les enchérisseurs. En cas de *valeurs communes pures*, cas particulier de valeurs communes, chaque enchérisseur attribue la même valeur à l'objet^{3 4}.

¹ Les évaluations et les indications se trouvent liées par la relation suivante : l'évaluation attendue d'un enchérisseur augmentera conjointement à son indication, dans la mesure où les indications de l'ensemble des autres enchérisseurs restent fixes. Sans que le caractère de généralité en soit affecté, on peut considérer que l'évaluation attendue compte tenu de l'indication sera l'indication elle-même.

² Du fait que l'on estime pratiquement toujours qu'elles sont statistiquement indépendantes, il est préférable d'utiliser l'expression *valeurs privées indépendantes*.

³ Les enchères portant sur les zones d'exploitation pétrolière sont des exemples de contexte de valeurs communes : les principales incertitudes concernent la quantité de pétrole qu'elles recèlent, les coûts afférents d'extraction et de transport et les cours futurs. Elles sont communes à l'ensemble des enchérisseurs. Les enchérisseurs peuvent disposer d'informations différentes à leur sujet ; ainsi, s'ils venaient à prendre connaissance d'informations privées d'un concurrent, ils les mettraient à profit afin de modifier leur opinion. On peut également citer le cas où l'objet est revendu : il s'agit vraisemblablement ici de valeurs communes, car les enchérisseurs posséderont sans doute des informations différentes sur les futures conditions de marché. Il faut néanmoins remarquer que l'existence de facteurs influant sur les évaluations de tous les enchérisseurs n'implique pas qu'il s'agisse de valeurs communes (Athey et Haile 2005, p. 82) On pourrait ainsi citer l'exemple de marchands d'art enchérissant pour tel ou tel tableau ; tous en connaissent le prix de revente et il s'agit là de la seule composante commune de l'évaluation de chacun. Il s'agirait ici de valeurs privées. Si, par contre, les enchérisseurs ignorent la valeur de revente d'un objet,

Vraisemblablement, la plupart des enchères se dérouleront dans un contexte de valeurs communes. Si la valeur de l'objet dépend des conditions futures du marché, comme c'est par exemple le cas du bois d'œuvre ou des œuvres d'art qui seront ultérieurement revendues, ou lorsque les travaux sur lesquels porte l'appel d'offres seront exécutés plus tard, on se trouve dans un contexte de valeurs communes. Ceci tient au fait que les enchérisseurs disposeront probablement d'informations divergentes quant à la demande future et à la disponibilité de substituts, et ce, soit parce qu'ils ont accès à des informations différentes, soit parce qu'ils les évaluent différemment. En pareille situation, les enchérisseurs pourraient souhaiter bénéficier des informations ou des évaluations de leurs concurrents pour leur propre évaluation. Il s'agit alors d'un contexte de valeurs communes. [Athey et Haile 2005, p. 82]

Notons que, dans un contexte de valeurs communes pures, l'efficacité ne dépend pas de l'identité de l'adjudicataire. Les gains d'efficacité sont donc obtenus en minimisant les coûts des enchérisseurs et de l'adjudicateur, et l'objectif est souvent de maximiser les recettes du vendeur.

Outre celle entre valeurs privées et valeurs communes, d'autres distinctions doivent également être faites pour comprendre la conception des enchères⁵.

ils disposeront d'indications différentes sur les valeurs de revente et, s'ils venaient à prendre connaissance d'indications de leurs concurrents, ils en tireraient parti pour modifier leur propre estimation de la valeur de revente. Dans ce cas, il s'agirait donc de valeurs communes.

⁴ Il arrive souvent, lors d'enchères, que les évaluations des enchérisseurs comportent à la fois des valeurs privées et des valeurs communes. Le modèle de *valeurs affiliées* de Milgrom et Weber (1982) comble cette lacune, en considérant les valeurs privées et les valeurs communes comme des cas spéciaux. Le terme *affiliation* signifie que, lorsque la valeur d'une indication augmente, vraisemblablement celle d'une autre indication augmentera également ; ceci s'applique pour toutes les valeurs possibles des indications. L'affiliation présente des similitudes avec le concept statistique de corrélation, mais représente un lien plus étroit.

L'exemple suivant permet de mieux percevoir la différence entre valeurs privées indépendantes et valeurs affiliées :

« Considérons les problèmes qui apparaissent lorsqu'il s'agit de décider du type d'enchères pour la vente d'un tableau. Si on applique le modèle des valeurs privées indépendantes, il faut faire deux hypothèses : que chaque enchérisseur connaisse la valeur qu'il attribue au tableau et que les différentes valeurs soient statistiquement indépendantes. La première de ces hypothèses exclut les possibilités suivantes : (i) que le tableau puisse être revendu ultérieurement à un prix inconnu, (ii) que le fait de posséder un tableau admiré par les autres enchérisseurs confère un certain « prestige » et (iii) que l'authenticité de l'œuvre ne soit pas certaine. La seconde hypothèse exclut la possibilité que plusieurs enchérisseurs disposent d'informations pertinentes quant à l'authenticité, ou qu'un acquéreur, considérant qu'il s'agit là d'une œuvre particulièrement remarquable, en conclut que les autres enchérisseurs lui accorderont probablement la même valeur élevée » (Milgrom et Weber, 1982, p. 1095).

Quoi qu'il en soit, ce concept de valeurs affiliées n'apparaît pas souvent dans les documents concernant la politique de la concurrence. Il semble plutôt que la plupart des auteurs considèrent qu'il convient de considérer qu'il s'agit de valeurs communes du moment que les évaluations des divers enchérisseurs dépendent partiellement des indications de leurs concurrents. (voir Klemperer, 2004, p. 14.)

⁵ Une autre distinction importante entre les différents contextes d'enchères est la distribution conjointe des indications. C'est-à-dire que les informations privées peuvent avoir diverses relations, et que ces différences peuvent influencer les comportements lors des enchères. Deux hypothèses communes sont celles de l'indépendance et de l'affiliation. L'*indépendance* signifie que les indications sont statistiquement indépendantes, c'est-à-dire qu'elles n'ont pas de lien entre elles. Nous avons défini l'affiliation dans la note précédente.

Soumission des offres

Cette section explique comment les candidats soumettent leurs offres en fonction des quatre types d'enchères évoquées ci-dessus⁶. Pour chacune d'entre elles, on se basera sur l'hypothèse qu'il n'y a ni collusion, tacite ou autre, ni barrières à la participation. En ce qui concerne le premier groupe d'exemples, on considérera également qu'il s'agit de valeurs privées indépendantes.

- Considérons les enchères ascendantes avec valeurs privées. La stratégie dominante⁷ de chaque participant sera de continuer à enchérir jusqu'à ce que le prix atteigne la valeur qu'il attribue à l'objet. Après que l'enchérisseur dont l'évaluation est la deuxième plus élevée renonce, seul l'enchérisseur dont l'évaluation est la plus élevée demeure en lice. Il remporte les enchères à un prix égal à l'évaluation du deuxième meilleur enchérisseur⁸.
- Considérons les enchères sous pli scellé au deuxième prix avec valeurs privées. La stratégie dominante de chaque enchérisseur sera d'enchérir à sa propre évaluation⁹. Ceci aura pour conséquence que le meilleur enchérisseur remporte les enchères et paie un prix égal à l'évaluation du deuxième meilleur enchérisseur.
- Considérons les enchères sous pli scellé au premier prix avec valeurs privées. Selon la stratégie d'équilibre de Nash¹⁰, l'enchérisseur arbitre entre une offre plus élevée, accroissant ainsi ses chances de l'emporter, et une offre inférieure, lui permettant de faire une meilleure opération

Une troisième distinction est la *symétrie*. Dans la théorie des enchères, ce terme signifie que la totalité des indications des enchérisseurs proviennent d'une distribution commune. C'est l'une des conditions du théorème de l'équivalence du revenu.

⁶ Cette structure informationnelle implique qu'ici le concept d'équilibre approprié est celui de Bayes-Nash. Celui-ci est semblable au concept de l'équilibre de Nash, couramment utilisé dans la réglementation antitrust, selon lequel chaque acteur se comporte de façon optimale en fonction des actions des autres acteurs. Dans notre cas, la différence ici est que les acteurs se comportent de façon optimale en fonction de leurs opinions actualisées pour tenir compte des stratégies de leurs concurrents. Leurs opinions, qu'ils mettent à jour en fonction des stratégies d'équilibre énoncées par la règle de Bayes, sont conformes aux stratégies d'équilibre. Lors d'une enchère, les opinions d'un acteur auront un lien avec les évaluations des autres enchérisseurs.

⁷ Une stratégie dominante est une stratégie qui procure toujours un résultat meilleur que (ou égal à) toute autre stratégie, quoi que fassent les autres acteurs (les enchérisseurs concurrents).

⁸ Soit les deux meilleures évaluations : v_1 (la plus élevée) et v_2 (la seconde plus élevée). Vers la fin de l'enchère, seuls ces deux enchérisseurs restent actifs. Dès que le prix dépasse v_2 , l'enchérisseur dont l'évaluation se classe seconde se retire. Le seul à rester est donc l'enchérisseur dont l'évaluation est v_1 . Mais il ne paye que v_2 , plus la surenchère, soit généralement v_2 .

⁹ Supposons que l'enchérisseur B offre ε moins sa véritable valeur v . Soit w la seconde offre la plus élevée. Il s'ensuit que l'une des propositions ci-dessous est vraie : $w > v$, $v > w > v - \varepsilon$, ou bien $v - \varepsilon > w$. Dans le premier cas, B est perdant puisque l'autre offre était supérieure à la véritable valeur de B. Dans le troisième cas, B l'emporte et paye w . Dans ces deux cas, le résultat est le même, que l'offre de B soit v ou bien $v - \varepsilon$. Cependant, dans le second cas, B est perdant et n'obtient rien lorsque son offre est égale à $v - \varepsilon$; par contre, il l'aurait emporté et aurait obtenu $v - w$ si son offre avait été égale à v . Ainsi B aurait dû faire une offre égale à sa véritable valeur v plutôt que de soumettre l'offre inférieure ($v - \varepsilon$). Le même raisonnement s'applique dans le cas d'une offre égale à $v + \varepsilon$.

¹⁰ Il y avait des stratégies dominantes pour les enchères ascendantes et les enchères sous pli scellé au deuxième prix, mais pas pour les autres types d'enchères. Dans le cas de ces autres types d'enchères, on utilise une forme du concept d'équilibre de Nash. Ce sont donc ici des stratégies optimales étant donné celles des autres enchérisseurs.

s'ils emportent les enchères. Le plus offrant remporte ainsi les enchères et paie le montant correspondant. Cependant, son évaluation n'est pas nécessairement la plus élevée¹¹, Son offre est inférieure à son évaluation¹².

- Considérons les enchères descendantes avec valeurs privées. Ce type d'enchères est assez semblable aux enchères sous pli scellé au premier prix du fait que les candidats recourent aux mêmes stratégies. En effet, ils ont accès aux mêmes informations et procèdent aux mêmes arbitrages. Il s'ensuit que la stratégie d'équilibre de Nash est ici la même que dans le cas d'enchères sous pli scellé au premier prix avec valeurs privées.

Envisageons à présent le contexte de valeurs communes. Dans ce cas, les offres acquièrent un caractère informatif : elles révèlent des informations sur les évaluations des différents enchérisseurs et, de ce fait, chacun modifiera généralement sa propre évaluation. Les opinions initiales et postérieures quant aux évaluations des autres enchérisseurs peuvent varier ; dans la mesure où l'on se situe ici dans le domaine du rationnel, cette évolution restera circonscrite dans certaines limites. Cependant, en raison de l'ambiguïté des opinions et de leur évolution, il sera difficile d'établir des prévisions précises quant à ces offres rationnelles, d'autant plus que, même dans le cas d'enchères symétriques, il peut y avoir de multiples équilibres. De plus, les enchérisseurs opérant dans un tel contexte cherchent à minorer leurs offres pour éviter d'être victimes de la « malédiction du vainqueur » (voir plus loin).

- Les *enchères ascendantes avec valeurs communes* permettent d'illustrer ce processus d'actualisation. Une offre indique à ses concurrents que l'évaluation de l'enchérisseur était au moins égale au montant de l'offre. Chacun modifie alors son opinion quant à la valeur de l'objet. Ce processus d'actualisation se poursuit au fur et à mesure que les offres sont soumises. Un enchérisseur se retire lorsque la valeur qu'il attend en cas de succès est égale à zéro, c'est-à-dire, au moment où son évaluation de la valeur de l'objet en cas de succès correspond exactement à son offre.

Nous venons d'examiner les différentes stratégies et leurs effets dans le contexte d'enchères courantes. Nous verrons maintenant comment le théorème de l'équivalence du revenu montre que ces types d'enchères sont, dans une certaine mesure, très similaires.

Théorème de l'équivalence du revenu

Le théorème de l'équivalence du revenu est l'un des résultats fondamentaux de la théorie des enchères. Il pose que, sous certaines conditions, chacune de ces méthodes d'enchères (ascendantes, descendantes, sous pli scellé au premier prix et sous pli scellé au deuxième prix) donneront les mêmes recettes attendues et aboutiront à ce que chaque enchérisseur effectuera le même paiement attendu en fonction des indications dont il dispose. Grosso modo, les conditions sont dans ce cas que les enchérisseurs soient neutres du point de vue du risque et que leurs indications soient indépendantes et proviennent de la même distribution (ce qui implique, entre autres, qu'ils soient symétriques)¹³. Ce résultat s'applique tout

¹¹ Lors d'enchères symétriques, l'attributaire a effectivement l'évaluation la plus élevée. Dans ces enchères, les signaux des enchérisseurs proviennent d'une distribution commune. Une enchère asymétrique serait par exemple une enchère où seuls quelques-uns des enchérisseurs possèdent déjà certains compléments de l'objet proposé à la vente.

¹² On peut démontrer que, dans le cas d'un modèle symétrique où les enchérisseurs connaissent la distribution des évaluations, l'offre est égale à la valeur attendue de la seconde offre la plus élevée, étant donné la propre évaluation de l'enchérisseur. (McAfee et McMillan, 1987, p. 710)

¹³ Selon Klemperer (2004), p. 17, pour être plus précis : « Prenons pour hypothèse un nombre donné d'acheteurs potentiels neutres par rapport au risque, souhaitant acquérir un objet et disposant chacun d'un

autant aux valeurs privées qu'aux modèles de valeurs communes avec lesquels les indications sont indépendantes. On notera cependant qu'en général ce résultat ne vaut pas pour les enchères à valeurs communes. Klemperer (2004) fait une démonstration facilement compréhensible de ce théorème et en propose un commentaire.

Un tel résultat peut sembler contraire à l'intuition. Première question : comment le prix lors d'enchères sous pli scellé au premier prix pourrait-il être le même que lors d'enchères sous pli scellé au deuxième prix ? La réponse est que les candidats se comportent différemment suivant le type d'enchères. Par exemple, leurs offres sont inférieures lors d'enchères sous pli scellé au premier prix.

En dépit de l'équivalence du revenu, le type d'enchères (dans un contexte de à valeurs privées) implique pour les participants d'importantes différences lorsqu'ils préparent leurs offres. Pour les enchères ascendantes et les enchères sous pli scellé au deuxième prix, l'enchérisseur doit « seulement » déterminer sa propre évaluation pour ensuite surenchérir jusqu'à ce que ce niveau soit atteint, ou soumettre cette offre à l'adjudicateur. Pour les autres types d'enchères, l'enchérisseur doit également estimer le nombre de concurrents et la distribution de leurs évaluations.

Pour les autorités publiques, les théorèmes de l'équivalence du revenu¹⁴ revêtent une grande importance car ils permettent d'établir des critères pour l'analyse des enchères lorsque les hypothèses ne se vérifient pas.

En prenant une certaine liberté avec les hypothèses de base de ces théorèmes, on peut néanmoins classer les recettes. Sans toucher aux autres hypothèses, dans le cas de valeurs affiliées, les enchères descendantes et les enchères sous pli scellé au premier prix sont équivalentes. Lorsque les enchérisseurs sont dans l'incertitude, les enchères ascendantes génèrent de meilleurs prix que les enchères sous pli scellé au deuxième prix. En effet, les enchérisseurs concurrents révèlent certaines informations au cours du processus. Lorsque les évaluations sont statistiquement dépendantes, l'offre retenue est plus élevée lors d'enchères sous pli scellé au deuxième prix que lors d'enchères sous pli scellé au premier prix. On peut ainsi classer les différentes formules d'enchères par ordre descendant et en fonction de la recette attendue : enchères ascendantes, enchères sous pli scellé au deuxième prix et enchères sous pli scellé au premier prix (à égalité avec enchères descendantes) [Milgrom et Weber, 1982].

La malédiction du vainqueur

La « malédiction du vainqueur » est un phénomène que l'on rencontre lors d'enchères à valeurs communes. Afin de l'illustrer, imaginons des enchères sous pli scellé à valeurs communes pures (leurs modalités n'ayant aucune incidence). Chaque enchérisseur effectue sa propre estimation de la véritable valeur de l'objet. L'attributaire, c'est-à-dire l'enchérisseur dont l'offre est la plus élevée, est celui qui aura effectué l'estimation la plus élevée de la valeur de l'objet. Celles de tous les autres concurrents étaient moindres. Ainsi, un enchérisseur « naïf », apprenant qu'il a remporté l'enchère, reverra immédiatement à la baisse son estimation d'origine. Il regrette ainsi généralement son succès, car il paie le plus souvent un prix supérieur à la valeur réelle de l'objet.

signal connu de façon privée, indépendamment obtenu d'une distribution commune strictement croissante et sans atome. Dans ce cas, tout mécanisme d'enchères où (i) l'objet est systématiquement attribué à l'acquéreur dont le signal est le plus élevé, et où (ii) tout enchérisseur ayant le signal le plus faible possible s'attend à un surplus égal à zéro, générera le même revenu attendu (et fera que chaque enchérisseur effectuera le même paiement attendu en fonction de son propre signal). »

¹⁴

Il existe plusieurs théorèmes de l'équivalence du revenu s'appliquant à différents cas spéciaux. La portée du résultat est plus vaste que celle indiquée dans le texte et s'applique également à certaines enchères non classiques.

Un enchérisseur « averti » procédera différemment. Il prendra en compte le fait que son succès s'explique parce que son estimation était la plus élevée. Il minorera ainsi son offre, qui sera inférieure à ce qu'il aurait pu proposer « naïvement ». C'est la conséquence de l'effet de « malédiction du vainqueur »¹⁵ (McAfee et McMillan, 1987, p. 720-721).

Plus les concurrents sont nombreux, plus l'effet de malédiction du vainqueur est sensible.¹⁶ Autrement dit, plus les enchérisseurs sont nombreux, plus ils chercheront à minorer leurs offres.

On pourra tirer parti de cette amplification de la minoration des offres en fonction du nombre d'enchérisseurs en distinguant de façon empirique entre les situations de valeurs communes (où il se produit) et celles de valeurs privées (d'où il est totalement absent) - voir la partie de ce document portant sur l'évaluation des fusions.

Si cet effet de « malédiction du vainqueur » est suffisamment prononcé (ce qui est une question d'ordre empirique), le prix baissera en fonction de l'augmentation du nombre d'enchérisseurs. Cet effet peut, en principe, contrebalancer l'effet d'une intensification de la concurrence, c'est-à-dire une situation dans laquelle les enchérisseurs font des offres plus agressives afin d'avoir une chance de l'emporter. Cet effet de « malédiction du vainqueur » a d'importantes conséquences pour l'action des pouvoirs publics. Lorsqu'il s'agit de savoir quand autoriser les offres conjointes, quand restreindre la participation aux enchères et quand les fusions sont anticoncurrentielles, etc. Cependant, il faut reconnaître que son importance empirique fait toujours l'objet de débats et de recherches.

Enchères : cas particuliers

Les enchères ayant une importance du point de vue empirique différent souvent de celles dont il a été question plus haut. La recherche théorique portant sur ces autres formes se développe rapidement du fait qu'elles sont utilisées plus fréquemment que par le passé. Les enchères multi-unitaires en constituent un exemple remarquable ; on y recourt pour l'attribution de licences d'exploitation d'une partie du spectre électromagnétiques et dans les domaines des télécommunications, des transports et de la production d'électricité. Une seconde forme sera évoquée ici : les enchères avec revente. Cette liste est loin d'être exhaustive, les variantes étant quasiment infinies, mais elle inclut celles ayant une importance empirique notable.

¹⁵ Il estime en particulier que son estimation est supérieure à celles de tous les autres enchérisseurs. Il ajuste ensuite son offre pour qu'elle soit égale à la valeur de la seconde meilleure évaluation, du fait que tous les autres enchérisseurs font le même calcul. Étant donné que les perdants n'ont rien à payer, il ne risquera rien en se basant sur une telle hypothèse.

La minoration des offres est fondée sur ce résultat issu de la théorie des probabilités. Soit les informations dont dispose le $i^{\text{ème}}$ enchérisseur quant à la véritable valeur de l'objet égale à x_i (où un x_i plus grand implique une valeur réelle v supérieure), Il s'ensuivra que $E(v|x_i) \geq E(v|x_i, x_i > x_j \text{ pour tous } j \neq i)$. (McAfee et McMillan, 1987, p. 721, citant Milgrom, 1979, « The Structure of Information in Competitive Bidding », pp. 60-63, et « Good News and Bad News: Representation Theorems and Applications », Bell Journal of Economics, 1981)

¹⁶ Plus les enchérisseurs seront nombreux, plus l'effet de « malédiction du vainqueur » sera sensible, car cela implique un plus grand nombre d'estimations de la véritable valeur de l'objet. Davantage d'estimations signifie que l'estimation la plus élevée le sera encore plus. (Ce résultat considère que les estimations ne sont pas biaisées, ce qui signifie *grosso modo* qu'elles sont correctes en moyenne. L'idée est que, au fur et à mesure que le nombre d'estimations augmente, certaines d'entre elles seront plus élevées que les précédentes, et donc que l'estimation la plus élevée le sera également. Le même processus s'applique également à l'estimation la plus basse.) De ce fait, la différence entre l'estimation la plus élevée et la véritable valeur augmentera elle aussi. Ceci signifie que l'enchérisseur devra minorer son offre davantage encore par rapport à son estimation afin d'éviter d'avoir à payer plus que la véritable valeur.

Enchères à objets et à unités multiples

En pratique, il est fréquent que des enchères soient organisées pour des objets ou des unités multiples. C'est en particulier le cas en ce qui concerne l'attribution de fréquences radio, la production d'électricité et le transport de gaz. L'intérêt croissant pour la recherche dans ce domaine peut s'expliquer par la taille des marchés qui y recourent ainsi que par les bénéfices commerciaux découlant de stratégies d'appel d'offres améliorées. La distinction entre enchères à objets multiples et enchères multi-unitaires réside en ce que le terme « unité » implique une certaine homogénéité. Cette partie reprend les grandes lignes du chapitre 7 de l'ouvrage Milgrom (2004).

Ces enchères sont toutes deux plus complexes que celles organisées pour des unités uniques, et ce pour un certain nombre de raisons. Premièrement, elles présentent les mêmes problèmes que les enchères à objet unique, à savoir comment inciter les enchérisseurs à révéler leurs véritables évaluations et comment attribuer l'objet au meilleur enchérisseur. De plus, les objets concernés peuvent être des compléments ou des substituts. En outre, les frais supportés par les enchérisseurs augmentent rapidement en fonction de la complexité des règles d'enchères et des relations entre les différents objets. « Ces problèmes de conception... en plus de ceux généralement rencontrés... consistent également à limiter leur complexité de façon à que les coûts des enchérisseurs ne soient pas trop élevés et à s'assurer de la fiabilité du système. Contrairement à celles qui portent sur un objet unique, pour lesquelles l'objectif d'efficacité et l'objectif de recettes restent généralement relativement alignés, ces enchères peuvent contraindre à des arbitrages radicaux entre ces deux objectifs. » (Milgrom, 2004, p. xiii). Si les objets ne sont pas des substituts, il n'y aura généralement pas de prix d'équilibre du marché. Ou bien encore : « Une des principales conclusions de la plupart des recherches sur les enchères multi-unitaires est qu'il est très difficile de parvenir à des résultats efficaces. » (Klemperer, 2004, p. 33)

Comme dans le cas d'enchères portant sur une seule unité, on pourra recourir aux enchères sous pli scellé au premier prix, à celles sous pli scellé au deuxième prix ou encore aux enchères ascendantes.

Les *enchères sous pli scellé* visant à vendre des unités multiples peuvent être à *prix uniforme* ou *discriminatoires* (« pay as bid » : le paiement s'effectuant au prix de l'offre). Dans le premier cas, les adjudicataires doivent tous payer la même somme, qui est égale à la plus élevée des offres non retenues¹⁷. Dans le second, chaque adjudicataire paie le montant de son offre. Les enchères à prix uniforme correspondent aux enchères sous pli scellé au deuxième prix lorsqu'une seule unité est proposée à la vente, le montant payé dépendant des offres des autres participants (dans ce cas, c'est le prix de l'offre non retenue la plus élevée). Les enchères discriminatoires correspondent pour leur part aux enchères au premier prix dans le cas d'une unité unique, étant donné que les adjudicataires ne payent que le montant de leur offre. Les marchés de l'électricité en Angleterre et au Pays de Galles offrent des exemples de ces deux types d'enchères¹⁸.

Lors d'enchères à prix uniforme, les enchérisseurs souhaitant acquérir plusieurs unités et disposant d'informations privées réduiront généralement la demande, c'est-à-dire que, pour certaines unités, ils proposeront un prix inférieur à leur évaluation. La logique est identique à celle d'un monopsonneur (un acquéreur unique) qui sait que réduire le prix payé pour l'unité marginale réduira également celui des

¹⁷ Il pourrait également s'agir de l'offre retenue la plus basse.

¹⁸ L'ancien système (du nom de « Electricity Pool ») fonctionnait essentiellement comme un système d'enchères à prix uniforme ; le nouveau mécanisme qui le remplace (les « New Electricity Trading Arrangements ») recourt aux enchères discriminatoires pour le marché d'équilibrage résiduel. De nombreuses simulations et expériences ont été réalisées pour le NETA en vue d'évaluer le niveau d'efficacité et la volatilité des prix dans le cadre des différents autres types d'enchères. Pour une synthèse, voir Newbery et McDaniel, 2002.

unités inframarginales. De plus, les différents modèles d'enchères à prix uniforme peuvent également donner lieu à des équilibres à faibles prix, c'est-à-dire à des résultats peu concurrentiels, et ce en dépit du grand nombre d'enchérisseurs (Milgrom, 2004, pp. 257-264).

Dans les conditions normales du théorème de l'équivalence du revenu, les deux types d'enchères (à prix uniforme et discriminatoires) génèrent les mêmes revenus. Cependant, lorsque les enchérisseurs sont peu enclins à prendre des risques, les enchères à prix uniforme sont celles qui procurent les meilleures recettes, tandis que, dans le cas de valeurs communes, ce sont les enchères discriminatoires (Weber, 1983, cité par McAfee et McMillan, 1987).

Les *enchères ascendantes simultanées* se font également à prix uniforme. Elles ont notamment été utilisées dans différents pays pour y vendre les droits d'utilisation du spectre électromagnétique. Dans ce type d'enchères, les enchérisseurs soumettent des offres et les tours se succèdent jusqu'à ce que les conditions de clôture de la transaction soient réussies. L'avantage de cette méthode par rapport aux enchères ascendantes séquentielles est que les enchérisseurs peuvent arbitrer entre les enchères et choisir de soumissionner sur des objets relativement bon marché (cet arbitrage explique pourquoi elles sont considérées comme des enchères à prix uniforme).

Les enchères ascendantes simultanées peuvent donner un résultat semblable aux équilibres concurrentiels si certaines conditions sont respectées, en particulier si la totalité des objets sont des substituts pour chaque enchérisseur¹⁹. Par contre, si tel n'est pas le cas, il pourrait même ne pas y avoir d'équilibre concurrentiel, et ce à cause du *problème d'exposition*, c'est-à-dire que l'enchérisseur pourrait enchérir et finir par remporter un lot d'objets qu'il ne souhaite plus obtenir du fait que le prix des compléments est devenu trop élevé.

On peut prendre comme exemple d'exposition de ce problème les enchères organisées en 1998 au Pays-Bas pour les fréquences DCS-1800. Dix-huit lots étaient proposés à la vente. Deux d'entre eux étaient assez importants pour qu'un entrant puisse les utiliser pour réaliser son entrée. Les seize autres étaient de moindre importance. Ceux-ci pouvaient être utilisés par certains opérateurs en place pour étendre leurs réseaux ; il s'agissait donc pour eux de simples substituts. Ou bien encore, si l'un des entrants remportait quatre ou six lots, ceux-ci pouvaient être regroupés pour réaliser une entrée à une échelle d'efficacité minimale. Ainsi, pour les entrants, ces seize lots constituaient des compléments. Les mêmes lots étaient donc des substituts pour certains et des compléments pour d'autres ; il s'agit donc ici de conditions interdisant tout équilibre concurrentiel et avec lesquelles il serait impossible d'appliquer des règles d'enchères simples. De ce fait, le prix par unité de bande passante des deux plus gros lots a fini par atteindre plus du double de celui des seize autres (voir Milgrom p. 278 pour plus de détails).

Plus récemment, Ausubel a proposé une nouvelle conception pour les enchères multi-unitaires (Ausubel 2004). Ses résultats théoriques possèdent certains attributs positifs, comme l'efficacité et des offres véridiques ; de plus, les résultats des premières expériences semblent indiquer que, en pratique, elles permettraient d'obtenir des résultats efficaces. Ausubel a proposé un modèle d'enchères ascendantes multi-unitaires dont les avantages seraient doubles : d'une part, elles inciteraient les enchérisseurs à révéler la véritable valeur qu'ils attribuent aux biens et, d'autre part, chacun disposerait d'une quantité d'informations maximale au moment où il soumet son offre²⁰.

¹⁹ Dans ce cas, « équilibre concurrentiel » signifie maximiser la valeur totale pour toutes les attributions possibles (jusqu'à une surenchère près) [voir Milgrom p. 272], c'est-à-dire que le résultat est efficace au sens de Pareto.

²⁰ Dans ce modèle qui n'a pas encore été expérimenté (à la connaissance de l'auteur), l'adjudicateur annonce un prix, les enchérisseurs répondent en soumettant des offres de quantités, puis le processus se répète

Transco, le propriétaire britannique de réseaux de distribution de gaz, a indiqué sa préférence pour ce modèle lors de consultations portant sur l'accès à des terminaux gaziers (voir encadré 2) ; en définitive cependant, c'est le modèle d'enchères sous pli scellé à plusieurs tours qui a été choisi, parce que « (ce modèle) est mieux connu et moins complexe que celui d'Ausubel » et que le temps était limité (Newbery et McDaniel 2002).

Les *enchères combinatoires* et les *enchères contingentes* sont des modèles quelque peu différents des enchères multi-unitaires. Lors d'enchères combinatoires, l'enchérisseur soumet deux offres distinctes pour les éléments A et B et une offre groupée (dont le montant est inférieur à la somme des offres distinctes A et B) pour l'ensemble des éléments A et B. Les enchères contingentes généralisent le principe des enchères combinatoires, par exemple une offre pour A et une offre pour A si l'enchérisseur remporte également B. L'adjudicateur choisit la combinaison d'offres dont la somme est la plus élevée, d'où le nom de ce type d'enchères. On les utilise déjà en pratique (par exemple, les lignes d'autobus londoniens et les services aériens norvégiens subventionnés font l'objet d'enchères combinatoires). Quoi qu'il en soit, il s'agit ici d'une matière complexe évoluant rapidement, qui sort du cadre de ce présent document.

Avant de clore cette vue d'ensemble des enchères multi-unitaires et à objets multiples, nous noterons que le coût qu'entraîne la complexité des enchères impose des limitations quant à leur conception. En pratique, les enchères doivent rester assez simples pour que les enchérisseurs puissent les utiliser et donc y participer ; de plus, lorsque les enchérisseurs s'en remettent à des stratégies d'offre peu complexes, les résultats doivent être acceptables pour l'adjudicateur. (Milgrom 2004, p. 253)

jusqu'à ce qu'il n'y ait plus de demande excédentaire. L'innovation réside ici dans la façon de déterminer les paiements des adjudicataires. L'idée maîtresse est de découpler les offres de l'enchérisseur pour les unités inframarginales pour ces unités, de façon à éliminer toute incitation à une réduction de la demande. Ces paiements sont calculés de la façon suivante : pour chaque prix p , l'adjudicateur détermine pour chaque enchérisseur i si, la totalité de la demande de l'ensemble de ses concurrents est inférieure à l'offre. Si tel est le cas, la différence est « qualifiée » (« clinched » terme issu du base-ball), et les biens nouvellement « qualifiés » sont attribués à l'enchérisseur i au prix p .

Ausubel en donne un exemple dans son article. Soit deux objets identiques proposés à la vente et trois enchérisseurs, A, B et C, soumettant chacun une offre initiale pour des quantités de 2, 1 et 1 respectivement. Considérons qu'ils continuent à soumettre des offres pour ces mêmes quantités jusqu'à ce que le prix atteigne p ; C réduit alors sa demande à 0 et se retire. Les concurrents de l'enchérisseur A, collectivement, ne demandent à présent plus qu'une seule unité (B ne veut qu'une seule unité) ; A « qualifie » une unité au prix p , et l'enchère pour le bien restant se poursuit.

Encadré 4. Exemple des licences de télévision en Nouvelle-Zélande

La Nouvelle-Zélande a procédé à la vente de droits de diffusion d'émissions de télévision par le biais d'enchères *simultanées sous pli scellé au deuxième prix* (rappelons ici que dans ce type d'enchères, l'adjudicataire est le meilleur enchérisseur, mais qu'il ne paye que le montant de la seconde meilleure offre). Ce type d'enchères ne peut fonctionner correctement que lorsque les objets proposés ne sont ni des substituts ni des compléments. Cependant, tel n'était pas le cas lors de ces enchères, et les enchérisseurs risquaient donc de remporter un nombre insuffisant ou trop important de licences (l'enchérisseur ne souhaitant émettre que sur un seul canal n'apprécierait pas d'en remporter deux, alors que celui dont la stratégie commerciale est d'émettre sur deux canaux ne pourrait se satisfaire de n'en remporter qu'un seul). Le résultat pratique de ces enchères indique qu'elles n'ont pas été efficaces, les offres n'ayant que peu de rapport avec la demande des enchérisseurs, le nombre de licences remportées ou le prix finalement payé. De plus, il était impossible à chacun de deviner les valeurs attribuées par ses concurrents. Il apparaît ainsi que ni Sky, dont l'offre était de loin la plus élevée, ni Totalisator, qui a offert 401 000 dollars néo-zélandais pour six licences, n'avaient pu discerner précisément les stratégies de leurs concurrents.

Ces enchères auraient pu être plus efficaces si l'on avait procédé à plusieurs tours. L'adjudicataire aurait par exemple pu obtenir le nombre de licences souhaité (dans la mesure où celui-ci était conforme à la réglementation antitrust) une fois son offre retenue puis, lors du second tour, le droit de choisir la licence suivante aurait pu être mis en adjudication, etc. Une autre solution aurait été d'organiser les enchères de façon qu'elles comportent une première offre dont le prix et les quantités auraient satisfait aux besoins du meilleur enchérisseur, puis une seconde, et ce jusqu'à ce que soient vendue la totalité des licences.

Adjudicataires de lots UHF au niveau national : droits de licence 8 MHz

Lot	Adjudicataire	Meilleure offre (NZ\$)	Offre retenue Seconde meilleure offre (NZ\$)
1	Sky Network TV	2 371 000	401 000
2	Sky Network TV	2 373 000	401 000
3	Sky Network TV	2 373 000	401 000
4	BCL	255 124	200 000
5	Sky Network TV	1 121 000	401 000
6	Totalisator Agency Board	401 000	100 000
7	United Christian Broadcast	685 200	401 000

Source : Hazlett (1998), cité dans Milgrom 2004, p. 12.

Encadré 5. Description des enchères pour l'attribution de fréquences radio (États-Unis)

Le type d'enchères que la Federal Communications Commission a mis en œuvre en 1994 afin de vendre des licences SCP²¹ a servi de modèle à un grand nombre d'enchères multi-unitaires postérieures. Nous allons à présent considérer la première de ce type à être organisée.

Remarquons avant tout qu'il n'existait auparavant aucun modèle « prêt à l'emploi » pour des enchères portant sur de multiples objets ayant un grand nombre de valeurs interdépendantes potentielles (la valeur d'une seule licence dépendant du fait que son propriétaire possédait également une licence de substitution ou complémentaire). Un des problèmes résidait en ce que certains des éventuels enchérisseurs souhaitaient acquérir des licences nationales, tandis que d'autres se contenteraient de licences régionales.

Le modèle choisi a été celui des *enchères ascendantes simultanées*. En tout, dix licences étaient proposées, le pays étant divisé en grandes régions. Une enchère a été organisée par licence. Chaque enchérisseur soumettait des offres à chaque tour. Tous les enchérisseurs n'ont pas participé à chaque enchère. À la fin de chaque tour, chaque enchérisseur pouvait voir chacune des offres soumises. La FCC avait fixé le montant des surenchères pour chaque tour. L'idée maîtresse était que chaque enchérisseur pourrait constituer son propre « panier de licences optimal » en prenant en compte le coût de chacune d'elles. Ainsi, à chaque tour, il pourrait le modifier après avoir observé le prix le plus élevé offert pour chaque licence.

La règle de clôture était que les enchères prendraient fin lors du tour où plus aucune offre ne serait effectuée sur aucune licence. Une autre règle avait été envisagée, consistant à clore les enchères pour chaque licence dès qu'aucune offre n'était plus soumise. Cette solution a été finalement écartée car elle impliquait que l'enchérisseur qui pensait l'avoir emporté pour telle ou telle licence, mais dont l'offre avait été surenchérie au dernier moment, ne pourrait plus faire d'offre portant une licence de substitution, du fait que celle-ci avait déjà été adjugée. Pour empêcher que les enchères ne s'éternisent, on a instauré une règle selon laquelle les enchérisseurs devaient soit faire une offre élevée soit faire une nouvelle offre acceptable lors de chaque tour. Pour cette même raison, il était également demandé aux enchérisseurs de « se montrer actifs » sur un pourcentage minimal des enchères auxquels ils étaient autorisés à participer (on interdisait également aux opérateurs de téléphonie mobile déjà en place de détenir une licence SCP dans la même zone). Les enchères se sont prolongées pendant 5 jours sur 47 tours. Ainsi, les craintes que le processus soit interminable et trop complexe pour les enchérisseurs se sont révélées sans fondement.

Depuis, les enchères de licences multi-unitaires se sont développées. Entre ces premières enchères, de portée limitée, et jusqu'au mois de mars 1998, la FCC en a organisé 5 893 autres. Les enchérisseurs, tout comme le gouvernement, ayant décelé certaines faiblesses, les règles ont été modifiées. Selon la FCC : « Antérieurement à [la loi de 1993 autorisant la FCC à recourir aux soumissions compétitives], la Commission s'appuyait essentiellement sur des auditions comparatives et sur un système de tirage au sort pour sélectionner un unique détenteur de licence entre plusieurs candidats mutuellement exclusifs. La Commission conclut que ce système d'enchères permet d'attribuer bien plus efficacement les licences que les auditions comparatives ou les tirages au sort. »

Sources : Milgrom 2004, Cramton et Schwartz 2000, ainsi que le site web de la FCC (fcc.gov/auctions)

1. Dans certaines circonstances, les enchères ascendantes séquentielles s'avèrent déficientes. Les premières enchères portant sur l'attribution de fréquence FCC comportaient en effet un défaut : celui de ne pas se conformer à l'attente d'un seul et unique prix. En 1981, Sotheby a été chargé d'organiser des enchères portant sur le droit d'utiliser sept transpondeurs fonctionnellement identiques sur un même satellite. La première a permis d'engranger 14.4 millions de dollars US, et, au cours de chacune des enchères postérieures, le prix a fini par baisser pour tomber à 10.7 millions de dollars US pour le sixième transpondeur et 11.2 millions pour le septième. Dans l'optique des dirigeants d'entreprises ou de leurs

²¹

SCP (« services de communication personnels ») est le nom donné à la gamme des 1900 MHz utilisée pour les services de téléphonie numérique au Canada et aux États-Unis.

actionnaires, il semblerait avec le recul que l'adjudicataire du premier transpondeur l'ait surpayé²². La seconde difficulté est que les enchérisseurs risquent de se comporter de façon prédatrice en faisant monter le prix de la première unité afin de décourager les offres ultérieures. Enfin, cette formule empêche le regroupement de licences. Si certaines licences sont des compléments et qu'une entreprise en remporte une qui est complémentaire de celle déjà vendue à une autre, elle ne pourra pas « revenir en arrière » et faire une offre différente lors de la précédente enchère. Les transactions post-enchères ne sont pas efficaces étant donné les informations à caractère privé et le faible nombre d'acheteurs et de vendeurs. (McAfee et McMillan, 1996, p. 162-163)

Enchères avec revente

Lorsque les enchères avec revente offrent la possibilité à l'adjudicataire de revendre ultérieurement les biens, les pratiques d'offre ne sont alors plus les mêmes. Des théories récentes démontrent que « la revente peut changer fondamentalement l'interprétation des données d'enchères, le choix optimal des enchères par le vendeur, les effets d'un prix de réserve et l'existence même d'un 'équilibre séparateur' (c'est-à-dire efficace). » (Haile 2001, p. 399). Haile a démontré que la possibilité de revente signifie qu'une augmentation du nombre des concurrents aurait pour conséquence d'accroître les évaluations des enchérisseurs et donc également le montant de l'offre retenue. Il a vérifié ce résultat en le comparant avec les données issues de marchés de coupe de bois passés par le Service des forêts des États-Unis (U.S. Forest Service) de 1974 à 1989²³ (Haile, 2001).

Lorsqu'une revente est possible, l'évaluation de l'enchérisseur dépendra non seulement de la valeur de l'objet au cas où l'entreprise l'utiliserait elle-même (dans ce cas présent, en abattant et en transformant le bois elle-même), mais également de la possibilité d'acheter et de revendre sur le marché de la revente. La possibilité de revendre le contrat à une date ultérieure fait augmenter l'évaluation alors que la possibilité de rachat la réduit. Le fait d'accroître le nombre de concurrents, dans la mesure où cela permet d'augmenter le nombre potentiel d'acheteurs sur le marché de la revente, renforce ainsi « l'effet marché de revente ».²⁴ Autrement dit, plus le nombre de concurrents sera élevé, plus les évaluations de chacun d'entre eux le seront également.

Ce résultat diffère de ceux obtenus à partir des modèles habituels (sans revente), avec lesquels le prix proposé par l'enchérisseur n'augmente pas en fonction du nombre de concurrents (on ne doit pas oublier ici que, lors d'enchères à valeurs privées sans revente, le nombre de concurrents n'a pas d'incidence sur le prix que l'enchérisseur sera disposé à payer, alors qu'avec toute autre enchère à valeurs affiliées sans

²² Cette *anomalie du prix décroissant* est fort répandue. Sa cause fait l'objet de recherches, mais elle pourrait s'expliquer par la présence d'un effet analogue à celui de la « malédiction du vainqueur ».

²³ Haile a modélisé ces enchères sous la forme d'enchères ascendantes (dites « anglaises »). Il a commencé par établir une distinction entre, d'une part, les valeurs d'usage des enchérisseurs (celles qu'ils attribuent au marché, sans tenir compte des possibilités de revente) et, de l'autre, leurs évaluations (les valeurs qu'ils accordent au fait de remporter l'enchère). Leur valeur d'usage a été modélisée en tant qu'indépendante et privée du fait que les scieries n'ont pas les mêmes coûts ni les mêmes équipements et qu'elles disposent d'informations privées sur leurs propres ventes et stocks de produits finis, sur leurs futurs contrats de vente ainsi que sur leurs stocks de bois sur pied provenant de l'achat de coupes privées. La possibilité de revente introduit un élément de valeur commune. Du fait des pratiques propres au Service des forêts des États-Unis (voir le document cité en référence pour plus de précisions) il n'existait que très peu d'informations privées au sujet des éléments communs aux valeurs que les entreprises attribuent à tel ou tel contrat. Pour cette raison, l'auteur a considéré qu'un modèle à valeurs privées était le plus approprié.

²⁴ L'idée maîtresse est que le fait qu'il y ait davantage de concurrents lors d'une enchère constitue un 'signal' qu'il y aura également davantage d'acquéreurs potentiels sur le marché de la revente. Par conséquent, il sera plus rentable d'être vendeur qu'acheteur sur le marché de la revente.

revente, la somme qu'il sera prêt à payer diminue lorsque augmente le nombre d'enchérisseurs, l'effet de « malédiction du vainqueur » se trouvant renforcé). Il nous faut cependant émettre deux réserves quant à ce modèle théorique : primo, il ignore les conséquences si les mêmes enchérisseurs venaient à se trouver de nouveau en concurrence lors d'enchères ultérieures et, secundo, il ne prend pas en compte la possibilité de collusion.

D'autres travaux théoriques démontrent, entre autres, que cette possibilité de revente fera que les évaluations des enchérisseurs dépendront du mécanisme de vente lui-même et que le type d'enchères courantes qui générera le plus de recettes ne sera plus le même (pour les citations, voir Haile, 2001). Ainsi, lorsque l'on conçoit des enchères, il faut prendre en compte l'existence d'un marché secondaire.

Enchères de capacités

On a fait valoir que les enchères de capacités qui seront utilisées lors de mises en concurrence ultérieure devront être conçues différemment. Lorsque les capacités qui seront utilisées lors de mises en concurrence ultérieure seront attribuées par voie d'enchères, l'optimisation des enchères ne sera pas le seul aspect à prendre en compte. Par exemple, si, lors de la mise en concurrence suivante, certaines entreprises se voient contraintes de se retirer, ni les enchères à prix uniforme ni celles de type discriminatoire (où le paiement s'effectue au prix de l'offre – « pay your bid ») ne seront en mesure de garantir que les entreprises les plus efficaces soient les adjudicataires²⁵. De façon plus générale, la théorie des enchères ne nous donne pas d'indications précises à ce sujet ; cependant les « modèles-jouets »²⁶ semble indiquer que les dissymétries entre entrants et opérateurs en place, ainsi que celles entre ces derniers, ne sont pas sans poser problème.

Enchères avec informations ou évaluations asymétriques

Nous allons à présent considérer les situations où l'un des enchérisseurs dispose de meilleures informations quant à la valeur d'un objet, ou bien où l'on sait qu'il lui accorde une valeur légèrement supérieure. Il s'agit là de situations qui ne sont pas encore bien comprises. Deux modèles existent cependant, celui dit de « la zone de drainage » et celui des « valeurs quasi communes ».

Le modèle de « la zone de drainage » a été proposé par Wilson (1969) afin de décrire la situation lors des enchères sous pli scellé au premier prix organisées pour la vente de contrats d'exploitation des gisements pétrolifères du plateau continental extérieur du Golfe du Mexique. Une *zone de drainage* est une zone adjacente à celle déjà exploitée par une compagnie ou un consortium pétrolier, le *voisin*. On se base sur l'hypothèse que tous les enchérisseurs ont fait la même évaluation et que le « voisin » connaît avec la plus grande précision la valeur réelle alors que les autres concurrents ne disposent pour leur part que d'informations incomplètes. Lorsque deux concurrents sont en lice, nous nous trouvons dans une situation d'équilibre unique où le « voisin » a une espérance de profit positive, tandis que l'espérance de profit de son concurrent est nul. Si nous sommes en présence de plusieurs « non-voisins » nous aurons autant

²⁵ Ceci peut s'expliquer ainsi : un enchérisseur préférerait ne remporter aucune capacité que d'en remporter et d'avoir à la payer, au risque d'être le concurrent le plus mal placé au cours de la prochaine enchère et de se retrouver ainsi éliminé du marché. Il soumet donc une offre égale à zéro. Conformément à cette logique, tous les autres concurrents en font autant. Il ne peut donc s'agir ici d'un équilibre puisque chaque enchérisseur souhaitera soumettre une offre positive afin de pouvoir être présent sur le marché ultérieur. Aucun équilibre n'est efficace. La solution pourrait donc être la formule d'enchères « où tout le monde paie », c'est-à-dire où chacun paie le montant de son offre, même si seul un nombre déterminé d'enchérisseurs remporte la capacité. (McAfee 1999)

²⁶ Un « modèle-jouet » est un modèle économique simple qui n'a pas été conçu pour être d'application générale, mais seulement pour étudier un phénomène particulier.

d'équilibres différents, tous relativement proches de l'équilibre à un seul « non-voisin ». De façon quelque peu étrange, le comportement du « voisin » en cas d'enchères et l'espérance de profit sont indépendants du nombre d'enchérisseurs « non-voisins ». On a également constaté que le « voisin » souhaite que l'on sache qu'il est mieux informé, car cela intimide les « non-voisins » et les incite à faire des offres plus modestes. Par contre, ces derniers souhaitent tenir secrètes toutes les informations dont ils peuvent disposer. En outre, si l'adjudicateur-vendeur venait à divulguer certaines des informations du « voisin », l'espérance de profit de ce dernier se verrait réduite et celle du vendeur augmentée. (Milgrom 2004, pp. 166-181)

Dans le modèle des *valeurs quasi communes*, un enchérisseur (l'enchérisseur privilégié) attribue à l'objet une valeur légèrement supérieure à celle des autres concurrents qui, pour leur part, lui accordent une même valeur. Si les enchérisseurs sont au nombre de deux et que les enchères sont soit ascendantes soit sous pli scellé au deuxième prix, l'enchérisseur privilégié l'emportera systématiquement et réduira considérablement les recettes de l'adjudicateur par rapport à une situation à valeurs communes pures. Cependant, si l'enchérisseur privilégié se trouve régulièrement face à plusieurs concurrents, il ne l'emportera plus de façon systématique, même s'il conserve un certain avantage. Les recettes de l'adjudicateur pourront être supérieures ou inférieures par rapport à un contexte de valeurs communes pures (Levin et Kagel, 2003).

Conclusions

Cette annexe a été l'occasion de présenter certains concepts comme les valeurs privées, les valeurs communes, la « malédiction du vainqueur », les théorèmes de l'équivalence du revenu et, de façon plus générale, les principaux modèles d'enchères. Les enchères multi-unitaires, dont la théorie est actuellement moins développée, ont également été commentées, avec des exemples illustrant les choix de conception, en se basant sur nos connaissances préalables des enchères à unité unique. Le texte principal met ces notions en application dans la perspective de méthodes d'enchères propices à la concurrence et dans le contexte des fusions sur les « marchés d'enchères ».

ANNEXE 2

ÉVALUATIONS ET SIGNAUX

Cette annexe vise à proposer des définitions plus précises de concepts tels que les valeurs privées, les valeurs communes, les valeurs communes pures et l'affiliation.

Évaluations et signaux

Les notations et symboles utilisés pour définir les diverses structures d'information sont les suivants : soit U_i l'évaluation de l'enchérisseur i de l'objet pour les enchérisseurs $i=1,2,\dots,n$. Définir $U=(U_1,\dots,U_n)$. Soit X_i les informations privées (ou « signal » ou « type ») de l'enchérisseur i . X_i pourrait par exemple représenter les données sismiques privées concernant une zone de forage. Définir $X=(X_1,\dots,X_n)$. Utiliser la convention selon laquelle $X_{-i}=(X_1,\dots,X_{i-1},X_{i+1},\dots,X_n)$.

Les évaluations et les signaux se trouvent liés par la relation suivante : l'évaluation attendue d'un enchérisseur A augmentera conjointement à son signal, dans la mesure où les signaux des autres enchérisseurs restent fixes. Soit en symboles : $E[U_i|X_i=x_i, X_{-i}=x_{-i}]$ où x_i augmentera pour toute réalisation de x_{-i} des signaux des concurrents de i . Sans que le caractère de généralité en soit affecté, la condition suivante pourra également être imposée : $X_i = E[U_i|X_i]$. Ce qui signifie que l'évaluation attendue compte tenu du signal est le signal lui-même.

Définitions

Les enchérisseurs ont des *valeurs privées* si $E[U_i|X_i=x_i, \dots, X_n=x_n] = E[U_i|X_i=x_i]$ pour tous les x_1, \dots, x_n et tous les i .

Les enchérisseurs ont des *valeurs communes* si $E[U_i|X_i=x_i, \dots, X_n=x_n]$ augmente strictement en x_j pour tous les i , les j et les x_j .

Les enchérisseurs ont des *valeurs communes pures* si $U_i = U_0$ pour tous les i .

L'existence de facteurs qui influent sur les évaluations des enchérisseurs ne signifie pas qu'il s'agisse de valeurs communes. Par exemple, si $X_i=U_i=V_0 + \varepsilon_i$, il s'agit de valeurs communes en dépit de la présence du facteur « commun » V_0 . V_0 introduira une corrélation entre les évaluations des enchérisseurs et entre leurs informations, ainsi qu'une corrélation entre l'évaluation d'un enchérisseur et le signal d'un autre concurrent. La raison pour laquelle il s'agit ici de valeurs privées est qu'aucun concurrent ne dispose d'informations pertinentes pour l'appréciation de sa propre évaluation par tout autre enchérisseur, et ce du fait que celui-ci a observé son signal (une fois que l'enchérisseur i connaît $V_0 + \varepsilon_i$, le fait de prendre connaissance de ε_j n'affectera pas U_i).

La définition formelle du concept d'*affiliation* pour deux enchérisseurs est la suivante. Si x'_1 et x''_1 sont des réalisations de X_1 et que x'_2 et x''_2 sont des réalisations de X_2 et que $f(X_1, X_2)$ est la fonction de densité conjointe des signaux : X_1 et X_2 sont affiliés si pour tous les $x'_1 > x''_1$ et les $x'_2 > x''_2$

$$(1) \quad f(x'_1, x'_2)f(x''_1, x''_2) \geq f(x'_1, x''_2)f(x''_1, x'_2).$$

La signification de cette inégalité (1) devient plus claire une fois convertie en probabilités conditionnelles.

$f(x_1, x_2) = g(x_1 | x_2)h(x_2)$ où $g(\cdot)$ est la densité conditionnelle de x_1 en fonction de x_2 et où $h(\cdot)$ est la densité de x_2 . L'inégalité ci-dessus reste vraie si :

$$(2) \quad g(x_1' | x_2') / g(x_1'' | x_2') \geq g(x_1' | x_2'') / g(x_1'' | x_2'')$$

Elle porte également le nom de propriété dite du ratio de vraisemblance monotone, où les valeurs supérieures de x_1 deviendront relativement plus probables au fur et à mesure que x_2 augmentera.

Cette définition de l'affiliation correspond à celle donnée par Klemperer (2004) pp. 50-51. On en trouvera une définition plus générale dans Milgrom (2004), 5.4.1. Affiliation, p. 182 et seq.

ANNEXE 3

**EXEMPLE D'ESTIMATION DE L'EFFET D'UNE FUSION LORS D'UNE ENCHÈRE SOUS PLI
SCELLÉ AU DEUXIÈME PRIX À VALEURS PRIVÉES**

Considérons que les entreprises A et B sont en voie de fusion et que les entreprises C et D sont leurs concurrents. Considérons les profils suivants d'offres lors de quatre enchères.

Enchère n° 1 : Les entreprises en voie de fusion font les deux offres les plus élevées

	Offres	Résultat avant fusion	Résultat après fusion	Changement dû à la fusion
A	10	A l'emporte, prix = 8	A-B l'emportent, prix = 7	Le prix baisse de 8 à 7
B	8			
C	7			

Enchère n° 2 : Les entreprises en voie de fusion font l'offre la plus élevée, mais pas la seconde meilleure offre

	Offres	Résultat avant fusion	Résultat après fusion	Changement dû à la fusion
A	10	A l'emporte, prix=8	A-B l'emportent, prix = 8	Aucun
B	7			
C	8			

Enchère n° 3 : Les entreprises en voie de fusion font la seconde meilleure offre, mais pas l'offre la plus élevée

	Offres	Résultat avant fusion	Résultat après fusion	Changement dû à la fusion
A	8	C l'emporte, prix=8	C l'emporte, prix = 8	Aucun
B	7			
C	10			

Enchère n° 4 : Les offres des entreprises en voie de fusion ne se classent pas parmi les deux meilleures offres

	Offres	Résultat avant fusion	Résultat après fusion	Changement dû à la fusion
A	7	C l'emporte, prix = 8	C l'emporte, prix = 8	Aucun
B	6			
C	10			
D	8			

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CZECH REPUBLIC

1. Introduction

Bidding markets are characterised by demand and supply meeting in form of a contract announced by a contracting authority and interest of several tenderers in acquiring the contract. Competition in such cases is based on “winner takes all” principle, meaning that only one of the tenderers wins (acquires a contract) and all the other tenderers lose. The volume of contract is usually significant, while tenders are not announced in regular intervals.

The Office for the Protection of Competition of the Czech Republic (hereinafter “the Office”) has dealt with the issue of bidding markets in its decision making practice especially in area of merger assessment, most frequently in the construction and energy production sector. Certain experience was acquired also in the area of bid rigging. Last, but not least, the Office successfully intervened in favour of effective competition on bidding markets within its competition advocacy.

The main feature of this area, taken into consideration by the Office, is that there is primarily competition for the market and not competition on the market. Typical is also that the market shares of competitors are changing in time and it is not possible to result in the assessment of the market power mainly from them. In the area concentrations, non-considering volumes and numbers of tenders may lead to incorrect conclusions in analysing the impact of the assessed concentration on competition.

The Office therefore proceeds in line with the principle set in the EC law that “in these cases it is preferable to obtain direct information about the role of market players in the bidding process, for example by means of win/loss analysis“. The Win/loss analysis monitors the number of successes (or failures) of individual entities in individual tenders and on this basis estimates the market power.

Generally it also applies that **the more concentrated the market is, the more tending it is to bid rigging**, as the tenders are attended by the same companies that have an opportunity to jointly discuss future strategies on the given market. Further experience of the Office with bidding markets will be illustrated by the following major cases from construction and energy sectors.

2. Merger Control on Bidding Markets

- *Case study I. – Virtual power plant as a condition for approval of mergers*

In 2005, the Office assessed a case that occurred on rather new auction market¹ of electricity sale with the aim to enforce effective competition in form of auction mechanism².

The Office approved the concentration of electricity producing company ČEZ and 5 regional distribution companies (RDC). The concentration was approved with the condition that ČEZ would enable

¹ Related to liberalisation of the market.

² The electricity sale by auction on UK market was discussed by Green a Newbery in 1992, listed in Klemperer Paul, in Auctions: Theory and Practice, Chapter One, A Survey of Auction Theory.

in 2006 and 2007 three independent entities access to its electricity production capacity in overall amount of 400 Mega Watts, located in the Czech Republic. This amount corresponded with volume of purchase, distribution and sale of electricity to final consumers by a regional electricity distributing company on the basis of individual contracts in line with conditions preset by the party to the proceeding.

The Office imposed on the acquirer a condition that the production capacity would be offered in an auction organised by an independent auction office. The access to the auction was preset for all the players on the electricity market registered by Electricity Market Operator and independent in terms of ownership, funding and staff on ČEZ. The party to the proceeding was also imposed a condition to publish information on the possibilities to purchase electricity from the offered production capacity in the daily press immediately after the decision came into force. The price for the offered production capacity, resulting from the auction was to be set in the way covering costs of the power plant production capacity. ČEZ was allowed to set the minimum auction cost price.

The party to the proceeding was imposed a condition to provide the Office with a report on fulfilling the restriction on 31 January 2006 and 31 January 2007. The preliminary results show that **the wholesale electricity prices are increasing**. The energy sector in the Czech Republic has been considerably liberalised, there is a **number of licensed energy traders and sellers, including foreign ones**. In approving the concentration of ČEZ/RDC the Office also took account of the fact that the Czech Republic had implemented a number of measures enabling free cross-border exchange of energy depending on the development of demand and supply in individual Central-Europe countries. It is especially the case of **establishing auctions of the cross-border profiles** with all the neighbouring transmission capacities, elimination of administrative fees and abolishment of import licenses. The Office also set flexible time regime for sale of **transmission capacities and abolishment of import licenses**. The original RDC were divided into two parts in the way that the distribution part is subject to the regulation by the Energy Regulatory Office and the trade part is on the contrary fully exposed to competition. At the same time the bond to a certain region has been abolished. On the basis of numerous analyses the Office ascertained that the procedure aimed at creation of so called **virtual power plant** was a sufficient quasi-structural measure for creating preconditions for a functional and transparent market allowing non-discriminatory access of traders to available energy capacity.

- ***Case study II. – Concentration on construction market***

Building construction, especially engineering construction, is relatively highly investment demanding. The contracting party is selected on the basis of **a tender carried out in form of a public call for tenders**. As a significant part of demand for engineering construction is based on **tenders announced by public administration, effective competition is ensured in case of due process of a tender, inasmuch significant part of the demand for engineering construction consists in tenders announced by public institutions** and the consumer will always have the choice of the contractor on the basis of sufficient information.

Barriers to entry in construction sector in the Czech Republic may generally be considered insignificant, which is illustrated by a high number of companies active in this area. Performance of construction works is conditioned by obtaining a licence and, in some cases, permission by relevant Mining Office for certain underground engineering projects. These business licences are issued on the basis of approving expert eligibility of workers for individual activities by a certificate/diploma of education in the given profession.

A very important moment in assessing mergers on bidding markets is considering the differences between tenders in case with homogenous and heterogeneous products. While the abovementioned virtual power plant case clearly dealt with a homogeneous product (electricity) in case of **Metrostav/Subterra**

concentration in construction sector the Office tried to find also about possible distortion of competition resulting from the possibility that the products in question were so heterogeneous that several relevant markets could have been impacted.

One of the main characteristic of the construction sector, especially the engineering construction, is the fact that **public sector is often the major purchaser of services**. For example, the public sector demand for Metrostav services has been app. 60% and for Subterra services even 90%.

The only significant barrier for competition on the Czech construction services market had been constituted, until 2004, by the legal possibility to prefer domestic contracting parties in the process of public procurement. However, this drawback was eliminated by the amendment to the Public Procurement Act and foreign companies therefore now enjoy the same rights as domestic tenderers.

In this concentration of construction companies, regularly taking part in a number of tenders, an especially complex issue was the **definition of relevant markets**. The fact that in the year of the concentration the shares of parties in the implemented construction works may be very high or very low, the information on the market power and impact of the merger on the market cannot be reliable. In case of horizontal overlap of activities, there is much higher negative impact on competition, as the concentration on the market grows. In the given case it would have been incorrect to assess the market broadly as the construction market, including various activities from tunnel digging to construction of buildings. Both companies are universal construction companies active on all segments of the construction works market and related services. The construction works sector includes a broad scale of activities with many companies involved in them, however with some of them active only in certain segments of the market. Other, mainly big construction companies, are active in all segments of the market. In this case, the Office defined two relevant markets – **market of land construction works and market of engineering construction**. With respect to the fact that both the merging companies had been established for the purpose of **underground construction activities** and the companies preserved important position in this area, the Office assessed also the situation on the market of engineering construction.

Furthermore, in assessing the market structure the Office found that there were more than 1600 companies operating on the market. The merging parties were among the most significant ones. The most important competitors of the merging companies are the worldwide active foreign construction companies. Analysis carried by the Office showed that the concentration would not lead to creation of dominant position.³

3. Competition Advocacy

- *Commodity Stock Exchange – Electrical Waste*

Alike Klemperer⁴, discussing auctions related to environmental improvements, the Office supported the proposal of the Commodity Stock Exchange for liquidation of electrical waste in line with meeting the goal of minimising the impacts on environment and at the same time respecting competition rules.

In 2006, the Office supported the proposal of the Commodity Exchange of the city of Kladno aimed at facilitating entry of several collective systems for liquidation of electrical waste from households. This way is expected to ensure an important decrease in costs on liquidation of the waste, especially in case of eliminating the historical waste by producers of lighting equipment, which would be reflected also by reducing the final price of these products for consumers.

³ This declaration was confirmed by win/loss analysis of merging parties in tenders last year.

⁴ See footnote 2.

In the given system relevant provision of the Decree the state administration body – the Ministry of the Environment – created a **monopoly** for administration of the joint performance of financing the management of historical electronics. For this reason, the Office commenced **discussions with the ministry** and requested a legislative change aimed at rectifying the current state, particularly to allow more entities meeting the legal requirements manage joint financing of the electronics waste management.

The representatives of the electronics producers presented their complaints to members of Parliament. After a series of discussions, to which the Office contributed by its own standpoint, a group of deputies launched an initiative in 2006, which resulted in submission of a petition to the Constitutional Court to repeal the decree.

- ***Commodity Stock Exchange – timber***

The Office initiated joint discussion with Commodity Stock Exchange on the possibility for company Lesy ČR (Forests of the Czech Republic) to enter the Commodity Stock Exchange in cities of Kladno and Prague. The amount of wood in question was app. 500 thousand cubic metres, which constitutes app. 7% of the overall annual incomes from the state forests. This effort of the Office was aimed at allowing access to wood for market prices also to the customers that had had previously significant difficulties in doing so in the original structure of the market.

GERMANY

1. Promoting competition in and through auctions

1.1 Public procurement tenders

1.1.1 The Bundeskartellamt as public procurement tribunal

Public contracts principally have to be awarded under competitive conditions through a public tender in a transparent and non-discriminatory way. In principle the contract is awarded to the bidder submitting the economically most advantageous offer. The Bundeskartellamt has been responsible for reviewing the awarding of public contracts in the Federal Republic of Germany since 1 January 1999. The three public procurement tribunals set up at the Bundeskartellamt review, upon request, whether public contracting entities have met their obligations in the award procedure.¹ The tribunals are entitled to take suitable measures to remedy a violation of rights and to prevent any impairment of the interests affected.

1.1.2 Principles, cases and decisions

In the rulings of the Bundeskartellamt's public procurement tribunals the guiding principles of procurement law, i.e. competition, transparency, non-discrimination and fair tendering procedures play a very important role.

This can be illustrated by a recent decision of the Bundeskartellamt²: The contracting authority, the *Bundesagentur für Arbeit*, issued an invitation to tender for the supply of network components to expand its network infrastructure and to redesign its IP-network. The network components were *inter alia* to be used in a data processing centre which was to be newly built and connected with the existing data processing centre. In its invitation to tender, the public entity explicitly asked for products of a certain component manufacturer. German public procurement law, however, in principle calls for an invitation to tender which is neutral as regards certain products or techniques. The contracting authority may only then explicitly ask for a certain product if this is justified by the nature of the goods and services which are the subject matter of the contract to be awarded. Also, trade names may only be asked for as an exception and only with the addition "or equivalent". In the case described above, the contracting authority claimed that only the products named in the invitation to tender would allow for full compatibility, interoperability and easy error analysis. The procurement tribunal found, however, that the specification of network components in the invitation to tender was not justified. The new data processing centre was to be built on a different site and connected with the existing data processing centre on the basis of standard protocols.

¹ Review by the public procurement tribunals presupposes that certain thresholds are met. These thresholds, which are based on directives of the European Union, are, at present, as follows: 130.000 € as regards public service and supply contracts awarded by the highest administrative authorities of the Federal Republic of Germany, 200.000 € as regards such contracts awarded by other public entities and 5 Mio. € as regards public works contracts.

² VK 2 – 104/06 of 18 September 2006, not yet published. Decisions of the public procurement tribunals are available under <http://www.bundeskartellamt.de/wDeutsch/entscheidungen/vergaberecht/EntschVergabe.shtml>.

Such a connection would not require identical components. The Bundeskartellamt found that the invitation to tender was not only contrary to the above mentioned provision demanding product neutrality but also contrary to the principles of competition and non-discrimination. As a result, it ordered the contracting authority to withdraw the invitation to tender.

In many cases, the Bundeskartellamt finds that the contracting authorities do not apply the criteria laid down in their invitations to tender to determine the economically most advantageous offer or, in a first step, a certain number of qualified competitors. In a decision in 2005³ the Bundeskartellamt ordered the contracting authority to re-evaluate the request by a bidder to participate in a competition for the design of a repository for the state library in Berlin. The jury had only evaluated the request according to the criterion “quality of design”. However, in its invitation the contracting authority had clearly distinguished between “design qualifications”, “experience in the building of libraries and archives” and “design qualifications as regards building projects of a particular magnitude which serve one particular purpose”. The Bundeskartellamt found that the contracting entity had, by not applying its own criteria, violated the principles of transparency and non-discrimination.

In another case⁴, the Bundeskartellamt took the opportunity to underline the importance of deadlines which a contracting entity has to grant in an award procedure. The law e.g. provides for a certain time period after the publishing of an invitation to tender to allow a potential bidder to make a request to participate in a restricted procedure. A shortening of the deadline is only possible in cases of particular urgency that must not have their cause in the internal organisation of the public entity. The contracting authority, the German Federal Ministry of Finance, had, however, shortened this deadline significantly. In the procedure before the Bundeskartellamt, the authority claimed that it had to shorten the deadline because of the ongoing legislative process in which the ministry wanted to include results to be established by the contractor. The applicant, on the other hand, argued that due to the shortened deadline he was not able to make his request. In its decision, the Bundeskartellamt found that the ministry had violated its obligation to stick to the statutory deadlines because there were no convincing reasons to shorten the deadline: The legislative process and its envisaged termination was an internal process which was - and still could be - influenced by the ministry.

1.2 Bidding consortia and anti-trust enforcement

Anti-trust enforcement can serve in various ways to promote competition in auctions. Collusive bidding is prohibited by the ban on cartels according to Art 81 EC Treaty and Section 1 of the Act against Restraints of Competition (ARC). In the past years the Bundeskartellamt has fined several cartels which operated in bidding markets (e.g. removal services, ready-mixed concrete, firework devices, etc.). Bid rigging is also prosecuted as a criminal offence (Section 298 Penal Code).

An important aspect of the ban on cartels is the case law which specifies the conditions under which bidders are allowed to submit a joint bid in an auction. Such bidding consortia can be found in virtually all auction markets but are most frequent in the construction industry. A bidding consortium between two or more significant competitors typically violates the ban on cartels if both companies would have submitted a bid absent the agreement to bid jointly. Setting up a bidding consortium is therefore a cartel agreement if bidding separately would have been a viable and rational business decision and if the agreement appreciably restricts competition. Bidding consortia can also fall under the scope of German merger control.

³ VK 3 – 224/04, decision of 19 January 2005, available under <http://www.bundeskartellamt.de/wDeutsch/archiv/EntschVergArchiv/2005/EntschVergabe.shtml>.

⁴ VK 3 – 49/05, decision of 9 June 2005, available under <http://www.bundeskartellamt.de/wDeutsch/archiv/EntschVergArchiv/2005/EntschVergabe.shtml>.

1.2.1 *Case example: Prohibition of joint participation by Rethmann and Tönsmeier in GfA Köthen*⁵

Rethmann, Tönsmeier and the public-owned GfA Köthen were active in various local disposal markets, especially in the market for the collection and transport of residual waste, waste paper and other types of waste. In a tender to privatise GfA Köthen, Rethmann and Tönsmeier submitted a joint bid. In November 2004, the Bundeskartellamt prohibited the joint participation of Rethmann and Tönsmeier in GfA Köthen. Both the formation of a bidding syndicate by Rethmann and Tönsmeier and the formation of a joint venture constituted illegal anti-competitive agreements within the meaning of the ban on cartels. As a result of the formation of the bidding syndicate only one joint bid was submitted in the tender to privatise GfA Köthen instead of two independent bids. Rethmann, the second-largest German waste disposal company, and Tönsmeier, a well-established medium-sized enterprise, would both have been able to submit an independent bid. According to the Bundeskartellamt's evaluation Rethmann and Tönsmeier would also have coordinated their competitive behaviour in the relevant geographic market after the merger as a consequence of the formation of the cooperative joint venture. Furthermore, the merger would have strengthened a dominant oligopoly in the markets for the collection and transport of residual waste and waste paper in a geographic area of approx. 100 km surrounding the District of Köthen.

1.3 *Auctioning obligations as a remedy in antitrust enforcement and merger control*

In some cases the obligation to conduct an auctioning process can be an effective remedy in antitrust enforcement. In the Bundeskartellamt's practice there are some relevant cases of this both in abuse control and merger control. Generally speaking, this kind of remedy can be effective if it serves to open up markets and thus promote competition on a long-term basis. Within the context of German merger control, remedies imposed in a clearance decision must not be aimed at subjecting the merging companies to a permanent control of conduct. The Bundeskartellamt is thus only able to clear a merger subject to structure-related remedies. These may be structural remedies in the narrower sense (e.g. selling parts of the company) or remedies aimed at opening up markets by reducing barriers to entry. The latter may include auctioning obligations. Two relevant cases are reported below.

1.3.1 *Case example: DSD cost savings through auctions*⁶

Under the German Packaging Ordinance companies are obliged to take back and dispose of the packaging which they have brought into circulation. The endconsumers do not pay directly for the waste disposal but rather the disposal costs are borne by the company circulating the packaging. The company circulating the packaging discharges its obligation to take back and dispose of the packaging by contracting DSD (or other companies) to do this. At the time when the take back obligations were introduced, the German industry - backed and facilitated by politics - set up the company DSD ("Dual System Germany") to fulfil the obligations. The result was a monopolist with a cartel-like ownership structure. Its shareholders consisted of companies from the waste management sector and large companies from the trade and industry. The waste management companies were at the same time procurers of DSD as they collected and sorted the packaging waste on DSD's behalf. From the early nineties when the company was set up, DSD enjoyed a "quasi-monopoly" in the market for taking back sales packaging. The Bundeskartellamt initially tolerated DSD's competition law infringements, but made clear that the tolerance would only be temporary. Due to its market power and interlocking interests, DSD's incentives to reduce its costs were weak.

⁵ The full text of the Bundeskartellamt decision on 16 November 2004 is available at <http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion04/B10-74-04.pdf>

⁶ For more details see the press release of 12 October 2004 which is available at http://www.bundeskartellamt.de/wEnglisch/News/Archiv/ArchivNews2004/2004_10_12.shtml

In order to partially allay the competition concerns of the Bundeskartellamt, DSD decided in early 2003 to implement for the first time a transparent and non-discriminatory system of awarding service contracts to the waste disposal companies.⁷ The first call for tenders did not bring about any real competition in bidding for many contract areas with the result that in 2004 DSD had to put out a second invitation for tender for almost half of all its contract areas. In this second invitation for tender DSD, at the Bundeskartellamt's recommendation, had considerably improved the basic conditions for competition, above all for small and medium-size disposal companies, which thus had an increased chance of success. As a result, from 2005 the costs of collecting and sorting, in comparison to the charges paid up to 2003, were reduced by approx. 200 mio. Euro, which corresponded to a reduction of more than 20 per cent.

1.3.2 Case example: Joint venture clearance subject to auctioning conditions⁸

In December 2003, the Bundeskartellamt cleared the planned project of DB Regio AG (DB Regio) and üstra Hannoversche Verkehrsbetriebe AG (üstra), to combine their local public transport activities in the greater Hanover area in a joint venture. Clearance was made, however, under the dissolving condition that contracts for local public transport services in the Hanover region be awarded through competitive procedures.

DB Regio provides all local passenger rail services in the relevant Hanover market area on the basis of a transport contract with the Hanover regional authorities, the duration of which is limited to the end of 2006. In addition it is also active in local public road transport in the greater Hanover area via its regional bus subsidiaries. üstra is by far the leading municipal transport company in the greater Hanover area. On account of a considerable overlap in their areas of operation their combined market shares reach a level of well above 80 per cent in the Hanover market area.

The auctioning conditions ensure that the market is opened up gradually. Accordingly, as soon as the current contracts have expired, at least 30 per cent of DB Regio's local passenger rail services and at least 50 per cent of üstra's bus transport services have to be awarded in a Europe-wide award procedure with effect from 1 January 2007 and 1 January 2010 respectively. By 1 January 2013 at the latest the Hanover regional authorities, as the contracting entity for local public transport, have to award all bus transport services provided by üstra and all local passenger rail services provided by DB Regio in the region in a Europe-wide competitive procedure.

2. Merger evaluation in bidding markets

The fact that the market under investigation is characterised by auctions plays an important role in the Bundeskartellamt's merger review practice. It is a common market feature that comes up in many cases. Most markets where the customers are businesses and virtually all markets where the customers are government entities can be described as bidding markets.

In its practice-, the Bundeskartellamt has not accepted a general "bidding market defence". However, it investigates thoroughly the implications that the auctions have on competition. Bidding market characteristics are most likely to make a difference in the context of market definition and in the evaluation of the evidentiary value of market shares. In several Bundeskartellamt merger review decisions it is also discussed whether auctions make a difference for the analysis of buyer power.

⁷ It should be noted that this was only one among several actions that DSD had to take. The most significant change DSD had to make was to dissolve its cartel-like ownership structure by the end of 2004.

⁸ The full text of the Bundeskartellamt decision on 2 December 2003 is available at http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion04/B9_91_03.pdf

2.1 *No general “bidding market defence”*

In its most general form the “bidding market defence” equates to the claim that because the market at hand is characterised by auctions, it is impossible for the suppliers to have market power. Klemperer and other auction theory scholars show that this argument holds only under specific conditions which are hardly ever met in reality.⁹ Very similar to these theoretic arguments, the Bundeskartellamt has in its case practice rejected the general “bidding market defence” if it is not substantiated by arguments which convincingly explain how the auctions prevent a dominant market position (i.e. make unilateral or coordinated effects unlikely).

Good examples to illustrate this point are the mergers Shell / DEA and BP / Veba in 2001.¹⁰ The markets affected by these mergers included inter alia the market for jet fuel A1 at Frankfurt airport. In the proceedings the parties claimed that there was no collective dominant position because jet fuel A1 delivery contracts were awarded through auctions. According to the analysis of the Bundeskartellamt, this claim was not substantiated. Potential entrants need to build up a specific infrastructure at and to the airport (e.g. pipelines, etc.) in order to become a credible bidder. The fact that auctions were conducted therefore did not improve the conditions for entry for newcomers. Entry was also unattractive for newcomers as the very same companies that produce jet fuel A1 also deliver it on site. It did not seem likely that the auctions as such would reduce the transparency between the few suppliers on the Frankfurt airport jet fuel A1 market. Both mergers were therefore only cleared subject to conditions.

2.2 *Market definition in bidding markets*

In principle, auctions have the potential to encourage market entry by companies active in adjacent markets. Auction processes can therefore be an argument in favor of a relatively broad market definition. This aspect is particularly relevant in geographic market definition. A common misunderstanding is that the market should be defined by the geographic target audience of the bid taker (buyer). In several merger proceedings, the merging parties argued that the buyers are obliged to conduct a “Europe-wide” auction due to regulations for government procurement processes, and that the market should therefore be defined as Europe-wide. However, such an obligation does not mean that there are credible bidders in this market from all over Europe.

In bidding markets the Bundeskartellamt typically reviews data from past auctions in order to assess which companies can be viewed as credible bidders and in which geographic area they are able to place a credible bid. This can be a laborious but worthwhile exercise. The relevant market is not defined with reference to the target audience of the bid takers but rather with reference to the scope of credible bidders.

The case Rethmann / Tönsmeier / GfA Köthen, which was already mentioned above, is also a good example to illustrate this methodology.¹¹ In order to assess the geographic scope of the markets for the collection and transport of residual waste and waste paper, the Bundeskartellamt surveyed all 112 regional authorities which are the actual and potential customers in this market. 29 bids had been conducted by these authorities in the past five years. The Bundeskartellamt was able to obtain the bidding data for 26 of these bids. Through the analysis of these data it was found that only those bids are likely to be successful

⁹ See e.g. the referenced literature in the “scoping paper” to this roundtable, COMP/2006.68

¹⁰ The full texts of the Bundeskartellamt decisions on 19 December 2001 are available at:
<http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion01/B8-120-01.pdf> and
<http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion01/B8-130-01.pdf>

¹¹ The full text of the Bundeskartellamt decision on 16 November 2004 is available at:
<http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion04/B10-74-04.pdf>

which are submitted by companies which already have a branch within a certain geographic vicinity to the place of tender. According to the findings the geographic market spans all administrative districts within approx. 100 km of the area covered by the tender, i.e. the District of Köthen.

Other cases, for example the June 2005 prohibition of the merger RUAG Deutschland GmbH / MEN Metallwerk Elisenhütte GmbH,¹² illustrate that a “Europe-wide” auction does not necessarily mean that the market is in fact Europe-wide. The merger project would have created a de facto monopolistic position for RUAG / MEN on the German market for small calibre ammunition (also called small arms ammunition) for customers in the authorities sector and military sector. In this case, the parties claimed that the market was wider than national because the customers sometimes conducted “Europe-wide” auctions. However, the Bundeskartellamt opined that the geographic market was limited to Germany because of the special technical product requirements on the domestic market and the close manufacturer-customer relations. Due to these market characteristics, RUAG and MEN were the only two credible bidders in this market.

2.3 *Market shares in bidding markets*

Another important aspect in the case experience of the Bundeskartellamt is the evidentiary value of market shares in bidding markets. There are two main reasons why market shares can be of less significance in bidding markets if compared to other markets.

The first reason is that the contracts may be infrequent and that the value of each contract may be high relative to the overall market volume or to a supplier’s total sales in a period. In economic terms, this describes a situation where the demand is lumpy. The durability of the market share levels may therefore be weaker. In tendency, market shares will be more volatile with a lumpier demand. A direct consequence for merger analysis is that market shares should always be analysed for several years preceding the merger notification and not just for one year. Also, the competition authority should investigate the value of each contract in relation to the overall market volume. Additional information may be gathered by looking at the installed base (for investment goods) and/or the orders on hand. The more volatile market shares are and the higher the relative value of each contract, the less explanatory power market shares will have. However, it should be noted that lumpiness of demand is strictly speaking a market feature which is independent of the exact price formation process. Therefore, a lumpy demand can also be present in non-bidding markets (for example, the market may be characterised by bargaining processes).

The second reason is that in bidding markets other credible bidders may pose a significant competitive constraint even though one company in the market holds high market shares. However, this might be the case in non-bidding markets as well. As a rule, the Bundeskartellamt does not assign equal market shares to all credible bidders only because the market is characterised by auctions. In contrast, the Bundeskartellamt calculates market shares in an analogous way as in non-bidding markets (see the paragraph above) and investigates why the market leader has won contracts more often than other competitors. The analysis may (or may not) show that even though the market leader has high market shares, it nevertheless cannot act independently of competitors due to a sufficient number of credible bidders.

An instructive example in this regard is the analysis in the clearance decision for Von Roll Inova GmbH to acquire the “industrial boiler and plants” (IBP) business of Alstom Power Conversion GmbH in May 2006.¹³ Among the several markets affected, the highest combined market shares of Von Roll and

¹² The full text of the Bundeskartellamt decision on 30 June 2005 is available at:
<http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion05/B4-50-05.pdf>

¹³ The full text of the Bundeskartellamt decision on 15 May 2006 is available at:
<http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion06/B5-185-05.pdf>

Alstom's IBP business were in a German market for Hausmüllverbrennungsanlagen, namely approx. 60% in a 5-year period.¹⁴ The Bundeskartellamt conducted an in-depth analysis of all invitations to tender for household waste incineration plants in the years 2001 – 2005. In this period nine invitations to tender for waste incineration plants were issued, all of which were awarded to general contractors. The Bundeskartellamt assumed that from the buyers' point of view all bidders that were admitted to the second bidding round were credible bidders. Therefore, on the basis of invitations to tender in the last five years, it was examined to what extent the number of bidders would have changed in the second bidding round if Von Roll and Alstom's IBP business were considered as one bidding unit. The parties to the merger participated independently as credible bidders in seven of the nine invitations to tender for general contractor services. Out of these seven invitations to tender, if Von Roll and Alstom's IBP business were considered as one unit, in two cases two bidders would have remained, in two cases three, and in three cases four. In the period indicated above, a total of nine different bidders participated in the second round. An analogue analysis was also conducted for the main components of household waste incineration plants. The analysis concluded that, although the merger led to a decrease in the number of bidders and high market shares, there still remained a large enough number of credible bidders to create sufficient competitive pressure.

2.4 Buyer power in bidding markets

Quite similar to the general "bidding market defence" it is sometimes argued that the presence of auctions is as such proof of countervailing buyer power. Auction theory suggests that even the opposite argument can be made because bidders may be able to influence the auction design or to deviate from the auction rules.¹⁵ In line with these theoretic arguments, the Bundeskartellamt does in its practice not presume that the presence of auctions creates countervailing buyer power.

An instructive example in this regard is the merger Getinge / Heraeus which was cleared subject to obligations in May 2002.¹⁶ Getinge held a dominant position in the market for operation table systems for hospitals and clinics. This dominant position was not relativised by the fact that the buyers (hospitals and clinics) purchased their operation tables through formal auctions. In contrast, the investigation showed that by assisting the hospitals and clinics in the specification of the tenders, Getinge was sometimes able to undermine the auction process as the tender included specifications which only Getinge was able to meet. Also, Getinge met with a quite fragmented demand side so that there was no sufficient countervailing buyer power.

¹⁴ There was no final determination made on the geographic scope of the market.

¹⁵ See e.g. the referenced literature in the "scoping paper" to this roundtable, COMP/2006.68

¹⁶ The full text of the Bundeskartellamt decision on 29 May 2002 is available at:
http://www.bundeskartellamt.de/wDeutsch/download/pdf/Fusion/Fusion02/B4_171_01.pdf

HUNGARY

The Hungarian Competition Authority (hereafter: GVH) has not yet had a merger where specifically “bidding market” characteristics would have been taken into account. Nevertheless, some lessons for auction design can be *tentatively* drawn from the experiences regarding auctions and public procurement tenders.

1. Principles to maximise competition in auctions

Some tentative conclusions, drawn from the Hungarian experiences:

- If bidders can make non-committed bids, and renounce their bid/obligation after they were allocated the product, the auction may lead to loss of allocative efficiency. (Electricity cross-border transmission capacity auction, para 5-9)
- Ascending auctions with the number of rounds maximised as well as minimum bid requirements may prevent the market from clearing. (MVM virtual power plant capacity auction, para 14, 18)
- Not revealing the exact amount of over-, underbidding after a round of a multiple round auction may provide an incentive to more aggressive bidding. (MVM virtual power plant capacity auction, para 15)
- Bidding competition may be increased if the auctioned item is fine-tuned to the needs of as many (or as valuable) potential bidders as possible. (MVM virtual power plant capacity auction, para 16)
- Smaller bidders may be helped to bid in certain cases by making the obtained quantity of goods flexible, by e.g. that bidders could submit bids for a quantity and price, rather than only price for a quantity set by the auctioneer. (MVM virtual power plant capacity auction, para 17)
- Having the same number of auctioned items and bidders proved to be conducive to collusion. (Motorway cartel 2002, para 22-23) It may be advisable to attract more (probably at least two more) bidders than the number of allocated items.
- If a tender is cancelled and called for again, the risk of collusion is higher, as it is customary for repeated auctions. (Motorway cartel, 2002, para 22-23) In such cases it may be advisable to make an effort to involve more bidders.
- In some cases it may be possible to attract more bidders by asking for bids for a solution, rather than for a technology. Holding multiple round auctions while fine-tuning the technical requirements with the best bidder ideas may reduce costs. (Tendering for motorway M7, para 24-26, 29)
- Reducing non-essential requirements/guarantees may help to attract more bids. (M7, para 28)

- If subcontracting rules, that make it obligatory to declare subcontractors above a certain value threshold, are not enforced, colluding companies may easily share the benefits from collusion as the winner includes the other companies as subcontractors. (Various cases, para 31-32)
- The auctioneer/organiser may promote collusion if it holds exclusive consultations with a small subset of potential bidders to help determine the future auction/tender rules. If only a very limited number of companies is able to provide a complex solution, one may try to tender smaller parts. (Information system procurement, para 38-39) Similarly, an early restriction of the number of bidders may facilitate collusion between the few competitors remaining. (CANPI procurement, para 40-41)
- Attracting new bidders may be especially important if incumbent bidders have already colluded in the past. Nevertheless, colluding companies may try to co-opt entrants, maverick firms. (CANPI procurement, para 41)
- Non-binding bids may provide an opportunity for bidders to communicate with false bids. (CANPI, para 42)

1.1 Auction design and redesign in practice.

1.1.1 Bidding for electricity cross border transmission rights - Bidding without commitment was not efficient and created market uncertainty

If bidders can submit bids and may acquire rights they may renounce with no cost, then they may bid very differently from how they value the product, and the auction may be prone to produce an outcome that is not allocatively efficient.

The Hungarian electricity market was partially opened up for competition on the 1 January, 2003. Large consumers of electricity become eligible to leave the regulated market and buy electricity on negotiated prices from trading companies on the free market. Electricity import was crucial for the newly opened up free market, so the demand for use of cross border transmission capacities seriously exceeded supply.

Just before the market opening the Hungarian electricity system operator (Mavir) allocated the scarce cross border transmission capacities on a first-come first-served basis, but after the market opening it adopted auctions which usually provide a more efficient outcome. The product auctioned was the right to use a certain fraction of transmission capacities between Hungary and a certain neighbouring country (Austria, Slovakia or Croatia). First yearly auctions were introduced, but monthly auctions followed soon. Participants submitted closed bids, indicating their reserve price and the amount of required capacity. Capacity rights were accorded to the highest bidders on the market clearing price, at the price where the supply equalled demand. (A sort of second-price auction, where participants have an incentive to bid their reserve value.) In order to promote the effective use of transmission rights (and consequently to increase liquidity on the Hungarian electricity market) those holders who did not use at least 90% of the allocated capacity were required to pay fines. Re-sale of usage rights was not allowed, but owners could renounce their rights in monthly instalments, without paying anything.

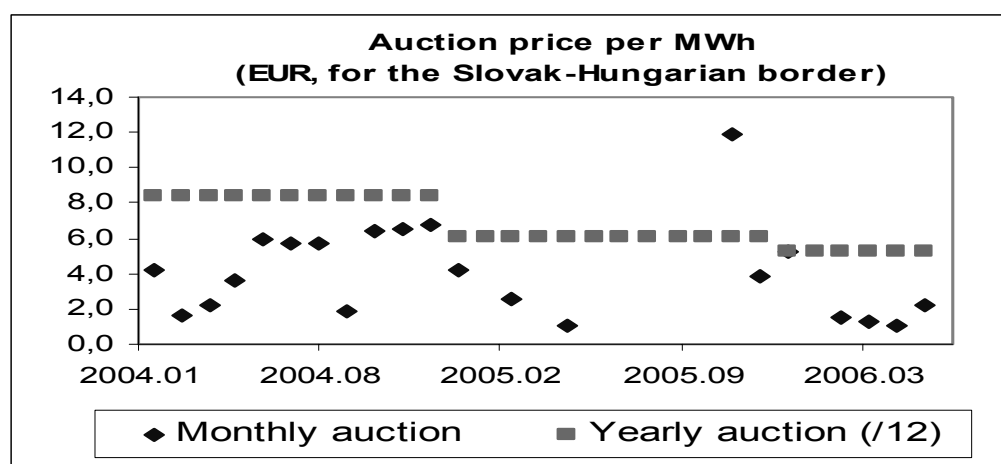
On the first annual auction in April 2003, the market clearing price was 3 EUR/MWh for base-load transmission (100% utilisation). On the second annual auction in November, 2003 prices rocketed to 8 EUR/MWh. As capacity rights could be renounced without cost, there was no actual requirement for electricity traders to de facto pay the amount offered. Considering this, and that the allocation of rights was

based on the market clearing price rather than the individual bidding prices (only the marginal bidder had to pay actually the price it bid), the dominant strategy for bidders was to bid sky-high, probably even above their reserve value, so that they obtain usage rights – and if the market clearing price turned out to be too high, they could renounce the use with no cost.

The high prices, inherent in the system had a direct market effect. They made free market electricity traders cautious about offering long-term contracts to consumers, which put a halt to the rise of the free market, and some consumers even returned to the regulated market.

The loss of allocative efficiency is evident from the fact that there was almost nobody among those who won the bid who actually was ready to pay. Almost everybody renounced the obtained capacity rights. Prices on the monthly auctions collapsed, and remained significantly under the annual price bid earlier. This of course helped traders in importing energy, but did not remedy the very high cost of market uncertainty.

The sector regulator Hungarian Energy Office called for changing the auction rules, to eliminate the cancellation right, and to allow for a secondary market of obtained capacity rights. The auction rules were changed in August 2004. These changes helped to eliminate abusive bidding behaviour. The following annual auctions in November 2004 and 2005 provided a more predictable market environment, and enabled the reliance on annual capacity rights instead of monthly contracts. Consequently they helped electricity traders in their planning and in offering products for consumers. Less importantly, they brought more moderated prices.



1.1.2 MVM virtual power plant capacity auctions – A renewed auction design helped smaller bidders and improved allocative efficiency

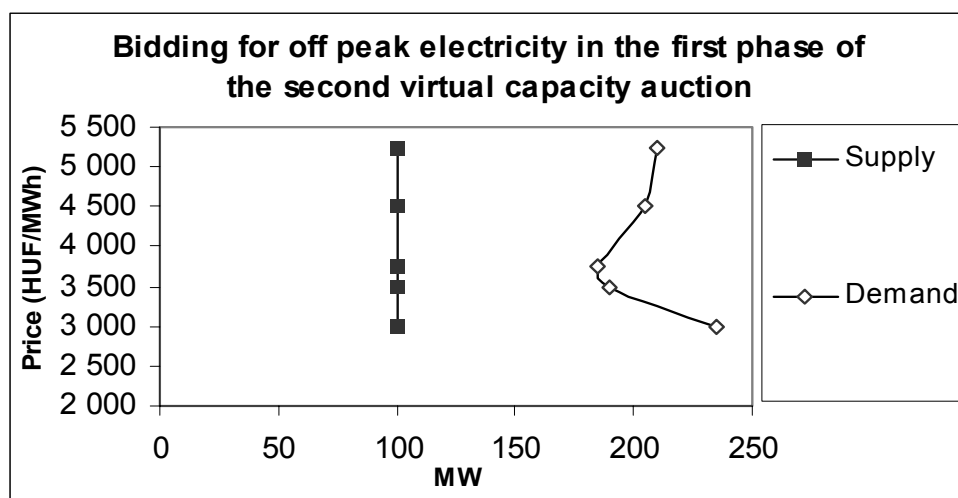
Step-by-step ascending bid schemes with the number of rounds maximised as well as minimum bid requirements may prevent the market from clearing.

Bidding competition may be increased if the auctioned item is fine-tuned to the needs of as many (or as valuable) potential bidders as possible (e.g. annual contracts may be more interesting for a larger group of customers than semi-annual contracts). Smaller bidders may be helped to make an offer (e.g. by enabling smaller quantity bids by replacing the “winner takes it all” rule with a scheme where bidders must bid both quantity and price).

MVM, the incumbent electricity wholesaler and transmission company had reserved around 80% of domestic generation via PPAs (power purchase agreements), and around half of the cross-border transmission capacities. As the renegotiation of the PPAs stalled, no generator blocs were freed up, and MVM still enjoyed its dominant position. To alleviate the dominance, and to discharge of some electricity and provide liquidity to the free market, MVM was required to organise virtual capacity auctions. Up until August 2006 there have been eight auctions organised, and the auction rules were changed a number of times. Here we would like to concentrate on a subset of experiences, obtained during the series of auctions.

The auction is designed a bit like what is called the Anglo-Dutch design. It is organised in two phases. In the first phase, an ascending auction, the auctioneer sets prices and companies submit closed bids of quantities. In case the sum of all bids (total demand) exceed the available capacity (supply), another round starts, the auctioneer raises the price and the companies bid again. If the sum of bids is inferior to the available capacity, the bidders receive the capacities they bid, and the remaining capacity is transferred to the second phase. However, unlike to most Anglo-Dutch design, where the first phase ends as the number of bidders sinks below a certain number, here the number of rounds is maximised, and if in the last round demand still exceeds supply, then the company with the largest bid obtains the quantity it bid for, and the remaining capacities are transferred to the second phase. In the second phase there is only a single round, and companies bid prices (and since the 8th auction also quantities) in closed bids. There is a minimum bid requirement as well.

The auction scheme of the first round, based on step-by-step increased prices and a limited number of bidding rounds, combined with the award criteria provided incentives for strategic bidding. This became evident in the 2nd auction, where the demand has risen as the auctioneer raised prices. While some of the companies reduced or just maintained their bids, others raised theirs as the first phase neared its previously set last round. According to the rules at the last round the largest bidder was the only to obtain the quantity she bid. As a result of this auction design, there was no market clearing price, as demand seriously exceeded supply when the bidding was closed, and it may not have been those who valued the product most, who received capacities. (Loss of allocative efficiency.) This problem did not come up when the starting price was relatively high, so the bidding did not exhaust all rounds in the first phase. When the auctioneer applied a better auction modelling system later to set the minimum prices and the increment rises, this helped to avoid bidding to the last round. Also, to extend the prospect of bidding, the maximum number of rounds was raised from five (at the second auction) to seven plus an optional three. An alternative solution could have been an introduction of a single bid mechanism, where the companies bid prices and quantities, and market clearing price and the obtained quantities are determined implicitly from the single closed bids, as it happens in the electricity cross border transmission capacity auctions.



One has to be cautious with the amount of information provided after the bidding rounds. While initially the sum of total bids was published to the bidders after each round of the first phase, recently only the fact is told that the bid was “underbid”, “rightly bid” or “overbid”. This makes it harder for market players to extrapolate the total demand, and it is supposed to have provided incentives to bid more aggressively.

The auctioning of a product more suitable to a larger number (or more valuable) customers could certainly attract more entrants and drive prices higher. While initially half-year capacity contracts were auctioned, in the 7th auction companies bid for yearly capacities, which was lucrative not only for the usual auction participants (trading companies), but also to others (great individual consumers).

The introduction of dual, quantity and price bids in the second phase, instead of the earlier “the winner takes it all” or casting lots, also increased the intensity of bidding competition. This enables (smaller) bidders, who are in need only of a very limited amount of electricity, to bid.

While setting the minimum prices high may restrict collusive behaviour (by reducing the gains that can be achieved with collusion), they may also prevent the market from clearing. In some cases the minimum price of the bids were set so high, that no companies bid, and no capacities were allocated. Partially handled this issue, that the minimum price now cannot be higher in the second phase, than the closing price in the first phase.

1.1.3 Bidding on motorway tenders – A more technology-neutral -design increased price-competition¹

The short history of Hungarian motorway tendering provides numerous lessons on what to avoid. Most generally, the restrictions on the technology bidders may employ may restrict the scope of competition and reduce the number of potential competitors. More substantial guarantee requirements also constrain who may bid. An elimination of non-essential restrictions may lead to the entry of new competitors, to more efficient competition and may yield benefits for the auctioneer, without compromising quality. (M7 procurement, 2006)

Secondly, avoiding focal points for collusion (e.g. having around as many companies invited to a tender as the number of great, independent value items put for auctions) may be advisable, just as a thorough control of whether the bidders include each other as subcontractors in their projects, which may be a scheme for redistributing collusive profits. Also, calling for a new bidding for the same product runs the higher risk of collusion. (Motorway cartel, 2002 – Case-27/2003)

Public tenders for constructing motorway segments have a limited history in Hungary. They made a short appearance in the 1990s when an international call for tender was the condition for obtaining financial support from international bodies, but after 1998 all such projects were assigned to one consortium. Monopoly provision did not constrain prices, and costs grew significantly. While in 2000 a motorway costed 1,3 billion HUF (5 million EUR)² per kilometre, in early 2002 the consortium wanted 2,18 billion HUF (8,8 million EUR) per kilometre for a new project.

¹ Please take into consideration that we heavily relied on newspaper articles when we prepared this description, as we could not access all primary sources in the short available time.

² The prices indicated relate to contract (bidding) prices, and not actual construction prices. In Hungary public debates usually revolved around the prices of the winning bids, and we have not heard of significant differences between the two. This could suggest the relative absence of low-ball bidding and re-negotiation, but this would be too daring a conclusion, as we have not made a detailed investigation.

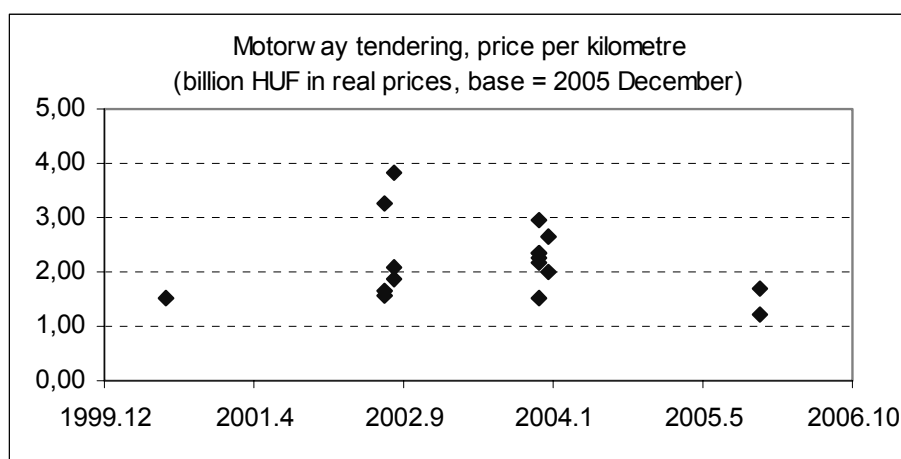
Facing growing costs and willing to act against favouritism, in 2002 the newly elected government decided to drop the single provider and rely on competition. Besides cost cutting and transparency, rapidity was also of great importance. Trying to eliminate the dominance of the favoured incumbent, and in the quest for a rapid result, in July 2002 a restricted procedure tender was written out. Four companies were invited for bidding to build four sections of motorway. Bidders formed consortia and interestingly enough, through these consortia every bidder managed to obtain a contract. But prices sunk - the winning bids totalled 15% less than the price offered by the incumbent before the elections. Many commentators argued that initiating an open procedure could cut costs even more. So the restricted procedure was cancelled and an open procedure was started in August. This time the motorway to build was divided into three sections. The same companies bid than before, and they were all successful and each got somehow involved in building a section. The prices however have risen to just below what was offered by the incumbent (2,13 billion HUF per kilometre on average). The re-tendering thus pushed up the "competitive" prices to what the monopoly would have charged.

Motorway and section	Length (km)	Offer by incumbent, 2002 Spring		Notes of a cartel member		Restricted procedure, 2002 July		Open procedure, 2002 August	
		Bid (billion HUF)	Price per kilometre (billion HUF)	"Cost-based prices"	Price per kilometre (billion HUF)	Best bid (billion HUF)	Price per kilometre (billion HUF)	Best bid (billion HUF)	Price per kilometre (billion HUF)
M3, Polgár-Görbeháza	12	-	-	13	1,08	16	1,32	18	1,78
M7, Balatonszárszó	19	-	-	45	2,38	55	2,88	65	3,25
M7, Becsehely-Letenye	9	-	-	12	1,32	15	1,61		
M70, Letenye-Tornyiszentmiklós	20	-	-	20	1,01	24	1,22	45	1,57
Total (or average)	60	131	2,18	90	1,51	109	1,82	128	2,13

The GVH obtained notes taken by company executives proving that the bidders colluded and they allocated the sections between themselves both for the restricted and the open procedures. By including each other as subcontractors they also operated a scheme to redistribute the profits earned through collusion. Considering the gravity of the bid rigging, the GVH levied its largest fine ever, 7 billion HUF (28,6 million EUR).

The GVH intervention significantly increased public awareness of the social costs of collusion, and the benefits of competition. However, although public pressure mounted to increase competition, somehow new entrants found it extremely hard not to be excluded from public procurement tenders. These factors together with other requirements de facto favoured incumbents, essentially those companies who also participated in the 2002 motorway cartel. As a result, prices still hinted of anticompetitive behaviour, as prices for comparable components were much higher in the motorway building than the prices in the more competitive road construction. For example, the same "mZMA" wearing surface was priced 20-50% more for the motorways than for road construction.

The breakthrough was achieved in 2006 with a tender of a 35,5 km section of motorway M7. While engineers predicted an overall price of around 70 billion HUF for the construction, the project was awarded to the winner with a bid of around 43 billion HUF, averaging 1,2 billion HUF/kilometre. The much lower prices are to a great extent due to reduced building requirements (e.g. 130 km/h planning speed instead of 140 km/h). But there seems to be a consensus that the new auction design, which increased competition, also had a role.



In the first, pre-selection phase of the tender, participants were to demonstrate their financial, commercial and technical capabilities to fully meet the contractual requirements. The project was awarded following the second phase, that is competitive negotiations with bidders. Price and technical details were negotiated simultaneously during these multiple-round negotiations, and both criteria were weighted in the final decision. Four of the six consortiums in the second phase got excluded because of technical deficiencies, including the three lowest price bids.

The success of the tender is frequently attributed to the new auction-design, which strongly increased the willingness to bid in comparison to previous auctions.

First, the pre-selection criteria were loosened to let in new entrants, e.g. companies were not required to have an asphalt plant within a certain distance from the motorway and could use mobile plants. In contrast to previous tenders, where the number of participants to be allowed into the second round was limited, in this case the pre-selection round served only to filter out the weakest applicants.

Second, while earlier the design of the motorway was auctioned separately from the construction work, and the construction companies were asked to bid for the technically thoroughly determined realisation, this time cost-saving ideas of bidders were internalised into the tender process. The bidding was organised in three rounds. In the first round every bidder was asked to bid for a loosely defined plan, with technical solutions they preferred. Bids were then between 49,5 billion HUF and 60 billion HUF. Then the auctioneer selected the most cost effective solutions and further specified the project to bid for. In the second round every bid sunk below 50 billion HUF. In the third round prices were reduced further and averaged around 43 billion HUF. Summing it up, making the technical requirements flexible did not substantially threaten the technical integrity of the project, but it created incentives for a larger number of companies to bid.

Although the tender delivered the lowest specific prices in the short history of Hungarian tenders for road-construction, it may still have features that may have increased the risk of collusion. In this tendering process, negotiations with the six participants were neither secret, nor bilateral: the proposals and bids of every participant were open to other bidders, allowing them to get information of their competitors' intents and cost-structure. The larger number of bidders however seems to have at least to some extent neutralised this effect. The example of the auction for motorway M7 demonstrates the importance of a technology-neutral auction-design, which enables price-competition without creating unnecessary barriers of entry.

1.1.4 General remarks about auction design/subcontracting

If subcontracting rules, that make it obligatory to declare subcontractors above a certain value threshold (e.g. 10%), are not enforced, colluding companies may easily share the benefits from collusion as the winner includes the other companies as subcontractors. Sometimes bidders failed to declare subcontractors (Case 138/2002 on a Budapest road reconstruction bid rigging). Occasionally even though subcontractors were declared, later a new competition was held and the work was done by the newly selected and undeclared subcontractors. (Case-56/2004, on a regional road construction procurement).

Establishing contractual relations with competitors as potential subcontractors in a bidding consortium in itself may provide a facilitating environment for collusive behaviour.

1.2 Law enforcement in auctions

The state played a significant role in facilitating collusion in at least in two procurement cases.

1.3 Dialysis solution procurement case

The “dialysis solution procurement” case (Case-100/1998) shows how the auctioneer may itself eliminate potential competition if it asks companies who are in the short run not competitors but could compete in the long run to come up with a common bid.

The Hungarian National Health Insurance Fund (NHIF) held annual public procurement auctions for peritoneal dialysis solution, a cleansing liquid used to treat people with a kidney problem. In such auctions the NHIF asked companies to bid prices for providing a certain amount of dialysis solution. In 1998 as in previous years, the producers submitted their individual bids to the NHIF. The NHIF was not satisfied with the overall price level, and it expected that it could reduce expenses if it shared the information contained in the bids with all the better, and asked the bidders to work out a common price, hoping that they would come up with a low price. Not entirely unsurprisingly, she was unsatisfied with the joint price bid of the companies... The GVH finally did not fine the companies, as it reckoned that the companies engaging in price fixing were not competitors for 1998, as after the dialysis treatment has started, it is not possible to switch to a different producer’s solution, as the permanent soft tube (catheter) built in the patient to convey the solution to the abdomen is producer-specific.

Thus, although there could have been a scope for competition in the long run (which producer’s catheter to build in and hence from which producer to buy the solution), the short run price fixing asked for by the NHIF not only yield higher prices than the NHIF wanted, but it may have also eliminated the benefits of competitive tendering and long-run competition between different solutions.

1.4 Information system procurement case

The “information system procurement” case (Case-162/2004) provides an example how a wish to have an overall solution and over reliance on a few market players as counsels during the tender preparation phase may actually determine the result, and provide excellent playground for collusion.

Five Hungarian universities planned to procure enterprise resource planning systems. The Ministry of Education and Culture (MEC) prepared a strategy regarding the development of the information systems in the tertiary education, and within the frame of the strategy it organised meetings for the universities and for three service providers. In these meetings the MEC tried to encourage universities to organise a joint procurement. Besides, the MEC kept in contact with the companies and provided help for collusion. For example, it sent a letter to the companies, where the “business case” was described with guidelines, containing proposals for the market-allocation, and some recommendations about the role of the companies

in the tenders of different universities. Despite this, the universities decided to call for separate tenders. Nevertheless, as a consequence of the MEC's activity, the market players could work out easily the details of the cooperation, like the establishment of consortiums, the determination of winners and subcontractors of the tenders and the amount of the bids. The GVH fined the three companies.

1.5 CANPI procurement case

The CANPI bid rigging (Case-28/2003) may show a lesser, but still important failing of the auctioneer: an early restriction of the number of bidders may facilitate collusion between the few remaining competitors.

The Central Administration of National Pension Insurance (CANPI) put out to tender the renovation of its residence, applying open procedure. This procedure was cancelled, and a restricted procedure was initiated. Although all the six bids submitted were accepted in the pre-selection phase, the CANPI prepared a shortlist of three applicants to start negotiations with. One of the fallen companies however, which was not included in the shortlist, asked legal redress with the Public Procurement Committee about the inconsistency of CANPI in her preparing a shortlist. The Committee suspended the tender; but soon the maverick company cancelled its complaint, so the procedure could continue.

The GVH found that the three companies in the shortlist rapidly reached a collusive agreement by selecting the winner and determining how it shall include the others as subcontractors. After the fourth company, left out of the short list, "caused trouble" with its complaint, it was also co-opted in the conspiracy.

It was revealed from a testimony of a company executive that bids in the pre-selection phase, which are non-binding, may provide an opportunity for "market testing"; from such bids usually significant cost factors are omitted, and they provide an opportunity to communicate with competitors.

JAPAN

1. Introduction

The Japan Fair Trade Commission (hereinafter referred to as the “JFTC”) aggressively enforces the Antimonopoly Act (hereinafter referred to as the “AMA”) and the Act Concerning Elimination and Prevention of Involvement in Bid Rigging etc. against bid rigging from a standpoint of promoting competition in public procurement. Also, the JFTC conducts surveys on the public procurement system and makes proposals to improve it. On the other hand, procurement institutions proactively bring damage suits against bid riggers, and make efforts to improve the bidding system for the purpose of preventing bid rigging.

2. Law enforcement against bid rigging

2.1 *Strict and proactive enforcement of the AMA against bid rigging*

In Japan, bidding is used by the central government, local governments and public corporations as an ordering method in the public procurement markets in order to determine a contractor, a contract price, etc. through competition among bid participants. Bid rigging is defined as a form of predetermining a bid winner, a minimum bid, etc. and then as a result this conduct restrains competition in the transaction of goods and services ordered through bidding. Thus, this conduct undermines the bidding system and violates the provision of the AMA, which prohibits anticompetitive conduct, and views this misconduct as a form of Unreasonable Restraint of Trade.

Bid rigging is a typical cartel and one of the most serious breaches of the AMA. Accordingly, the JFTC has strictly and proactively been taking measures against bid rigging under the AMA. The table below includes the numbers of the JFTC’s legal actions in recent years against antitrust violations as a whole and against bid rigging. These numbers show the JFTC’s aggressive enforcement against this violation.

Fiscal Year	2001	2002	2003	2004	2005
Number of Legal Actions	38	37	25	35	19
Bid Rigging	33	30	14	22	13
Number of Entrepreneurs Object of Legal Actions	928	805	405	472	492
Bid Rigging	908	762	376	449	473
Amount of Surcharge (billion yen)	2.2	4.33	3.87	11.15	18.87
Bid Rigging	1.72	3.22	3.83	3.45	18.8
Number of Entrepreneurs Object of Surcharge	248	561	468	219	399
Bid Rigging	240	546	467	194	392

In addition, the amended AMA came into effect in January 2006, with new measures which included increasing the surcharge rate, introducing a leniency program, and introducing compulsory measures for criminal investigations, etc. It is expected that the revised AMA will make the provision prohibiting bid

rigging more effective and will give entrepreneurs an incentive to voluntarily refrain from collusive bidding.

2.2 *Enactment and enforcement of the Act Concerning Elimination and Prevention of Involvement in Bid Rigging, etc.*

In Japan, in recent years bid rigging cases have existed in which the officials of procurement institutions got involved in bid rigging by, for example, instructing entrepreneurs to conduct collusive bidding. (This kind of bid rigging is called “*Kansei-dango*.”) In these cases, it is possible to take measures against the entrepreneurs by utilizing the Antimonopoly Act, but no legal actions can be taken against the officials under the AMA. In order to solve this problem and to prevent this kind of bid rigging, the Diet examined the enactment of a new law to prevent the involvement of procurement institution employees and then to promote competition in public procurement and to improve budget spending. As a result, the Act Concerning Elimination and Prevention of Involvement in Bid Rigging, etc. (hereinafter referred to as the “Involvement Prevention Act”) was proposed by Diet members. It was enacted in July 2002 and enforced as of January 2003.

If the JFTC finds that entrepreneurs carry out acts of bid rigging violating the AMA and that an employee of a procurement institution is involved to a certain degree in this violation, then the JFTC identifies the involvement of the employee as a form of misconduct which is defined in the Involvement Prevention Act. Accordingly, when the JFTC implements measures against a breach of the AMA, it also applies the Involvement Prevention Act.

The Involvement Prevention Act includes a provision regarding the JFTC’s demand that the heads of procurement institutions implement the improvement measures necessary for eliminating involvement in bid rigging. The basic scheme of the Act is as follows:

2.2.1 *Demand that improvement measures be carried out by the heads of Ministries and Agencies (Section 3).*

This Section provides a) that the JFTC may demand the heads of procurement institutions to implement necessary improvement measures when recognizing involvement in bid rigging; b) that the heads shall perform an investigation and implement necessary improvement measures when receiving the JFTC’s demand; c) and that the heads shall publicize the results of the investigation, etc.

“Involvement in bid rigging” is defined in Section 2 (5) as the following:

- Having an entrepreneur or trade association engage in bid rigging. (Section 2 (5) (i)).
- Nomination of the counter-party of a contract in advance, or an indication or suggestion in advance of wishes to the effect that a specified person be the counter-party of the contract (Section 2 (5) (ii)).
- Out of various data concerning bidding or contracts, an indication or suggestion of information held in confidential files to a specified entrepreneur or trade association, access to which shall facilitate bid rigging by the specified entrepreneur or trade association (Section 2 (5) (iii)).

2.2.2 *Claims made to the employees of compensation for damage (Section 4), Investigation of the reasons for disciplinary actions carried out against the employees (Section 5).*

Section 4 provides that the heads of Ministries and Agencies shall, when recognizing that their employees, who were involved in bid rigging, caused damages, demand compensation for damages against these employees. Section 5 provides that the heads shall investigate if it is possible to impose disciplinary actions on their employees, who were involved in bid rigging.

2.2.3 *Others*

Other sections provide a) that administrative institutions concerned within the government shall cooperate by maintaining mutual coordination with regard to the prevention of involvement in bid rigging; and b) that local governments shall provide consideration of their independent efforts in the application of this act.

There have been three bid rigging cases in which the Involvement Prevention Act was applied since the date of its enforcement, and the summaries of these cases are listed below:

2.2.4 *A case against participants in bidding for a construction contract ordered by Iwamizawa City*

- Violation of the AMA: Companies participating in the bidding for a construction contract ordered by Iwamizawa City for designated competitive bids jointly determined the winner of the tender in advance and enabled the candidate to actually win the tender.
- Involvement: Some officials of the City calculated the average amount of order intakes from the last five years, and then accordingly fixed the target amount for the annual order placements allotted to each of the companies. To accomplish the approximate target amount, the officials designated the potential winning bidders of each of the construction contracts. (Applicable provision: Section 2 (5) (i) of the Involvement Prevention Act) In addition, the officials implied the name of the expected winner as well as the estimated price of the contract to the board members of the local constructors association. (Section 2 (5) (ii) and (iii))
- JFTC's actions: In January 2003, the JFTC issued a recommendation to 126 participants under the AMA and demanded the Mayor of the City to implement improvement measures under the Involvement Prevention Act. (The Mayor notified the JFTC of the improvement measures the City had taken in June 2003.)

2.2.5 *A case against participants in bids for a construction project ordered by Niigata City*

- Violation of the AMA: Companies participating in bids for a construction project ordered by Niigata City for limited competitive bidding, etc. jointly designated the winner of the bid in advance and enabled the candidate to actually win the tender.
- Involvement: Officials of the City disclosed the planned prices for the work, which should have remained secret, to the prearranged winner prior to the bidding. In addition, copies of documents, which were submitted to the contractor designation committee of the City and should have remained secret as well, were leaked to some of the bidders. (Section 2 (5) (iii))

- JFTC's actions: In July 2004, the JFTC issued a recommendation to 113 participants under the AMA and demanded the Mayor of the City to implement improvement measures under the Involvement Prevention Act. (The Mayor notified the JFTC of the improvement measures the City had taken in April 2005.)

2.2.6 *A case against participants in bids for steel bridge construction projects ordered by the Japan Highway Public Corporation*

- Violation of the AMA: Companies participating in bids for steel bridge construction projects ordered by the Japan Highway Public Corporation (hereinafter referred to as "JH") for competitive bids agreed that they would designate in advance the winner of the tender and would bid at a price convenient for the designated candidate to actually be chosen from among the companies.
- Involvement: To ensure that the retirees of the JH be reemployed by the companies by continuously letting them conduct bid rigging, the executives and employees of the JH approved and kept lists of the planned winners for each public work project, which were prepared by the retirees of the JH. Also, the executives and employees divided each project into subprojects and implemented them earlier than planned to make it easier to choose the winners (Section 2 (5) (i)). In addition, they provided the retirees with confidential information, including the project names, the weight of steel to be used, planned procurement dates, and other elements to make it easier for the companies to conduct bid rigging (Section 2 (5) (iii)).
- JFTC's actions: In September 2005, the JFTC issued a recommendation to 45 participants under the AMA and demanded the JH President to implement improvement measures under the Involvement Prevention Act. (In February 2006, East Nippon Expressway Company Limited, Central Nippon Expressway Company Limited and West Nippon Expressway Company Limited, which succeeded the JH, notified the JFTC of improvement measures they had taken.) In addition, the JFTC found that some of the participants were involved in criminal violations of the AMA, and therefore filed an accusation with the Public Prosecutor General.

2.3 *Proactive claim of compensation for damages by procurement institutions*

According to Section 25 of the AMA, entrepreneurs or trade associations that have violated the AMA by conducting bid rigging, etc. shall incur absolute liability to those who have suffered damage from their acts in cases for which the JFTC decision has been concluded. Also, under the Civil Code, entrepreneurs that have violated the AMA shall be liable for damage even without a concluded decision made by the JFTC.

For lawsuits regarding bid rigging in public procurement, the local inhabitants of a municipality that suffered damage from bid rigging often filed a lawsuit on behalf of the municipality in the past. However, partly because this subrogation system was abolished by the revision of the Local Government Act, the national and local governments themselves now claim for damages under the AMA and the Civil Code. As of the end of 2005, three lawsuits filed by procurement institutions, based on Article 25 of the AMA, are underway for compensation of damages caused by bid rigging in public procurement. Claims for damages will be effective for preventing bid rigging.

Upon request from the court in which a lawsuit was filed by a procurement institution demanding compensation for damages incurred through bid rigging, the JFTC submits its opinions to the court regarding the amount of damage caused by the violation.

3. Efforts to improve the bidding system

3.1 *Surveys and Recommendations by the JFTC*

In addition to the enforcement of the AMA and the Involvement Prevention Act against bid rigging, the JFTC, in order to promote competition in auction markets, conducts surveys and makes proposals for the improvement of the public procurement system, and also endeavors to raise awareness of these measures.

From the point of view of establishing a more competitive environment in public procurement and effectively preventing bid rigging, the JFTC started to hold a study meeting on public procurement and competition policies in June 2003, and published a report describing the examination results of the study meeting in November 2003. Also, The JFTC conducted several questionnaire surveys on public procurement institutions for the purpose of preventing bid rigging, and announced the survey results in June 1999, June 2002, September 2004, and October 2005. In these report and survey results, the JFTC made the following proposals to promote competition under the public procurement system:

- General competitive bidding (open tendering) should be adopted for cases that should be subject to competition. Also, for designated competitive bidding, the targeted orders should be limited and an open-type designated competitive bidding system should be utilized to promote competition among entrepreneurs who would seriously like to become successful bidders. In addition, in competitive bidding, local governments must be careful not to discourage competition when setting regional requirements (to limit bidders to local entrepreneurs). (November 2003 Report).
- To prevent bid rigging, the names of designated bidders should be announced after the submission of bids, because the prior announcement of their names would enable those planning bid rigging to obtain information about candidate bidders, thereby making it easier for them to conduct bid rigging. (October 2005 Survey).
- It would also allow those planning bid rigging to obtain important information and would raise a contract price if an estimated price (by a procurement institution) is announced before the submission of bids. In view of this, the estimated price should only be announced after the submission of bids. (October 2005 Survey).

The JFTC endeavors to raise awareness about the details of the report and survey results through certain measures, such as by holding a meeting between the JFTC and the liaison officials of other government agencies and by dispatching lecturers to seminars for officials in charge of procurement affairs organized by the central government and local governments.

3.2 *Measures to prevent bid rigging implemented by procurement institutions*

Public procurement institutions have been implementing the following measures to prevent bid rigging:

- In light of the AMA amendments establishing the JFTC leniency program, in February 2006, the Ministry of Land, Infrastructure and Transport (hereinafter referred to as “MLIT”) implemented

an administrative leniency policy under which MLIT will reduce by half the period of suspension from bidding for companies that were admitted to JFTC's leniency program with regard to a particular bid rigging conspiracy, provided that MLIT becomes aware of such company's participation in JFTC's leniency program through disclosure by JFTC. The implementation of such an administrative leniency program by other government agencies and public corporations will be decided by each such entity.

- In September 2005, MLIT announced a policy of doubling the minimum period of suspension from bidding for companies that commit a second violation of bid rigging within ten years. For example, the minimum period of suspension from bidding for a second serious violation of the AMA was increased from six months to 12 months. This measure was put into force on January 4, 2006, simultaneously with the effective date of the amended AMA.
- To prevent recurrence of bid rigging, MLIT implemented a policy in July 2005 to recover damages from companies that participated in bid rigging on construction services contracts in which the JFTC and/or the judicial authorities find bid rigging violations even if the contracts were made before the introduction of the pre-established claim clause in June 2003.
- For the purposes of promoting fair competition and eliminating improper conduct, on May 23, 2006, a Cabinet Decision was issued that revised the Guiding Principles concerning Measures to Promote Proper Tendering and Contracting for Public Works. The revisions, which will help prevent bid rigging, including an expansion of the open and competitive bidding procedure, strengthening supervision of bidding, strict implementation of suspension from bidding in cases of improper conduct, and ensured efforts to eliminate and prevent government-led bid rigging.
- In order to secure public trust in public works projects, MLIT has taken the following measures. As part of its July 29, 2005, countermeasures to prevent the recurrence of bid rigging, MLIT requested that:
 - All MLIT officials refrain from finding reemployment with the companies that participated in the bid rigging on the steel bridge construction projects last year; and
 - Senior MLIT officials refrain from finding reemployment for five years after their retirement with any company that had contracts for MLIT construction projects.

KOREA

1. Overview

Auction and bidding refer to determining transaction terms or counterparts in trading goods or services through competitive means, and the markets where transactions are carried out mostly through auction or bidding can be defined auction and bidding markets. Public procurement and construction projects take up a large part of auction and bidding markets.

Major policy imperatives in these markets are ① to eliminate collusive biddings and to promote competition and ② to prevent corruption among employees of project-issuing organisations and companies participating in biddings. Between the two, the former takes the greater significance for the competition authority.

This paper will discuss the Korean government's activities to deter corruption in bidding markets and to promote competition followed by Korea Fair Trade Commission's law enforcement against bid riggings, especially about BRIAS (Bid Rigging Indicator Analysis System), a system to detect and prevent bid riggings.

2. Policies to promote competition and prevent corruption in auction and bidding markets

2.1 *Relationship of competition promotion and corruption prevention*

In bidding markets, competition promotion and corruption prevention are generally in a mutually complementary relationship. However, when too much emphasis is on one of the two, they can contradict each other.

More specifically speaking, the two sides are in a complementary relationship in that, generally, only when corruption between the project issuers and bidders is eliminated, can a full competition be maintained in the bidding market. However, when transparency in bidding procedures is excessively protected to eliminate corruption, this can sometimes lead to reduction or disappearance of competition. For example, when bidding results such as information on bidding prices offered by winning bidders and others are fully disclosed, this will make it easier for cartel participants to check whether the participants are faithfully complying with their agreements. This can be one of the facilitating factors in maintaining agreements.¹⁾

2.2 *Korea's Bidding Market and Policies regarding Bidding for Public Projects*

In Korea, competition promotion in auction and bidding markets is pursued in two ways:

1. Indirect method – Having corruption & bid rigging prevention mechanisms in place in designing government projects in the first place;
2. Direct method – Detecting and correcting collusive biddings.

¹ OECD DAF/CLP(99)3/final background note

No. 2 will be discussed in Chapter 3, and, now, we are going to look at the indirect method.

In Korea, the government procurement market is the largest bidding market. *The National Contract Act* stipulates that any contract to which the state or its government agencies are a party should, in principle, go through biddings. As of 2004, the combined procurement projects by the state, local governments, and government financed institutions amounted to 77 trillion Won, about 11 % of the nation's GDP and 45 % of the country's consolidated fiscal balance. Moreover, in the same year, public construction projects stood at 32 trillion Won, 38.4% of the nation's total construction projects (worth about 84 trillion Won). Therefore, promoting competition in the public procurement market has huge impacts on promoting competition in the overall bidding markets.

Oftentimes, private companies benchmark the government's procurement systems, rather than developing their own ones. They find tapping into procurement systems developed by government agencies that issues and handles many procurement projects around the year save them a lot of costs and risks.

The Korean government has continued to improve the public procurement system to enhance transparency in biddings and consequently preventing corruption among employees of project issuing organisations and collusions among bidders. The followings are some of the major efforts:

1. A centralised procurement management system was adopted where biddings for projects worth more than a certain amount of money should be conducted only through *Public Procurement Service*, the central procurement agency. This is to increase efficiency in the government's procurement projects and to prevent corruption by minimising direct contact between project issuers and bidders. *Public Procurement Service* also conducts biddings for private companies' procurement on behalf of them.
2. The Korean government adopted the electronic bidding system²⁾ through legal revision in March 2000. *Public Procurement Service* conducted the nation's first electronic bidding in January 2001, and since then it has strived to increase the usage of the system. As a result, in 2005, 90 % of the biddings for the entire public projects were conducted through the electronic bidding system. The system saves both project issuers and bidders costs for biddings and minimises their contacts, thereby preventing corruption. In addition to this, as public announcements for biddings and participation are all conducted online, companies can have an easy access to bidding information and participate in the biddings with ease. This increases the number of participants, thereby greatly facilitating competition.
3. In principle, the Korean government sets "Free Competitive Bidding" as the norm where there is no restriction in terms of qualification for participation. However, when restrictions are necessary considering the purpose, nature, or size of contracts, there could be exceptions to set specific conditions for participation or to designate certain participants or to award the contract in question to specific companies at the contract issuers' discretion.

² Electronic bidding allows bidders to participate in the biddings for construction projects or goods & service purchase projects online without visiting the venues for the biddings in person. In Korea, up until 2000, government agencies requested the central procurement agency in writing to conduct biddings for public projects on behalf of them, but, thanks to *Public Procurement Service's* adoption of the electronic bidding system in 2000, public announcement of biddings, participation, determination of winning bidders, etc are all carried out online. The agency's research in July 2005 shows that 70 % of the respondents answered that the system enhanced the fairness and transparency in public procurement, while the rest 30 % didn't see any change with the new system.

3. KFTC's Law Enforcement against Bid Riggings

KFTC has the jurisdiction to detect collusive biddings and to impose administrative sanctions such as corrective measures and surcharges on companies involved in bid riggings. Meanwhile, the Ministry of Justice has the authority over criminal sanctions against them. What is interesting is that cartels are generally banned and punished by competition laws only, while bid riggings are defined and treated as a crime in the Criminal Code as well. This can be interpreted that Korea considers bid rigging as a more serious criminal activity than other types of cartels.

Among its cartel regulations, KFTC has placed a high priority on detecting and correcting collusive biddings for public projects. This is because, in Korea, public construction work, power generation facilities, railroads, and other public sectors have many large-scale biddings, and, in these areas, private companies are often found to form cartels. KFTC has learned from its experience that the industries where collusive biddings for public projects occur frequently have cartels aiming at the entire markets concerned.

To root out collusion in biddings for public projects, KFTC has let its teams for each industry monitor cartels in each industry. Aside from this, it has designated officials to be solely in charge of collusive biddings. The Commission has also established *BRIAS (Bid Rigging Indicator Analysis System)* – the system will be explained in detail in Chapter 4 – to automatically detect and analyse signs of bid riggings for public projects.

As for KFTC's law enforcement against collusive biddings, from 1998 to 2004, among 208 cartel cases handled by KFTC, collusive biddings took up 47 cases, 22.6%. The number of respondents that became subject to KFTC's corrective measures against collusive biddings was 277 (21.8%) out of 1,271 companies, and the total amount of surcharge against them reached 154.9 billion Won (38.8%) out of the total surcharge of 399.4 billion Won against cartel cases.

Here we have two major bid rigging cases for public projects:

One is the collusion among 5 oil-refining companies that participated in biddings for Korean military's oil purchase projects (17th Oct 2000). These five companies participated in biddings for *Defense Acquisition Program Administration* for oil supply to the military in over the three years, 1998, 1999, and 2000. Prior to participating in them, the respondents' executives and employees in charge of the projects met together to determine the winning bidders for each type of oils to be supplied and the winning bid prices. Against this, KFTC imposed corrective measures and a surcharge of 121.1 billion Won. This amount still remains the largest one against a single case. .

The other is the collusion among 9 iron bar producers in biddings for *Public Procurement Service*'s iron bar purchase project in 2003. The 9 companies agreed upon allocating the amount of iron bars to be supplied among themselves and offering bids based on the agreement. They actually put the agreement into practice. Against this, KFTC imposed a surcharge of 14.9 billion Won along with corrective measures. These companies were found to have committed price cartel for iron bars in 1995, 1998, and 2000. This clearly shows that cartels can recur at 3 to 5 years of interval as long as the root of cartels is not attacked by causing doubt and distrust among market participants about formation and maintenance of cartels through Leniency Program.

4. *BRIAS (Bid Rigging Indicator Analysis System)* to detect and prevent bid riggings for public projects

To strengthen monitoring on collusive biddings for public projects, KFTC has run *BRIAS (Bid Rigging Indicator Analysis System)* since early 2006.

Information on biddings for public projects of the state, local governments, and government financed institutions is sent electronically from Korea's central procurement agency *Public Procurement Service* to the KFTC's system, and the system automatically carries out quantitative analysis for the possibility of collusive biddings.

The system receives information such as successful bid rates, the number of companies that entered bids, bidding prices offered, methods of competition, the number of unsuccessful bids and increases in reservation prices, and whether the projects were awarded to specific companies at the discretion of the project issuers. These pieces of information are given certain scores and weights according to their values and these figures are added up to indicate the possibility of collusive biddings.

For example, the higher the successful bid rate and the fewer the number of companies participated in a bid, the higher the chance for bid rigging. Scores and weights given to these pieces of information are totaled to generate a final score that indicates the degree of the possibility of collusion.

This system is designed to identify biddings with high chance of collusion using statistical and empirical analysis tools to analyse the bidding results. Therefore, for the Commission to actually prove an agreement among companies, it should secure additional pieces of evidence. However, as the Commission uses the statistical analysis tools, sometimes, detection of a high chance of collusive biddings can be used as circumstantial evidence.

Prior to the creation of the system, KFTC asked public organisations to provide it with information on their procurement or construction projects to analyse and use it for investigations into collusive biddings. However, as the information was usually in the form of written documents, it was physically impossible for the Commission to thoroughly review and analyse all of the submitted information.

With the adoption of the electronic bidding system in 2000, the Commission developed an idea that transferring bidding-related information online and automatically analysing it and generating scores for the possibility of collusive bidding would enhance the efficiency in the Commission's monitoring on bid riggings for public projects. The Commission realised the idea by creating *BRIAS*.

BRIAS was first conceived at the end of 2004 and has been in operation since early 2006 after a year long discussions with *Public Procurement Service*, program development, and pilot operations.

Thanks to the system, the procurement agency and the competition authority have built a close cooperation to collect information related to collusive biddings and established a foundation for scientific analysis of bidding information. KFTC is confident that this system will greatly contribute to enhancing detection of collusion in biddings and reducing administrative costs for information analysis.

This year, the Commission investigated several biddings found to have high chances for collusions and actually detected a couple of cartels. The Commission's investigations into them are currently underway.

However, *BRIAS* is still far from being perfect and still has several deficiencies requiring further improvements.

Currently, the system collects information from *Public Procurement Service* on tenders for construction projects of more than 5 billion Won and for product or service purchase Won more than 2.5 billion won, but KFTC is planning to lower the threshold.

Up until now, KFTC has received bidding information from *Public Procurement Service* only. However, it believes that it will be able to thoroughly and effectively monitor biddings for all public

projects when it collects bidding information from large government financed institutions that have their own electronic procurement systems as well. On this, the Commission is conferring with government-financed institutions.

Continuous improvement and refinement to how the system is operated is necessary, for example, in terms of items to be analysed, evaluation methods, weights for each item, etc by strengthening statistical analyses.

5. Conclusion

In auction and bidding markets, project-issuing parties select their counterparts through competitive means, so project-issuing parties enjoy a considerable advantage over bidders. Therefore, companies are naturally tempted to restrict competition more than in any other markets.

Cartels in these markets neutralise the merit of the markets, which is to determine transaction terms through competitive means, and as a result, competition in the markets is restricted directly. This is why all competition authorities treat collusive bidding as one of the major hard-core cartels.

KFTC has also strengthened law enforcement against collusive bidding and employed a variety of policy tools such as *BRIAS* to promote competition in auction and bidding markets. The Commission will continue to refine the system to utilise this as a tool to detect signs of collusive biddings.

MEXICO

1. Introduction

This note summarises Mexico's experience in two types of bidding markets: public procurement contracts and the allocation of radiospectrum. Section 2 outlines the regulatory framework for public procurement contracts, identifies competition concerns derived from this regulation, and presents some bid rigging cases. Section 3 briefly describes the framework that regulates the allocation of radiospectrum and identifies the challenges the Federal Competition Commission (CFC) faces to promote procompetitive radiospectrum auctions. This is further illustrated by a recent case associated with a broadband PCS auction in which the CFC recommended rules to prevent excessive spectrum concentration and facilitate the participation of new entrants. Finally, section 4 contains some concluding remarks.

2. Public procurement contracts

According to the electronic system for government contracts (Compranet), during the first semester of 2006, the federal government organised 15,495 public auctions to purchase goods and services worth over US\$8.9 billion.¹ The great majority of these auctions are called by public health institutions and state-owned petroleum and electricity firms.

2.1 Regulatory framework

Federal government procurement is regulated by the Law of Public Sector Acquisitions, Leasing and Services (Acquisition Law or AL), its Regulations (ALR), and associated provisions under free trade agreements (FTAs).

The AL establishes that, as a general rule, acquisitions, leasing and services must be allocated through public auctions and that all providers must face similar terms and conditions.²

The AL and its Regulations set out the following general auction rules:

- *Lowest-price sealed-bid auctions.* Bids are secret and contracts are awarded to the lowest bids.³
- *Multiple provision.* Contracts may be granted to two or more bidders if their bids do not differ by more than 5% with respect to the lowest bid. The winning bidder would be awarded a 50% share or more of the contract and the other participants would be granted shares previously specified in the auction rules.

¹ Secretaría de la Función Pública, Informe de labores, 2006.

² Under special circumstances, contracts may be directly conferred or granted by contest through invitation to at least three persons.

³ In the procurement of services, multiple criteria may be used (e.g. price and quality), by applying an index where price has a 50% weight.

- *Joint bids.* Two or more persons or firms may offer joint bids without needing to incorporate into a single firm.
- *Reference prices.* Government entities may set a maximum price, as a reference for bidders to offer discount percentages.
- *Prohibition of price bids below costs.* Entities calling auctions must verify that prices offered are not below costs, and may dismiss tenders on insolvency grounds.
- *Domestic auctions.* Most public procurement contracts are reserved for Mexican nationals and goods with a minimum domestic content of 50 percent.
- *International auctions.* This type of auctions may only be called if: mandated under FTAs (except for reserves);⁴ domestic supply is not available in terms of quality, quantity or at convenient prices; no participants turned out or qualified in a previous domestic auction; and if it is so stated in foreign financing contracts granted to the federal government. In these auctions, economic proposals of domestic products are granted a 10% preferential margin, while bids of handicapped (or firms that employ them) are also favored.

2.2 Competition concerns arising from procurement regulations

The CFC has issued several opinions concerning particular features of the regulatory framework that foster collusive conduct, as explained below.

- *The multiple provision feature limits price competition and lays the groundwork for agreements (implicit or explicit) on market sharing. In extreme cases, bids are identical and the procurement contract is allocated among the lowest bidders in equal parts. See illustrative cases presented below.*
- *Joint bids may be a simple mechanism to collude. These bids should be allowed to the extent they do not have a negative effect on the competitive process.*
- *Maximum prices may be used as an easy reference for bidders to collude on prices. See illustrative cases presented below.*
- *The prohibition of bids below cost may eliminate competition from low price bidders, and limits the power of auctions as an efficient mechanism to discover market information. This prohibition entails a more stringent approach than the predatory price prohibition envisaged under the competition legislation, which is subject to a rule of reason analysis.*

2.3 Competition legislation

The Acquisitions Law states that bidders may be disqualified from the auction if they are found to have agreed to increase prices or to attain any kind of advantage over the remaining bidders.

⁴

Mexican reserves under FTAs apply mainly to purchases by state-owned energy enterprises.

The Federal Law of Economic Competition (FLEC) typifies bid rigging as a *per se* prohibited anticompetitive conduct. Recent reforms to this law⁵ strengthened the powers of the CFC to investigate and sanction this type of conduct in the following ways:

- The CFC is now empowered to undertake on-site investigations and to implement a leniency program.
- Maximum sanctions increased from \$1.7 to \$6.6 million US dollars.
- Recidivists are now subject to a double sanction or to a sanction equivalent to 10 percent of their assets or annual sales.

2.4 *Bid rigging cases*

The CFC has identified two types of problems in investigating public procurement auctions. First, as described above, there are several provisions in the Acquisition Law and its Regulations that facilitate collusive conduct. Second, government entities tend to organise very frequent auctions to allocate small contracts instead of aggregating them into fewer auctions and larger contracts. Additionally, in many instances, government entities divide the national market into several regional markets and hold a series of regional auctions instead of having a single auction for the whole market. These practices turn what could be a one-shot game into a series of games, which facilitate collusive (implicit or explicit) pricing and market segmentation.

These problems seem to persist, notably in the health sector, and have prompted the CFC to initiate several investigations into the markets for medicine and medical supplies. The following bid rigging cases illustrate previous CFC findings in the health sector and energy industry.

2.4.1 *Purchasing of surgical sutures by the health sector*⁶

Following a complaint filed by Grupo Sutinmex challenging Internacional Farmacéutica, Serral, Le Mare Internacional de México and Matcur with the alleged collusion in public auctions to purchase surgical sutures, the CFC analysed two public auctions called by the General Hospital of Mexico and the Social Security Institute for Government Employees (ISSSTE). In both cases, a bid pattern among the participants was identified. One of the most important pieces of evidence considered in the investigation was that the prices bid by these companies were practically the same. In addition, evidence of coordination was derived from proceedings initiated by the alleged violators regarding the auctions. During the investigation, the defendants recognised that their conduct could be interpreted as a violation to the FLEC. They agreed to pay fines and to refrain from infringing the FLEC in the future.

2.4.2 *Purchasing of x-ray material by the health sector*⁷

Reliable de México filed a complaint against Kodak, GPP and Juama⁸ for alleged collusion in public auctions called by public health care institutions for the purchase of x-ray material. Most of the auctions were called by the Mexican Social Security Institute (IMSS). The CFC analysed the participation of these

⁵ These reforms entered into force on June 28, 2006.

⁶ DE-03-2000

⁷ DE-57-2000; RA-81-2002 and RA-82-2002

⁸ Kodak Mexicana, SA de CV (Kodak), GPP Mexicana, SA de CV (GPP) and Juama, SA de CV (Juama)

companies in 35 public auctions from 1997 to 2000, and found indications of collusion in 21 of those auctions.

These three firms had a 93% share in the market for x-ray film. The CFC found that in 11 auctions they offered identical tenders and obtained equal shares of the supply contracts. Further, the CFC observed that the defendants bid the same prices for several product codes whenever two or the three of them participated in an auction. The defendants contended that reference prices issued by the bid-takers caused their tenders to be similar, but they were unable to prove this assertion. Thus, the CFC found Juama and GPP responsible for violating the FLEC, ordered suspension of the practice, and fined both of them. The proceeding against Kodak was terminated in advance based on commitments proposed by this firm. Notwithstanding, the CFC also fined Kodak for its conduct.

2.4.3 Purchasing of chemical developers for x-ray material by the health sector⁹

Following a complaint filed by Back Quality & Co., SA de CV charging GPP and Juama with the alleged collusion in national auctions for the acquisition of chemicals used to develop x-ray plates, the CFC investigated auctions called by the ISSSTE and the IMSS from 1997 to 2001. The defendants were the only participants in all auctions, except for three, and in 17 of these 18 auctions, Juama and GPP presented identical price bids. The defendants tried to justify this behaviour based on the reference prices provided by the bid-takers. In 2001 the IMSS started to publish the winning price-bids on the Internet after each auction. However, the IMSS did not identify these prices as the maximum prices it was willing to pay. The CFC concluded that this price information did not justify identical tenders and that these prices were a requirement to win the auction. The CFC fined GPP and Juama and ordered them to suppress the illegal practice.

2.4.4 Purchasing of auto tanks by Pemex¹⁰

In the investigation into an auction called by Pemex (the state-owned petroleum company) to acquire forty 20,000 litre auto tanks, the CFC found that three bidders, namely Carrocerías y Adaptaciones Automotrices, Dinamundo and Vanguardia Industrias, offered identical tenders. The CFC also showed that these firms had common shareholders and members of their boards of directors. Although the defendants were not successful in obtaining the contract, the CFC found them responsible for absolute monopolistic practices because they engaged in conduct having the aim of coordinating tenders. They were consequently sanctioned.

3. Allocation of radioelectric spectrum

3.1 Legal framework

The Federal Law of Telecommunications (FLT) and the Federal Law of Radio and Television (FLRTV) establish that the radiospectrum for telecommunication and broadcasting services, respectively, must be allocated through public auctions.¹¹ However, these laws do not specify the auction rules or the criteria to choose the winner. They also state that bidders need a favorable opinion from the CFC to

⁹ DE-10-2001 y RA-04-2003 y RA-05-2003

¹⁰ IO-65-97 y RA-06-98; RA-08-98; RA-09-98

¹¹ The requirement to use public auctions to allocate radiospectrum for broadcasting was introduced in the FLRTV by a set of reforms that entered into force on April 12, 2006

participate in these auctions.¹² The need for this opinion may help the CFC to prevent excessive concentration of spectrum, but, as illustrated by the relevant case described below, it is not sufficient to assure pro-competitive auctions and facilitate entry, because the laws do not specify auction rules and sector regulators have not involved the CFC in their design.

3.2 Case study: auction to allocate radiospectrum for broadband Personal Communication Services (PCS)

On July 12, 2004 the Federal Telecommunications Commission (Cofetel), the telecommunications regulator, called for a multiple round, simultaneous, and ascending auction to allocate broadband PCS spectrum. The spectrum offered comprised four 2x5 paired Mhz blocks in each of the 9 regions covering the national territory and one 2x15 paired Mhz block in two of them. The auction rules imposed a 65 MHz spectrum cap on the combined cellular (824-849/869-894 Mhz) and PCS (1850-1910/1939-1990 Mhz) frequencies held by each licensee (new or incumbent).

Pursuant to the FLT, the auction call required prospective bidders to obtain a favorable opinion from the CFC, as a necessary condition for Cofetel to accept their bids. The CFC assessed 7 different economic agents, including four incumbents¹³ and three new entrants.¹⁴

Based on the attributes of broadband PCS, the CFC defined the relevant service as that of mobile telephony services, which also included cellular and digital trunking (push-to-talk over cellular). The geographic dimension corresponded to the footprint of each of the 9 regions. In practice, mobile carriers seek to create nationwide footprints via spectrum trading in secondary markets and, to a limited extent, by subscribing roaming agreements with other carriers.

The CFC found that the market was highly concentrated in terms of subscribers and firm turnovers, both nationally and regionally. Only four carriers provided mobile telephony services: Telcel, Telefonica, Unefon and Iusacell.¹⁵ The first two had a nationwide spectrum network in both cellular and PCS bands. Unefon had licenses for PCS in all regions, whereas Iusacell had cellular and PCS licenses in all but regions 2 and 3.

The sum of intended spectrum acquisitions revealed by the prospective bidders exceeded the available spectrum. Moreover, the intended spectrum acquisitions of the incumbents, within the spectrum cap of 65 Mhz, exceeded the spectrum auctioned. Therefore, according to the auction rules, incumbent operators could win 100% of the available spectrum and they could deter new entry by pushing spectrum prices up.

The CFC considered that, since spectrum is a scarce resource, incumbents had incentives to deter the entry of new competitors by acquiring as much spectrum as possible. Incumbent carriers had significant sunk costs and the deepest pockets, so the CFC anticipated they would win the auctions.

The CFC sought to hinder spectrum concentration which would: (a) impede the entry of new carriers and diminish the prospects of long-term competition among incumbents, and (b) underscore the

¹² In the case of the FLT, the text of law clearly states that prospective bidders need to obtain a favorable opinion from the CFC before participating in an auction. However, in the case of the FLRTV, the text of the law only states that prospective bidders need to “apply” for this opinion.

¹³ Telecel (+At&T wireless), Telefónica, Grupo Salinas and Nextel.

¹⁴ Axtel, Cingular and Maxcom.

¹⁵ Unefon and Iusacell belong to Grupo Salinas.

asymmetries in spectrum bandwidth among carriers, hindering the growth possibilities of some smaller incumbents.

To encourage entry, the CFC conditioned clearance to prospective bidders to acquire no more than 35 Mhz at the 1.9 Ghz band in all regions. This decision was intended to make more spectrum frequencies available to new entrants, and to increase competitive pressure on incumbents. The spectrum caps imposed by the CFC had the following effects: (a) Telefonica and Grupo Salinas would be blocked from bidding for spectrum in several regions; (b) Telcel would be able to acquire a maximum of 10 Mhz in all regions; and (c) at least 210 Mhz would be available for new entrants, independent of any incumbent bids.

The incumbent firms, except for Nextel (who withdrew from the auction) challenged the CFC 35 Mhz cap before judicial authorities on the grounds of unconstitutionality and obtained suspensions regarding the auctions of certain lots. The regulator held the auction following the original rules (a spectrum cap of 65 MHz), and, as foreseen by the CFC, incumbent operators Telcel, Telefónica and Grupo Salinas won all available spectrum.¹⁶ However, the CFC reversed the judicial decision against the 35 Mhz cap and Cofetel will not be able to allocate spectrum above this cap.

4. Concluding remarks

The CFC's experience illustrates that competition law and policy can play a key role in promoting efficient bidding markets. In the case of public procurement contracts, inadequate regulations and poor auction designs have facilitated collusive pricing and market segmentation, which has increased prices paid by the government. Regarding the allocation of radiospectrum, the lack of pro-competitive auction rules has facilitated behavior by incumbent operators to successfully deter entry and keep monopolist rents in the telecom markets.

The CFC faces important challenges to promote efficiency in these markets, and has begun an aggressive strategy to overcome them. First, it recently created a specialised cartel division, which, together with its recently enhanced powers to investigate and sanction anticompetitive conducts, will allow the implementation of an effective program to fight collusive agreements with a special focus on bid rigging. Second, it is constantly advocating for regulations that promote competitive bidding markets. For example, it recently issued an opinion on a proposal to reform the Regulations of the Acquisition Law, where it recommended eliminating auctions rules that facilitate collusive agreements. Also, in December, 2005, it issued a public opinion on a proposal to reform the FLRTV, where it pointed out the need for pro-competitive auction rules to prevent an excessive concentration of radiospectrum for broadcasting services. Third, the CFC is actively collaborating with government entities that regularly allocate procurement contracts through public auctions (e.g. IMSS and Pemex) to promote auction designs that prevent collusive behavior. This collaboration is also helping the CFC to gather information to identify potential bid rigging practices.

¹⁶

In practice, incumbents did not need to push prices up to deter entry, because the auction rules discouraged the participation of new entrants: none of them participated in the auction. When the auction rules were published, some non incumbent operators expressed interest in participating and presented the required documentation, but they withdrew before the auction took place.

NETHERLANDS

Introduction

In a sense, the Netherlands Competition Authority (NMa) is both experienced and inexperienced on the subject of 'bidding markets'. The NMa has only been involved in a few cases that concerned auctions, to which a few merger cases in the construction, IT and transportation sectors may be added. However, to put the balance right, the NMa issued sanctions against construction companies active in many different sectors in over 1.200 decisions. It is typical for the construction sector that demand and supply meet via 'bidding procedures' (tenders).

The message we want to convey is that auctions and tenders are just two possible ways in which demand and supply may meet. Hence, specific procedures used in either auctions or tenders (informing us about the competitive process) may or may not be conducive to cartel formation, but generally speaking there is no intrinsic difference from a competition policy point of view between markets that are characterized by auctions and tenders and markets that are not. Specific problems may arise, for instance with respect to determining market shares in merger cases. Then again, the main issue is not whether or not 'market shares' can be defined meaningfully, but whether or not competitive pressure can be avoided by the merging parties and to what extent.

Our contribution is structured as follows. In the first section we will discuss some of the questions the OECD posed. In the second section we will focus on bid rigging cases in the construction sector, including a brief discussion of (new) developments with respect to bid rigging cases. In the last section we present a number of conclusions.

1. Bidding markets

1.1 Introduction

In our view auctions and tenders are just specific ways in which demand and supply meet. Generally speaking, we are of the opinion that the specific procedures involved may lead to specific practical problems, but not to conceptual ones with respect to competition issues. We therefore agree with Klemperer's analysis, which, as cited in the OECD's introductory letter to the Roundtable, implies (a.o.) that 'market power' can be a problem, and that competition policy may help overcome (some) of the market power problems.¹

Practical problems exist in at least two varieties, in our experience:

- I. how to define markets in which demand and supply meet via auctions and tenders
- II. how to assess market shares (if at all useful)

We will briefly discuss these two problems. Then we will discuss the NMa's experience with auctions. In these discussions some of the OECD's questions will be answered.

¹ For instance: Klemperer, P, *Auctions: theory and practice*, Princeton University Press, 2004; OECD, COMP/2006.69, 3 July 2006.

1.2 *Market definition*

The problem of defining markets can be described as follows. Suppose firms A and B take part in a tender. Without bid rigging A and B may discipline each other, but together they (probably) would be able to increase the price of the tender profitably. In a sense, then, they have market power or, alternatively, the tender ‘can be monopolized’. Since any single auction or tender can be the subject of bid rigging in the foregoing sense, the conclusion then must be that any single tender or auction constitutes a relevant market. Still, we do not think this would be the correct approach in all instances.

If an auction or tender is seen as the way a single transaction is carried out, the question becomes one of (conceptually) determining whether or not more of these transactions are being carried out so that demand and supply reactions are possible. In that sense it is the number of transactions, auctions or tenders, that determines the extent of the market and the number of competitors. A tender that is only performed once, because, for instance, it concerns an enormous project, may therefore well be defined as a relevant market. In general, though, many auctions and tenders take place simultaneously, so that demand and supply substitution possibilities exist.²

As a consequence of the specific characteristics of ‘bidding markets’, in which each and every transaction itself can be the subject of bid-rigging, even if many ‘suppliers’ exist, cartelization can be wide-spread and pervasive. This is precisely what happened in the construction sector in the Netherlands.

1.3 *The use of market shares*

In merger cases determining market shares will be part of the analysis. If many ‘transactions’ (auctions or tenders) exist, ‘market share’ can be defined usefully. As Klemperer notices, an ‘ideal definition’ of bidding markets might imply that ‘market share’ is not a useful concept, just because there is no continuous process of tenders, for instance. In that case, though, it is still possible to determine the extent of the competitive pressure put on the merging parties.

The main point, as in all merger cases, is not how to define market shares, but how to determine the competitive pressure that merging parties put on each other and hence, whether or not a merger would enable the merged firm to increase prices in the sense of the SSNIP-test.

As yet, the NMa has little experience with bidding markets outside the construction and IT sectors. The NMa has no specific guidelines with respect to the analysis in merger cases. Still, current thinking about such issues within the NMa can be captured by the following statements and question:

- What exactly does a traditional market share analysis say about the competitive process in which the parties in question take part and their ability to abuse that position in the future? Alternative methods, such as analysing the closeness of competition on the basis of bid data, might provide competition authorities with more (relevant) information. Once these data are obtained, one might find a way to define the relevant market in order to continue with a traditional market share analysis. We think, though, that these bid data can be used to directly analyse the *effects* of the merger (in terms of closeness of competition for example).
- The exact data needed for these alternative types of analysis will depend on the specifics of the (merger) case.

²

For a more elaborate discussion on the definition of bidding markets, see Klemperer, *Bidding markets*, June 2005, <http://ideas.repec.org/p/wpa/wuwple/0508007.html>.

- As yet we have no experience in court making clear to what extent a direct effect analysis will be accepted by the courts. It may turn out that a market share analysis is required after all.³

In specific merger cases, at least the following questions will be asked:

- Are there usually more than one bidder for tenders?
- Is it usually the case that the same bidders offer bids in tenders?
- Where are the bidders located?
- Do suppliers (of tenders) see the bidders as substitutes?
- Is the bidding aggressive?
- Are there more than one bidding rounds? Are bids significantly different in each round?
- Have different bidders won tenders?
- Are different bidders capable and interesting for future tenders?

Examples of merger cases

NMa's Merger Control Department has investigated cases in the construction, IT and transportation sector, in which bidding procedures are being used. In most cases there was no need for a thorough investigation into the bidding procedures in specific markets or the outcome of various tenders. However, the sole fact that in these cases parties were active in bidding markets was sufficient reason to give less weight than usual to the importance of market shares. The following case illustrates a typical analysis of a more sophisticated investigation into merger cases involving bidding markets.⁴ In the construction sector two firms intended to merge. The NMa investigated a history of approximately 400 tenders to establish, amongst others, whether the merging parties were to be considered one another's closest competitor (e.g. in how many tenders did they both participate and if such be the case, how often did they finish first and second). Furthermore, data were examined to see whether the number of third party bidders winning tenders was sufficient to impose a constraint on the merging parties after the merger. Merger control also examined bidding data in order to help define the relevant market (specifically taking into account market segments in which the merging parties possibly took up an especially strong position and the geographical size of the market). In another case in the IT sector, a similar approach was followed.⁵

³ This is not a hypothetical question. In a merger case involving two Dutch electricity producers, the NMa based its decision on two econometric simulation models of the Dutch electricity market. These models predicted that the merger would lead to significant price-increases (ca. 10%), depending on the specific time of day, i.e. moments allowing the exercise (significant) market power. Hence, these studies tried to measure market power directly. The court ruled that the NMa had failed to prove that a dominant position would be established by the merger. One important reason for this conclusion was that the court did not accept the outcome of the econometric analysis as proof of dominance but merely as an indication that prices could rise as a result of the merger.

⁴ Case 3074 / *BAM-HBG*.

⁵ Case 4308 / *Getronics – PinkRocade*.

1.4 Auctions

The NMa has not very much experience with auctions. More specifically the NMa, with the exception of the Netherlands energy regulator (DTe),⁶ has not been involved in (re)designing auctions, though the NMa has been asked to contribute some specific knowledge in the design for auctioning petrol-stations along motorways.⁷ The NMa has monitored the consequences of these auctions though, with an eye to the objective of the auctions, i.e. promoting competition among these stations. The main point being that the NMa wanted to be sure that the auctions did not lead to a reshuffling of petrol-stations among the main players that already owned these stations.

The NMa was also involved in the auction of UMTS frequencies in the Netherlands, as well as the auction of Wireless Local Loop-frequencies. Also, the NMa undertook an investigation into housing auctions. We will discuss these cases in a little more detail, starting with this last category.

1.4.1 Housing auctions

Houses bought with a mortgage will be forfeit to the bank, if the owners cannot pay their monthly dues to the bank for a certain period of time. In most cases, the bank will then sell the house by auction. Per auction the number of interested parties varies, but it has proved to be the case that these parties mainly consist of professional property investors (house-traders), creating an incentive to rig bids. The NMa investigated a number of auctions, but could not find clear evidence of a cartel of property buyers active in any one of these. Still, it would be desirable for more information about both the (existence of the) auction and the houses to be auctioned, to be available. It might turn out that interested individuals and couples other than house-traders, then would show up at auctions in larger numbers. This, in turn, would overcome possible problems of bid rigging by traders. The general public was informed about the investigation and the NMa's advice in a press release.

1.4.2 UMTS

The NMa was involved in the Dutch UMTS-auction in two instances. Firstly, the NMa was asked to give an opinion about the consequences for the concentration in the market.⁸ Secondly, the NMa set up an investigation on the suspicion of bid rigging practices supposedly having taken place in the course of the auction.

With respect to the set-up of the UMTS-auction, it can be said that it is a clear example of the importance of the design with respect to the (dis)incentives it may give to (potential) bidders, as was also shown by UMTS-auctions in other countries. Without going into detail, the following quote may illustrate this proposition:⁹

“Based on recommendations of the UMTS-forum (an international lobby group of telecommunications firms), the Dutch government proposed to auction 4 (large) licenses. As this would eliminate one existing player from the market, one understands that this proposal was not greeted with great enthusiasm by all. Also, NMa and OPTA were not happy with the prospect of a

⁶ DTe is part of the NMa, but has specific powers, based on the Netherlands' energy laws.

⁷ This specific case is not important for the discussion within the framework proposed by the OECD. Therefore we will not supply the details here.

⁸ OPTA, as supervisor of compliance with legislation and regulations in the areas of post and electronic communications, was also asked to give an opinion on this matter.

⁹ E. van Damme, *The Dutch UMTS auction in retrospect*, CESifo Conference, 22-23 November 2001.

rather concentrated market. The discussion moved to whether 5 or 6 licenses should be offered. Some incumbents lobbied for 6, presumably based on the idea that a larger supply implies a lower price. The better economists, or at least the more experienced ones, were to be found with KPN. They had participated in the preparations and discussion in the UK and had learned there that a situation with as many licenses as incumbents was very unfavourable for newcomers and, hence, most desirable for incumbents. Consequently, KPN lobbied for 5 and it got its way.”

The second instance consisted of an investigation. The following quote summarises and comments on this investigation:¹⁰

“... [T]here was only one non-incumbent that participated in the auction, Versatel, and fortunately we know why it participated: it had openly displayed its motives on its web-site the day before the auction started.

“We would however not like to see that we end up with nothing whilst other players get their licenses for free. Versatel invites the incumbent mobile operators to immediately start negotiations for access to their existing 2G networks as well as entry to the 3G market either as a part owner of a license or as a mobile virtual network operator.”

The message is clear: Versatel is willing to share a license, provided that the terms are right and that access to the existing 2G-networks is offered on reasonable terms. Incumbents may expect (or may induce) Versatel to drop out of the auction if an agreement is reached. On the other hand, Versatel clearly realises that it has bargaining power over the incumbents: by staying in the auction for longer it raises prices. In all fairness to the government officials it has to be said that, if revenue is no objective and if it is true that the existing market structure is efficient, there is not special problem, but then no auction was needed either. Versatel was well aware of the fact that, under normal conditions, it could not win a license, the arguments are given in the formal legal complaints that Versatel issued both in the Netherlands and at the EU-level. Hence, Versatel participated not to win a license, but rather to get concessions from the incumbents. Note, however, the free rider problem on the part of the incumbents: all of them benefit when Versatel drops out, but there is only one party that has to come to an agreement.

We now know that Telfort has accepted the invitation of Versatel. On July 6, the day the auction started, talks have taken place between representatives of these companies. Telfort voluntarily revealed this information during a hearing at the Ministry on November 1, 2000. Two days later, on November 3, the Dutch competition authority, the NMa, raided the offices of both companies. A large collection of documents were confiscated but in the end the competition authority concluded that no evidence was found that these had as their aim or effect to influence competition in the auction, hence, there was no proof of violation of the Competition Act. Meanwhile, the file has been closed. In other words, even if the case does not smell well, it is not clear that it was rotten. What is surprising is that, apparently, the competition authority had not closely monitored the auction process; it became active only four months later. Clearly, after such a long time it is very difficult to find any evidence. Given the small number of bidders, the high stakes involved, and the press release of Versatel, the NMa should have monitored the game much more closely. I think the NMa has learned an important lesson.”¹¹

¹⁰ E. van Damme, op. cit.

¹¹ Van Damme, op. cit., concludes with regard to behaviour, considered to be unwanted: “If one wants to prevent such behavior it has to be done through the auction rules.”

1.4.3 WLL

In the case of Wireless Local Loops (WLL), two frequencies were to be auctioned. The NMa concluded that KPN, the former state monopolist with respect to fixed telephony, would gain a dominant position if she were able to get one of the frequencies, due to the market circumstances at the time. But the government decided that the frequencies would be sold, even if KPN were the only bidder. The auction was nevertheless postponed, for reasons not related to the NMa's recommendations/ advisory report.

1.4.4 DTe (energy regulator)

DTe is involved in the design of the Netherlands' auction with regard to import and export capacity of electricity. This border capacity is being auctioned yearly, monthly and daily per border. The design is basically a single round, one-sided auction. Each buyer pays the lowest price offered (in equilibrium), of course the highest bidders get the capacity they wanted. If supply is larger than demand, the price will be zero. These auctions were designed after a consultation procedure.

Currently there are some new developments. The yearly auction has been adjusted: yearly capacity has been divided by two and is being auctioned at two different auctions (one at the end of September and one at the end of November).

Possibly the auctions will be replaced by an 'implicit' attribution of capacity based on the energy transactions at exchanges.

2. The construction sector

2.1 Introduction

The Netherlands Competition Authority (NMa) has been extensively investigating infringements of the Dutch Competition Act in the construction sector (mainly in the form of bid rigging) that have taken place since 1998. These investigations have resulted in over 1.200 decisions in which the NMa issued sanctions against construction companies active in many different sectors (road works and civil engineering, hydraulic engineering, roof building, asphalt production etc.). Given the sheer size of this project the NMa has even developed a special fast track sanctions procedure for all construction companies in order to ensure that the imposition of fines occurs adequately and within a reasonable time period. Below we will provide a description of the types of infringements that have been identified. Then we will describe a series of developments that the NMa considers important with respect to the construction sector.

2.2 The infringements

Basically, all 1.200 infringements are conceptually the same. For every tender, all interested parties came together to discuss each offer and to determine who was going to 'win' the tender. The offer of the winning party was raised with a certain amount in order to compensate the others for their costs of investing in preparing their offers. Also, the parties kept track of the tenders won and by whom in order to make sure that these were divided among them so that 'overall' each party was compensated (at least) for the costs of preparing the offers.

The NMa was able to investigate this cartel structure, due to the secret bookkeeping-system that the parties needed in order to be able to sustain the system. This bookkeeping-system was provided by a former employee of one of the main players in the Dutch construction sector.

In order to be able to handle all the cases with respect to appeal procedures, the NMa offered 'fine reductions' if parties refrained from appeal. This procedure has proved highly successful.

2.3 *Some lessons learned*

One of the things that the bid rigging cases taught us is that the tender procedures were conducive to cartelization. For instance the fact that the government's only criterion of choice is just simply the lowest price and the fact that very often procedures were so that all interested (or invited) parties were able to meet on the same day made it easy to cartelize.

2.4 *Some developments*

2.4.1 *Joint bidding*

On 1 January 1998, the same day that the Dutch Competition Act entered into force, a decision exempting joint bidding by construction companies became activated. This decision allows construction companies to form temporary alliances and to submit joint bids for auctions for (large) construction projects. The NMa is currently inquiring into the effects of this exemption and the actual state of affairs regarding the use of such temporary alliances. One of the main aims of this exercise is to evaluate the possible merits and/or deficiencies of the current exemption based on a sophisticated economic analysis of the procompetitive and anticompetitive effects of joint bidding. This inquiry, which is still being carried out includes a wide consultation round where the relevant (market) parties are asked to provide comments regarding joint bidding.

2.4.2 *DBFMO-contracts*

A second development concerns the growing use of "DBFMO"-contracts (Design Build Finance Maintain and Operate). These contracts imply that the companies not only have to 'build' but also have to, for example, maintain the projects. The *broad* nature of these contracts can have implications for the likelihood of cartel formation since any cartel would have to negotiate, agree upon and monitor a wide range of activities. The *sequential* nature of these contracts might also have implications for the likelihood of cartel formation since it will possibly necessitate cartels to perform increasingly complex analyses of, for example, future market conditions.

3. **Conclusion**

Quite simply, auctions and tenders constitute two possible ways in which demand and supply may meet. Hence, the specific procedures used in either auctions or tenders may or may not be conducive to cartel formation and may give useful information on the competitive process, but generally speaking there is no intrinsic difference between markets that are characterized by auctions and tenders and market that are not. Specific problems may arise, for instance with respect to determining market shares in merger cases.

The experience of the NMa with respect to the construction sector, in which over 1.200 fines were imposed, and with respect to a couple of auctions, is that the specific procedures used are very important for the (dis)incentives they give to cartelisation. The NMa, with the exception of DTe, the energy regulator in the Netherlands, has no specific powers to (re)design auctions, though.

NEW ZEALAND

1. Introduction

“Bidding markets” are quite often encountered in the New Zealand Commerce Commission’s merger adjudication and competition enforcement work. These essentially are markets where some sort of bidding process is used to determine price. A seller invites buyers to bid for the offered product, where generally the highest bid wins; or more commonly, in a procurement auction, a buyer invites suppliers to bid for the right to supply it with a product or service, where generally the lowest bid (or more strictly, the lowest quality-adjusted bid) wins. “Open auctions” occur where the bidders interact through successive bids, resulting in an ascending bid auction in the first case above. “Sealed bid” auctions occur where each bidder puts in one bid, which is not disclosed to the other bidders, whose identities may not be known to the bidder. In the latter case, the winning bidder pays the price it bid in a “first-price” auction, and the highest losing bid in a “second-price” auction. Auction theory has shown that in certain circumstances these alternative bidding mechanisms can produce identical outcomes.

Auctions are often used in markets where the market participants have different, and incomplete, information, such that, for example, the value of the item is uncertain, or the cost of supply is imperfectly known. Recognising this, auctions in economic theory have been classified into two broad categories, according to the nature of the information bidders hold over the value of the price being auctioned, although clear-cut cases may not be common in practice. First, *private value auctions* are those in which each of the bidders knows their own personal valuation of the item, but these valuations are both private (not known with certainty to the other bidders), and independent (knowledge of other bidders’ valuations would not alter how much the object is worth to a particular bidder). The private values assumption is most nearly satisfied in auctions for non-durable consumer goods.¹ Secondly, *common value auctions* are those in which, *ex post*, the true value of the price is the same for all bidders, but in which, *ex ante*, each bidder has incomplete information about its value. For example, uncertainty about the value of the ore recoverable in an auction for mineral rights lends it a substantial common value aspect.

Auction theory predicts that the independence of valuations in private value auctions means bidding generally becomes more aggressive as the number of competitors increases.² However, the outcome is more ambiguous in the case of common value auctions. An increase in the number of bidders puts pressure on all the competitors to bid more aggressively to increase the chances of winning. But, the presence of additional bidders also increases the chances of any individual bidder overestimating the true worth of the price, and therefore of overbidding. Consequently, rational bidders faced with this situation will shade their bids to avoid the problem known as the *winner’s curse*, namely, winning the tender at an inflated price.³ The paradoxical result that fewer bidders produce a more competitive bidding outcome

¹ P. R. Milgrom and R. J. Weber, “A Theory of Auctions and Competitive Bidding”, *Econometrica*, vol. 50/5, 1982, pp. 1089-1122.

² See, for instance, R. P. McAfee and J. McMillan, “Auctions and Bidding”, *Journal of Economic Literature*, vol. 25(2), 1987, pp. 699-738.

³ See: R. H. Thaler, “Anomalies: The Winner’s Curse”, *Journal of Economic Perspectives*, vol. 2(1), 1988, pp. 191-202.

arises in instances where the winner's curse dominates, which is a departure from standard market power analysis.

It has often been argued in auction theory literature, and before various competition authorities, that market share does not correlate to market power in bidding markets, as tends to happen in "normal" markets. Competition occurs during the bidding process, and as market shares reflect the outcomes of previous bidding contests, they may not indicate the competitiveness of the process itself. This competitiveness may be accentuated if large portions of the market are being contested for in a single auction, and if firms have high fixed costs. Hence, it is argued, the existence of just two competing players may be enough to ensure competitive outcomes, or perhaps even just one firm if that firm cannot be sure that no-one else will bid.⁴

An alternative view put forward by Klemperer is that bidding markets are often incorrectly analysed in antitrust cases.⁵ First, they are often falsely used by merger parties and their advisers to justify the creation of highly concentrated markets; and secondly, the term itself tends to lead to an over-emphasis on the special features of such markets, and the extent to which such markets should be treated differently from "ordinary" markets. He argued that if the bidding market were to satisfy certain extreme assumptions, comparable to those needed for contestability in ordinary markets, then market power might not arise even when the market is concentrated, as is often claimed; but that once these assumptions are relaxed, problems of market power through unilateral and coordinated effects reveal themselves, just as in ordinary markets. For example, the clear formal rules of auctions, especially in "open" auctions, can facilitate collusion. Moreover, the view that the bid-taker can set the rules so as to overcome any competition concerns, although technically possible in principle, is rarely achieved in practice.

Klemperer argued that the competitive outcome result flows from the implied adoption of the following strict assumptions:

- competition is 'winner take all' so there is no smooth trade-off between price and quantity;
- competition is 'lumpy' so that in each contest, there is an element of 'bet your company';
- competition begins afresh in each contracting round so there is no 'lock-in' or significant advantages from incumbency; and
- entry of new suppliers to the market is easy.

In addition, of course, such markets, depending upon the auction mechanisms used, can encourage bid-rigging and other collusive forms of behaviour. For example, Klemperer argued that open auctions (as opposed to the sealed-bid variety) provide ideal conditions to support collusion by allowing easy detection of, and retaliation against, deviations from an agreed bidding strategy, as well as opportunities for signalling.⁶ Open auctions can deter entry and facilitate predation because it is often easier in such setups to identify the relative strengths of other bidders and respond accordingly. Repeated auctions also provide bidders with opportunities for learning through the formulation of appropriate strategies based on past outcomes, which can influence the way future competition unfolds. Hence, mechanism design is an important consideration for competition agencies when analysing bidding markets.

⁴ See, for example, S. Bishop, and M. Walker, *The Economics of EC Competition Law: Concepts, Application, and Measurement*, London: Sweet & Maxwell, 2002, chapter 14.

⁵ P. Klemperer, "Bidding Markets", *Working Paper*, UK Competition Commission, 2005, p.4.

⁶ Ibid. P. Klemperer, "What Really Matters in Auction Design", *Journal of Economic Perspectives*, vol. 16(1), 2002, pp. 169-89.

In this paper we provide brief case studies of the Commission's experiences of bidding markets in recent competition enforcement and merger adjudication cases, from which we draw some general conclusions on the nature of the competition issues encountered.

2. Principles to Maximise Competition in Auctions

2.1 Introduction

The Commerce Commission has never provided advice or made public comments to promote better auction design, nor has it been involved in auction design or redesign. These are policy matters outside of its remit.

However, it has encountered auction markets in a number of competition enforcement cases. The following are brief studies of some current cases.

2.2 Wood Preservative Chemicals

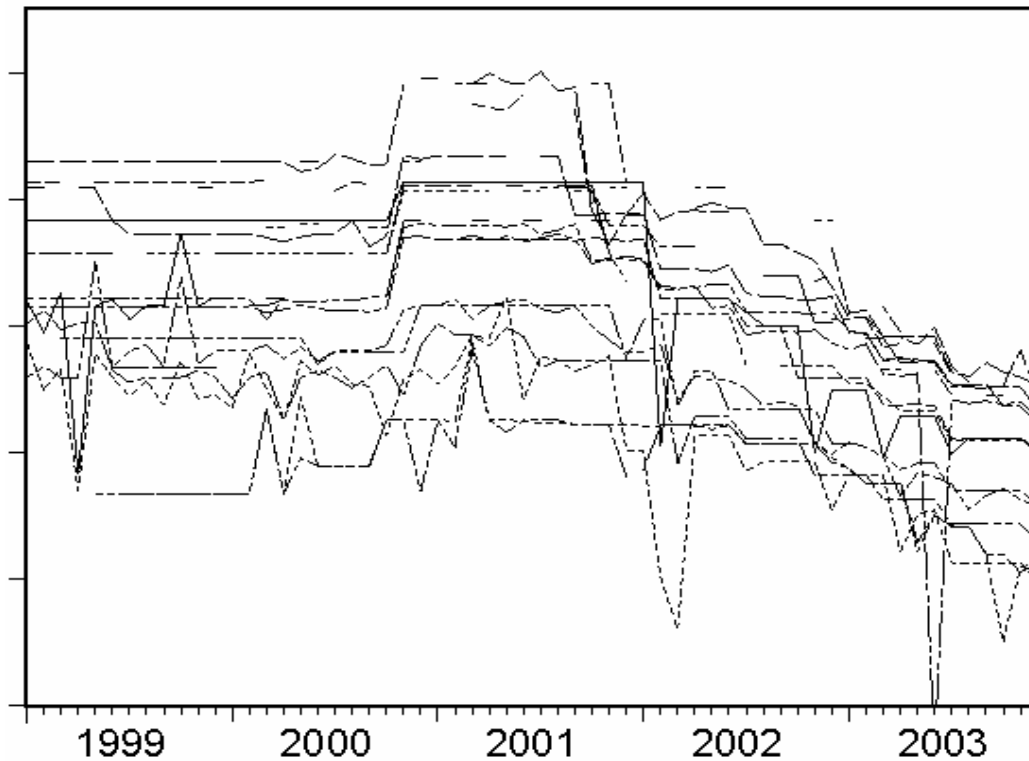
The Commission's investigation was triggered by complaints of attempts by the two incumbents to exclude a new, small entrant from the market. These chemicals are sold to a number of saw-millers and timber treatment firms. Market pricing was characterised by suppliers bidding a price per tonne for supply of an anticipated amount of chemical, including associated support services, on individual supply contracts. The Commission uncovered evidence that not only upheld the original complaint, but also revealed that collusion had been attempted by the two incumbents.

The cartel had functioned in two ways: first, through customer allocations, where both suppliers would bid for contracts, but the nominated supplier would win by offering the lowest bid; and secondly, through attempts to maintain or increase general levels of prices. The cartel was undermined by the entry of the third supplier, when the incumbents began the behaviour that initiated the investigation. When the Commission initiated court action, a number of firms and individuals admitted liability and settled with the Commission, with agreed penalties being recommended to the Court and approved by it. The case resulted in the largest aggregate company penalty to date in a New Zealand competition proceeding. Penalties against other parties are pending.

The following graph shows price trends over time for different customers during and after the cartel period (the dividing line is roughly early 2002). One striking feature is that prices during the cartel were very stable compared to the period following, and this appears to be in spite of changing underlying costs, caused in particular by changes in the prices of imported input chemicals due to exchange rate fluctuations. This price stability is consistent with the findings in a paper on a frozen perch cartel in the US that also involved bid-rigging during the 1980s.⁷ The authors noted that there is theoretical support for prices being less variable during cartels due to a high cost of coordinating price changes.

One interesting consequence of price rigidity was indicated by econometric analysis of prices for the periods during and following the cartel. This found that the impact of the cartel on prices relative to the 'no-cartel' situation, after allowing for fluctuating input costs, varied considerably over the cartel period, even briefly going negative shortly before a (coordinated) price rise in late 2000. The points where the coordinated price rise occurred, and when the cartel broke down, are both evident in the graph.

⁷ R. M. Abrantes-Metz, L. M. Froeb, J. F. Geweke and C. T. Taylor, "A Variance Screen for Collusion", Working Paper No. 275, Federal Trade Commission, March 2005.



2.3 *A Confidential Price-fixing Case*

In 2005 a government purchasing agency ran a first price, sealed-bid procurement auction. The winner of the auction would be the sole-supplier of a market in which there were previously three competitors. In anticipation of this auction, two of these competitors—call them A and B—together prepared a bid with a view to eventually forming a joint venture to provide the required service. This bid won the auction and the two firms were awarded the contract.

The desired amalgamation between A and B required Commerce Commission approval, which, after a lengthy deliberation, was declined. As a result, the procurer was forced to rethink its preferred supplier. It responded by declaring the first auction void, and running a second, but this time requiring all three firms to bid separately.

The Commission is currently investigating the two firms for a price-fixing law breach through their submitting a joint bid in the auction when they were in competition with one another in the market.⁸ The firms have argued that as no supply occurred at the jointly-agreed price (since the procurer declared the first auction void), there are no competition concerns.

However, in the process of formulating a joint bid for the first auction, A and B shared valuable operational information (costs, capacity, strategic detail, etc.), which previously was privately held.⁹ The

⁸ Price fixing is a per se offence under the *Commerce Act, 1986*.

⁹ There is also evidence that the procurer shared some operational information previously private to the third firm, C, with A and B prior to the first auction, but C did not receive any private information relating to A or B.

concern is that due to the exchange of private information between the bidders in the first auction, the second auction was less competitive than it would have been absent information-sharing, because in the latter case the bidders may have bid only to the extent necessary to win the auction, but no more, whereas in the former they may have bid more aggressively to increase their chances of success. So, although supply did not occur at the jointly-agreed price, the act of fixing a joint bid may ultimately have had the effect of substantially lessening competition.

There appears to be some support in the economic literature for this hypothesis. For example, Milgrom and Weber showed, using a sealed-bid auction model in which there are asymmetrically informed bidders, that the bidder with private information generally makes no profit in equilibrium, whereas the informed bidder generally makes positive profits. Moreover, the informed bidder's profits increase as they gather extra information.¹⁰

The investigation and economic analysis of this case have yet to be concluded.

2.4 *Electricity Industry Investigation*

In 2005, the Commerce Commission opened an investigation into whether breaches of Part II of the Commerce Act have occurred in New Zealand's wholesale and retail electricity markets. There has been a high level of public debate about whether New Zealand electricity prices have been at workably competitive levels. The Commission has received complaints from residential and business consumers about both prices, and also in relation to other behaviour in the marketplace, including customer swapping and allegations of fair trading breaches.

New Zealand's electricity wholesale market may be better defined as a bidding mechanism rather than a bidding market, as the auctions held do not result in a 'winner takes all' situation. Rather, the market comprises repeated auctions, in which multiple participants bid to 'win' the right to generate a share of the total power required at the marginal bid price. The repeated nature of the electricity auctions mean that learning through experience is possible, and failure to 'win' in any one auction may not have a significantly large effect on a generation company over a larger timescale.

The wholesale market includes a spot market and a reserves market. The spot market operates on a daily basis for half-hourly periods. Purchasers submit bid functions that are decreasing in the bid price, and can contain up to ten price bands. Generators, for each generating unit, submit increasing offer step functions, giving the amount of capacity they are willing to supply as a function of the price, for all half-hours during the following day. Each generation unit can have a maximum of five price and quantity bands. The total amount of capacity offered into the market by generation unit within a trading interval must be less than a reasonable estimate of the maximum amount that can be produced from that unit.

The system operator uses a price-setting process for each half-hour period that co-optimises the as-bid cost of energy, reserves and transmission losses, whilst accounting for transmission losses, respecting transmission constraints and operating constraint (primarily ramping constraints) on generation units. Dispatch energy and reserve instructions are then issued to generators.

High half-hourly prices at certain nodes in the transmission system can benefit some generators over others. Extreme prices could be caused by events outside the control of any market participant, such as transmission line and generation unit outages, or unexpected increases in demand at certain locations in the transmission network. Or high prices at certain nodes could be caused (in part) by the unilateral actions of

¹⁰ P. Milgrom and R. J. Weber, "The Value of Information in a Sealed-Bid Auction", *Journal of Mathematical Economics*, vol. 10, 1982, pp. 105-14.

the generators that benefit from them. One measure of market power used in assessing electricity market outcomes is the ability to affect the marginal price at which the market clears.

Participants in such repeated auctions benefit from observing rivals' behaviour over time. Experience of others' behaviour will enable a generator to form an expectation as to the probability of his bid setting the market price (or, in the case of New Zealand, the nodal price). Best-response bidding strategies will therefore depend upon the expected actions of others in the market, which will be easier to gauge as time passes and experience is accumulated. Use of market power by generators has been cited as a cause of California's energy crisis in the summer of 2000.¹¹ Research on the England and Wales energy market between 1995 and 2000 found signs of the exercise of generator market power.¹²

If market power were used for the purpose of impeding competition in a market, or there were contracts, arrangements or understandings between competitors that substantially lessened competition in a market, a Part II breach of the *Commerce Act, 1986* (New Zealand's competition law) would be likely to have occurred.

An interesting aspect of the New Zealand market is the prevalence of vertical integration, with most of the generation entities also have retailing operations, and *vice versa* (lines companies are forbidden from having retailing interests, and are severely constrained in terms of generation interests). The Commission's investigation may lead to some insights into bidder behaviour given the incentives arising when parties have business interests on both sides of the wholesale electricity market.

The position of market participants in the energy hedge market will also be considered by the Commission. This market is relatively 'thin', especially as vertical integration allows 'natural' hedging using 'captive' retail demand. A firm's forward hedge contract position, as well as whether it is a net generator or retailer, can influence its optimal bidding strategy into the electricity market. The liquidity of hedge markets will also be a relevant factor in a firm's ability to exercise market power. If hedge contracts are scarce, then net-generator firms may face less competitive constraints on their ability to affect certain nodal prices.

Bidding behaviour in the wholesale market may also be affected by capacity across the transmission network. Where transmission constraints preclude energy generated elsewhere from entering a particular region, the opportunity for localised market power to be exerted may arise. Transmission losses are a further physical impediment to generation serving more distant electricity demand centres. The New Zealand grid differs from many other electricity systems in a number of ways, including the lack of interconnectivity with a geographically adjoining network, the long slim configuration of the grid along the land mass, and two separate Islands joined by only one point of interconnection (the inter-Island HVDC link).

To complete its investigation the Commission has required substantial amounts of market data to be made available for use in complex modelling by an external consultant. The quality and availability of industry data (particularly going back four or five years) is not comparable with that in other, similar, electricity markets. Obtaining robust historic information has therefore taken considerable time and effort.

¹¹ P. L. Joskow and E. Kahn. "A Quantitative Analysis of Pricing Behaviour in California's Wholesale Electricity Market During Summer 2000", *Energy Journal*, 2002, vol. 23(4), pp. 1-35.

¹² A. Sweeting, "Market Power in the England and Wales Wholesale Electricity Market 1995-2000", *Cambridge Working Papers in Economics*, no. 0455, 2004.

By the end of the investigation, the Commission will have analysed the workings of the New Zealand electricity markets using a much richer data set than has heretofore been available, and will hopefully be in a position to draw sound conclusions about the operation of the market, the competitiveness of observed prices, and the behaviour of the participants in the market. Further, the investigation may also provide a valuable insight into how effective is the market bidding mechanism.

3. Merger Evaluation in Bidding Markets

3.1 Introduction

The Commission's *Mergers and Acquisitions Guidelines* do not address auction or bidding markets specifically. However, the Commission has encountered bidding markets in a number of merger cases. Brief case studies of the three most recent examples are now set out, all of which were declined clearance or challenged in the court.

Sonic/NZDG

In June 2005 the Commission received a notice seeking approval for the merger of two private pathology businesses—New Zealand Diagnostic Group Limited ('NZDG') and Sonic Healthcare (New Zealand) Limited ('Sonic')—in several districts throughout New Zealand.

Historically, diagnostic pathology services in New Zealand were funded on a fee-per-test basis. That is, providers could claim remuneration from the District Health Boards (DHBs)—provincially governed boards, of which there are 21 in total, responsible for procuring public health services—for all testing work performed. Over time, this open-ended funding policy led to an escalation in healthcare costs to apparently unsustainable levels.

Several DHBs responded to these rising costs by altering the contracting arrangements for pathology services. First, some DHBs sought a single supplier (either public or private) of pathology services in their districts, believing that the consolidation of operations would avoid wasteful duplication and generate economies of scale, ultimately leading to cost savings. Secondly, funding for pathology services would be capped at a fixed amount, and it would be left to the provider to manage volume risk.

The first DHB to adopt this new model proposed to allocate a fixed-term supply contract through a competitive tender process. (Several other DHBs have since run, or indicated that they would run, tenders for the procurement of pathology services.) NZDG and Sonic submitted a joint bid to supply this DHB and were declared the winner of the tender subject to, among other conditions, Commission approval.

The change to the way contracts were allocated meant competition for pathology services would in the future be *for* the market (winner-takes-all), rather than *in* the market (multiple providers competing day-to-day). To allow for this when considering the likely effect of the proposed merger, the Commission modified its standard analysis of "existing competition" and "potential competition", and instead analysed the nature of competition by identifying the likely potential bidders for future contracts, and the degree of constraint these bidders would offer in the factual and the counterfactual scenarios. In addition, the Commission defined the time dimension of the relevant markets according to the term of the procurement contracts (between three to ten years, depending on the DHB). This was a departure from the Commission's usual approach to analysing mergers, which involves assessing the impact on competition over a two year period.

One of the Commission's standard tools when defining markets is the SSNIP test. However, practical application of the SSNIP test in this case was problematic, given that providers compete through simultaneously-placed sealed bids. Hence, there is no obvious price on which to apply the SSNIP.

Nevertheless, the notion of substitutability is useful when considering the appropriate definition of the market. There are several non-price factors that can help inform the extent of product substitutability on both the demand- and supply-side. These may include: distinct product characteristics and uses; unique production facilities or processes; distinct purchasers; specialisation of sellers; and recognition and views of industry participants of market boundaries. Given the difficulties in applying the SSNIP test, the Commission gave greater weight to such non-price considerations when defining the relevant markets.

The Commission considered arguments that market shares do not provide a true picture of the competitiveness of bidding markets. In particular, the element of “betting the firm” in a winner-takes-all contest, a characteristic of bidding markets, means that even a small number of competitors is sufficient to ensure competitive outcomes. In considering these arguments, the Commission was convinced by the arguments set out in Klemperer (2005) that few markets, including those relevant to the present case, satisfy the assumptions that underlie an ‘idealised’ bidding market. The Commission therefore concluded that the use of a bidding mechanism in the markets relevant to the proposed merger did not obviate the need to conduct a standard competition analysis.

In assessing whether the proposed merger would result in a substantial lessening of competition, the Commission considered the likelihood and scope for potential competing bidders to constrain the merged entity in future contracting rounds, relative to the counterfactual. In doing so, the Commission identified a number of barriers to entry and expansion, which included apparent advantages from incumbency. This is often a characteristic of winner-takes-all markets.

The Commission found that NZDG and Sonic were the largest, most well-resourced, and experienced of the potential bidders in the market, and absent the proposed merger, would exert a significant degree of constraint on one another. In contrast, the remaining likely bidders would offer only a weak constraint. The Commission came to the view that the proposed joint venture would have the effect of eliminating the strongest source of competition that would otherwise exist in the counterfactual.

The Commission also considered the possibility that the DHBs might threaten self-provision as a means of disciplining the merged entity in future bidding rounds. However, it concluded that the substantial costs and risks that would entail self-provision might mean that the DHBs would accept significant cost increases before considering it worthwhile to exercise such an option.

The Commission also found evidence that the proposed joint venture might result in increased coordination between NZDG and Sonic in other districts not relevant to the proposal.

Taking all these factors into account, the Commission therefore declined the merger in November 2005.

EMS/M-co

Energy Market Services (EMS), a subsidiary of Transpower (the New Zealand electricity transmission network owner and system operator), and a provider of reconciliation services to the wholesale electricity market, sought a clearance to acquire M-co, a provider of a pricing, clearing, information system and administration services to the same market.

All of these services are provided under contract to the Electricity Commission, the Crown entity set up to regulate the operation of the electricity industry and markets. The Electricity Commission runs a periodic tender process to appoint service providers for each contract.

In assessing whether the proposed merger would lead to a substantial lessening of competition, the Commission analysed the likely state of competition at the point in time at which competition would

occur, that is, when the Electricity Commission requested bids for the future provision of the services. Consequently, as in the *Sonic/NZDG* clearance, the Commission modified its standard approach to competition analysis set out in its *Mergers and Acquisitions Guidelines*, based on the distinction between “existing competition” and “potential competition”, and instead analysed the nature of competition by identifying the likely potential bidders for future contracts, and the extent of competition these bidders would provide in the factual (with merger) and the counterfactual (without merger) scenarios.

As noted above (para. 5), the argument that the competitive outcome will result from an auction in which there are only two potential bidders is based on strict assumptions that describe an idealised bidding market, and that where the market in question departs from these ideals, the problems of unilateral and co-ordinated market power effects may arise. The Commission took the view that although some of the assumptions needed to separate competition from market structure held for the markets for the Electricity Commission service provider contracts, not all did. In particular, there appeared to be some incumbency advantages in these markets. Also, while the contracts were important in financial and/or strategic terms to both M-co and EMS/Transpower (and therefore there was an element of betting the firm), this was less likely to be true for other potential competitors in these markets, such as large IT firms, since the absolute values of the contracts were not particularly high.

The Commission considered that these markets could not be regarded as ‘pure’ bidding markets, or that a competitive outcome would be assured with only one or two bidders. However, the Commission did recognise that the markets had some of the characteristics required for an ‘idealised’ bidding market. It therefore found that the number of competitors (above two) might be a less significant factor for competition than would be the case in “normal” markets. Instead, the Commission regarded the key determinant of competition in these markets as whether or not the incumbent was likely to face at least one well matched and aggressive challenger.

Based on these considerations, the Commission took the view that there would be some lessening of competition in a market if, in the counterfactual, EMS and M-co were each other’s strongest competitor and, in the factual, no third party could provide a comparable constraint on the behaviour of the combined entity.

Therefore, in considering whether removing one competitor from these markets would result in a substantial lessening of competition, the Commission assessed whether the incumbent in each market was likely to face another competitor at the end of the contract period similar to EMS and/or M-co standing alone, in terms of having:

- similar costs and facing similar barriers to entry; and
- similar incentives to bid aggressively for the contracts.

The Commission concluded that this was unlikely to be the case for several of the service contracts, and therefore declined the clearance.

NZBL/Mana

In January 2006 New Zealand Bus Limited (NZBL) applied for clearance to acquire the 74% shareholding of Mana Coach Service Limited (Mana) that it did not already own. NZBL is the largest bus operator in the Greater Wellington region, and Mana the second largest.

Just before the Commission reached a decision on whether or not to clear the merger, the applicants withdrew the clearance application and proceeded with the acquisition regardless. The Commission

quickly responded by completing its investigation, and then applying to the High Court for an interim injunction to prevent the acquisition. In the substantive hearing that followed the Court found for the Commission that there would be a substantial lessening of competition. An appeal of this judgment is currently pending.

The market was one for local bus passenger services in the Greater Wellington region. In New Zealand such services are generally subsidised, and hence are subject to substantial regulation, by regional councils, who operate in accord with principles set out in statutes. The Greater Wellington Regional Council (GWRC) is required to establish a regional transport strategy, which is implemented in part by subsidising public scheduled bus services. It designs bus routes, and periodically lets contracts for the provision of services—usually as groups of inter-connected routes, and measured by the number of buses required—in which it prescribes fare levels and service standards. Bus operators bid for tenders by nominating the size of the subsidy at which they would be prepared to supply the service.¹³

The subsidy funding is provided roughly equally by central government and local ratepayers. The former is disbursed through Land Transport New Zealand (LTNZ). The receipt of such funding is conditional on the recipient council following the procurement procedures specified by the LTNZ. These are currently under review. Some aspects of these procedures seem to limit competition.

First, the LTNZ must have regard to encouraging competitive and efficient markets when framing these procedures. This has been interpreted as limiting the sizes of tenders (to a maximum of around 22 buses), although this requirement has been relaxed recently. Small tenders are attractive to small, potential entrants, but not to large ones that might offer stiffer competition. Secondly, the council is required to accept the lowest priced conforming tender. It may negotiate only when there is one bid, and then only with the bidder, which, by disclosing that there is no other bid, undermines the position of the council. Thirdly, the names of winning bidders and contract prices must also be published, along with the number of tenders and the price range, which allows an incumbent to monitor competitor activity. Fourthly, a council must issue a request for tender no more than eight months (formerly six months) before the start of the service, which leaves too little time for a *de novo* entrant to establish the necessary facilities after a tender is won, and it will not do so before. Finally, contract terms are normally limited to five years, but roll-overs to a maximum term of eight years are now permitted. Overall, the court accepted that some features of the procurement regime—in particular, the limited maximum contract size and short lead times—act as significant entry constraints, but recognised that there are processes for making amendments within a reasonable time.

It is also possible for operators to register with the council to undertake unsubsidised “commercial” services on particular routes at specified times of the day nominated by the operator. These accounted for about 20% of services in the GWRC area. Commercial registrations are often less profitable than subsidised services, and may be used tactically by operators, either to defend an incumbency position on a route (the residual part of the service may be unattractive to another operator), or to secure an incumbent advantage when a council is establishing a new service. Councils are reluctant to contract over commercial routes, because it risks criticism that public money is being spent unnecessarily.

The court found that NZBL and Mana together held 97% of the subsidised contracts by value. The other half-a-dozen firms in the market were all small. NZBL and Mana operated in geographically discrete and largely non-overlapping—although in some areas contiguous—parts of the greater Wellington region. Each operator’s network was supported by a few major depots, together with a number of lesser yards at

¹³ In a “net contract” the operator receives both the subsidy and the revenues collected from ticket sales. A similar process is used by the Ministry of Education to let contracts for school bus services, but on a much smaller scale.

outlying points. The court also found that with rare exceptions, NZBL and Mana did not compete for GWRC contracts. In fact, 87% of the GWRC contracts attracted only one bid, and 87% of the contracts were won by the incumbent. Most of the competition appeared to take place on the small contracts. The number of bidders also seemed to matter for the price. For GWRC contracts, when the number of bids increased from one to two the average winning price measured in dollars per vehicle kilometre fell very sharply, then was about the same for three-bid contracts, and then fell sharply for four bids. A similar pattern emerged for school bus contracts.

Because of the lack of competition, and the nature of the contractual arrangements between the two linked with the 26% share holding in Mana by NZBL, the Court found that there existed an understanding between them that they would not compete on GWRC contracts.

As the competition was identified to be mainly *for* the market, the Commission recognised that the key issue in assessing existing and potential competition was the ability of outside firms to bid at the time that contracts were tendered. The Court found that new entry or incumbent loss of contracts was rare. Only three smaller contracts had changed hands since 2000. It also found that both companies were very profitable by international standards for bus companies.

The Court found that there was a genuine interest in market entry, and that all the potential entrants had a strong preference for entry by acquisition, this being the established pattern in New Zealand and overseas. However, it also acknowledged that potential bidders faced a number of entry conditions that would make entry difficult. These included: short contract lead times for requests for tender (which made it difficult to hire staff, order buses and establish depots in time); the limited sizes of bus contracts; economies of scale advantages of large operators; commercial registrations; incumbent's patronage information not being provided to potential entrants; the value of local knowledge; and tendering costs being lower for incumbents.

However, in assessing whether a new entrant could effectively enter the market, the judge departed from a strict analysis of barriers to entry and instead concentrated on a LET test approach, by asking whether entry would be Likely, sufficient in Extent, and sufficiently Timely, to constrain the merged entity. The judge adopted the approach taken by the High Court in *Air New Zealand/Qantas v Commerce Commission*, suggesting that the market assessment cannot simply rely on a principle of low barriers to entry as an answer to a competition problem:

“...it is not necessary for the Commission to catalogue barriers to entry and prove their individual or cumulative effect. Rather, empirical data about entry and prices in this and similar markets may justify a conclusion that substantial conditions of entry exist.”

The judge found that NZBL and Mana were the lowest cost operators in the market by virtue of their local assets, in circumstances where bids from firms without such assets are rare, and that their merger would lessen competition in the market. The judge concluded that while potential entry would remain a constraint under the factual scenario, contingent on the GWRC's ability to offer more attractive tender structures, this possibility was weak compared to the counterfactual scenario, where potential entry would be most likely to occur through the acquisition of Mana. The new entrant would compete more aggressively than Mana traditionally had done by bidding on NZBL routes.

The Court also found that the GWRC's countervailing power would remain modest in the factual, because so many tenders attracted only one bid, its weak bargaining power when it must provide services to meet public demand, and operators' superior knowledge of patronage and costs. In the counterfactual scenario it would have more power because of the greater likelihood of new entry occurring on a substantial scale.

The judge reached the decision that the acquisition would be likely to substantially lessen competition in the relevant market. This decision is subject to an appeal.

Interestingly, in 2005 the Commission cleared a similar bus company merger in Christchurch (*Red Bus/Leopard Coachlines*). It found that in the factual scenario there would be two incumbents and regular bidders in the bus subsidies market—Red Bus/Leopard and CBS (plus other potential bidders)—and in the counterfactual there would be three regular bidders, namely Red Bus, Leopard and CBS (plus other potential bidders). However, past evidence of bidding conduct suggested that Leopard would be a weak competitor in the counterfactual, whereas CBS—a relative newcomer and aggressive bidder—would be a strong competitor in both the factual and counterfactual. CBS’s circumstances were unusual in that the director of the company, as an ex-CEO of Red Bus, had firsthand knowledge of the Christchurch bus market, and over 25 years experience in the bus industry. On this basis, the Commission found no substantial lessening of competition between the factual and counterfactual scenarios.

4. Summary and Conclusions

The six case studies, drawn from the New Zealand Commerce Commission’s recent experience of bidding markets in its competition enforcement and merger adjudication roles, share a number of similar features, as follows:

- Four involved a single buyer—a government agency or local authority body—wishing to purchase a service. In five cases the supplier market was also highly concentrated.
- Two cases (or possibly as many as four, depending upon the outcome of investigations) involved tacit or explicit collusion on bidding, sometimes by means of market sharing. The Court in *NZBL/Mana* found that there was a tacit understanding as to geographic market allocation between the two major incumbents, such that they did not compete for council tenders. In wood preservative chemicals the two major operators allocated customers, and agreed a general price increase on one occasion.
- Three cases involved proposed mergers of the two major private suppliers, in situations where existing competition would have been greatly reduced, and the constraint from potential competition was limited. Two of these were declined clearance, and in the other, an injunction to prevent the acquisition was sought on the grounds that competition would have been substantially lessened.

The main analytical features that can be drawn from the series of brief case studies set out above are as follows:

- One of the Commission’s standard tools when defining markets is the SSNIP test. However, practical application of the SSNIP test is often problematic in sealed bid auction markets, as there may be no obvious price on which to apply the SSNIP.
- Competition in such markets occurs at the time of the bidding, and is *for* the market, rather than *in* the market. This may mean that historical market shares may not necessarily provide a reasonable indicator of the competitiveness of the market at the time of the bidding. Some of the cases involved contracts with supply terms of several years.
- It does not seem sensible to think in terms of existing and potential competition in situations where competition is compressed into a single discrete point in time (the auction), and involves the winner ‘taking all’, especially where the tender covers a substantial portion of the market.

- In terms of 'entry', even if the hypothetical monopoly incumbent in the market were assumed to add five to ten percent to its full costs in setting its bid, it is difficult to predict whether a provider elsewhere would bid. Nonetheless, it is important to consider whether firms other than incumbents (perhaps in other regional markets, or even in another country) are able to be viable bidders.
- The evidence from the bus merger case showed that winning bid prices tend on average to be lower when there are more bidders, and especially when going from one-bid to two-bid contracts. This raises doubts about the argument that market structure considerations do not matter for competition in bidding markets.
- It appears that successful bidders may secure incumbency advantages. In the buses case, it was found that the two major companies with local assets in the regional market had lower costs than outside bidders. This advantage was reinforced by: the procurement regime, which made it very difficult for a new entrant to set up an operation in time to supply in the interval allowed after a successful bid.
- The fact that the auctioneer (a buyer of services, in the case of procurement auctions) largely sets the rules of competition via the auction mechanism does not necessarily mean that they can exert strong countervailing power on bidders. Sometimes the tendering rules seem misguided. Also, the ability of the buyer to exercise countervailing power may not be fully realised or exercised. Countervailing power may be frustrated by a range of possible factors: having only one bidder (meaning an inability to play off one against another); the bidder having superior information; the desire to accept initially favourable terms with insufficient consideration being given to possible long-term 'lock-in'; and the pressure on the buyer to purchase in order to provide what is often considered an essential service.

SWITZERLAND

Introduction

The intensity of competition in many markets strongly depends on the regulatory framework. In bidding markets, this dependency is particularly strong. In Switzerland, the Federal Act on Public Procurement, which is of high importance for bidding markets, is currently being revised. The objectives of the revision are:

- to modernise public procurement (e.g. by introducing electronic procedures);
- to clarify the legal terms in the realm of public procurement;
- to make public procurement more flexible (e.g. by introducing a specific tender procedure for very complex projects that is known as *competitive dialogue* in the EU);
- and to harmonise public procurement (today, 27 frameworks exist in Switzerland: one framework in each of the 26 cantons and one framework for the Confederation).

The following contribution is a summary of a broad economic analysis of the Swiss regulatory framework for bidding markets that was produced by the Secretariat of the Swiss Competition Commission in the course of the current revision¹.

The contribution is structured as follows: First, the key regulatory factors influencing competition in bidding markets are summarised. Second, we present a list of recommendations for a competition-boosting framework, which was compiled by the Secretariat of the Competition Commission. Third, two relevant Swiss cases are described. In the annex, a checklist for identifying collusionary practices in bidding markets, which was also developed by the Secretariat of the Competition Commission, is presented.

1. Competition issues in bidding markets: An overview

A whole set of factors influences efficiency and functioning of bidding markets. In order to analyse the relevant regulatory framework from a competition perspective, it must firstly be examined whether procuring entities have incentives to procure efficiently. Secondly, the framework must promote competition between (potential) suppliers. The following issues play a specifically important role in this respect:

- collusionary practices,
- buyer power,

¹ See <http://www.weko.admin.ch/publikationen/00212/rpw2006-2.pdf> , p. 392ff. for a full version of the analysis (Wettbewerb und Vergaberecht - Wettbewerbspolitische Analyse des Vergaberechts der Schweiz, insbesondere des Vergaberechts des Bundes; Bericht des Sekretariates der Wettbewerbskommission zur Revision des Beschaffungsrechts).

- transparency and transaction cost,
- capturing,
- barriers to entry and exit (open markets).

The design of the regulatory framework, which consist of a whole set of rules and regulations, affects the specific relevance of these issues and creates incentives that influence the behaviour of both procuring entities and competing suppliers. Thus, the regulatory framework for public procurement plays a crucial rule in promoting competition in bidding markets. Some specifically important features are threshold levels, tender procedures, and selection criteria.

1.1 Collusion

Several forms of collusion between potential suppliers affect the performance of bidding markets. Most common are arrangements on prices to boost producer surplus, segmentation of markets, and arrangements on rotation of bids. Hard horizontal agreements between suppliers such as price fixing or market segmentation are assumed to eliminate effective competition according to Art. 5 para 3 ACart. However, the Swiss Competition Commission must prove that the presumption can be reversed and that the agreement cannot be justified by reasons of economic efficiency. The parties involved are nevertheless required to help in establishing the facts. If the Swiss Competition Commission proves that horizontal agreements eliminate effective competition or are not justified by reasons of economic efficiency, the involved enterprises are fined.

A special form of horizontal agreements are bidding consortia. On the one hand, bidding consortia aim at increasing the power of the involved suppliers and thus may tend to limit competition. On the other hand, allowing bidding consortia of enterprises can increase the number of potential bidders that would otherwise not be able to place a bid. Thus, competition would intensify.

According to a survey of the Federal Procurement Commission, about 50% of all suppliers in bidding markets have been affected by horizontal agreements in the past². This leads to the conclusion that collusionary practices are probably widespread in bidding markets. As there are not nearly as much cartel law cases as one would expect according to the mentioned survey, one must also conclude that such agreements are often difficult to disclose. The Secretariat of the Competition Commission has created a checklist of indications that help to identify collusionary practices in bidding markets (see annex).

1.2 Buyer power

Buyer power of procuring entities (including government agencies and state-controlled enterprises) is an issue that is often discussed in Switzerland. Buyer power of procuring entities may exists, where the demand of the state and/or state-controlled enterprises represents a large part of the market and private demand is scarce or where procuring institutions cooperate for buying goods and services. Purchase cooperations on the demand side of bidding markets have similarities to bidding consortia on the supply side. At the same time, purchase cooperations in public tendering procedures aim at spending public funds in the most efficient way, e.g. by maximising volume discounts.

² Swiss Federal Procurement Commission (2004): Le droit des marchés publics actuel du point de vue de la pratique. Présentation et analyse des réponses au questionnaire relatif aux forces et faiblesses du droit des marchés publics.
http://www.bbl.admin.ch/bkb_kbob/beschaffungswesen/00254/00496/00592/index.html?lang=fr

A deep analysis of market structure and market dynamics is needed to interpret buyer power in bidding markets from a competition perspective. If buyer power is found, its abuse is problematic. For the evaluation of the behaviour of powerful procurement entities it is crucial whether they can negatively affect the market structure or weaken suppliers in the long run. While buyer power is subject to evaluation according to Art. 7 ACart (abuse of dominant position), purchase cooperations are also assessed according to Art. 5 ACart.

1.3 Transparency

Intransparency complicates the application and supervision of the legal procurement framework, leads to higher transaction costs for suppliers, and harms competition intensity in bidding markets by potentially creating entry barriers. Thus, a lack of transparency leads to losses of welfare and efficiency both for the procuring entities and for suppliers. Furthermore, incomplete information and asymmetric allocation of information between suppliers can cause market failure in bidding procedures. Enhanced transparency contributes to a better foreseeability and to improved investment decisions.

1.4 Capturing

In bidding markets, capturing theory points to the risk that procuring entities have incentives to award mandates referring to criteria that are not based on price or performance. For example, procurement procedures and decisions can be influenced by local pressure groups. As a reaction to such pressure, procuring entities may be tempted to prefer local suppliers over foreign suppliers for political reasons. Hence, objective procedures and the principle of equal treatment will no longer be warranted. Several factors may lead to capturing in bidding markets, namely strong local or sectoral lobbies, promises for informal services in return, bureaucratic incentive structures within procuring entities, and lack of transparency and supervision.

1.5 Barriers to entry

An inefficient regulatory framework for public procurement can contribute to the creation of barriers to entry for potential new suppliers and thus harm competition. Capturing, unreasonable qualification criteria in tender procedures, lack of transparency, and extensive use of static supplier lists can lead to such entry barriers. Also, an exaggerated amount of bureaucratic requirements may build a barrier to entry³. Besides the procurement framework, other general regulations may limit the number of potential suppliers. Examples for such regulations are monopoly rights and license requirements. Regulatory reform and broader liberalisation initiatives are needed to reduce these entry barriers and promote competition in bidding markets in sheltered sectors.

2. Recommendations

Based on the analysis summarized in section 1 and on an analysis of practical procurement procedures in Switzerland, the Secretariat of the Competition Commission developed a set of measures that may foster competition in bidding markets (extract of all measures).

- *Harmonisation of the legal framework and juridical procedures:* The fragmentation of cantonal procurement frameworks leads to a lack of transparency and legal uncertainties.

³

For example, procuring entities sometimes require the proof that taxes have been paid, that apprentices are employed, that ecology-friendly machines are used, ISO 9001 certification, ISO 14001 certification and so on and so forth. While some of these requirements may be legitimate, a too long list of such requirements may specifically deter SMEs.

- *Mandatory publication of tendering procedures on a single platform* that is nationally and internationally accessible. As such a single platform increases the number of potential suppliers and reduces transaction costs; it contributes to an increase of competition as well as efficiency.
- *Creation of a legal framework for electronic procurement procedures*: Electronic procurement procedures can contribute to lowering transaction costs for suppliers and procuring entities. Lowered transaction costs lead to lower entry barriers and a larger number of potential suppliers.
- *A standardization and a decrease of threshold levels*: There are no reasons for the variety of threshold levels. Standardization and decrease of thresholds would enhance competition and lead to better price/performance-ratio. When defining threshold levels the costs of the specific procurement forms and also procured goods and services have to be taken into account.
- *An enhancement of flexibility for procuring entities* thanks to the introduction of new procedures such as reverse auctions and competitive dialogue. The increased complexity of procured mandates increases the need for such new bidding procedures.
- *Further transparency enhancements*: Suppliers should be allowed to submit questions to the procuring entity. The procuring entity should be obliged to submit in due time the respective questions and answers to all interested suppliers. Thus, transparency would be spurred and the risk of capturing would be reduced.
- *Introduction of functional tender models*: Functional tender models describe the objectives that are to be met by a project without describing the subject and the range of the inquired good or service finally and exactly and in this way without unnecessarily limiting the means of suppliers. They increase flexibility for suppliers, reduce discriminations, and enhance the innovation potential.
- *Limitation of qualification criteria to a reasonable level*: Use of qualification criteria should be restrained, as they can build an effective entry barrier for newcomers, outsiders, and SMEs.
- *Mandatory publication of selection criteria and weightings*: The publication of selection criteria and weightings before decisions are taken, increases transparency and reduces the risk of capturing.
- *Strict limits to the consideration of subjective criteria*: All criteria that are either non-objective or discriminating should be excluded from tendering procedures as they increase the risk of capturing and harm competition. For example, when ecological requirements are set up, only labels and certificates that are potentially accessible to all suppliers should be considered.

3. Cases

So far, there have not been many cartel law cases in public procurement procedures. This is partly due to the fact that direct sanctions against cartel law infringements were only introduced in 2004 in Switzerland. At the same time, it should be noted that there are much more cases before the Federal Appeals Commission for Public Procurements and the Federal Court. Criteria with a high relevance for competition such as the weight given to the price as a selection criterion are a prominent subject of those appeals. In the following, two cases with reference to competition law are discussed.

3.1 *Enquiry on a bidding cartel in the concrete renovation of the Swiss National Library*

In an enquiry, the Swiss Competition Commission found evidence for a bid rigging in the concrete renovation of the Swiss National Library (decision of December 17, 2001, DPC 2002/1, p. 130). The indirect evidence found consisted of a big difference in price between the expert's estimate, the bid put in by the company finally selected, and those submitted by the four involved companies as well as other indirect evidence. The decision was initially rescinded by the Appeals Commission, which stated that the case could not have been opened according to cartel law in force at that time. In the decision of the Appeals Commission, it was mentioned that the proof may be established indirectly. However, evidence had not been sufficiently well established (DPC 2005/1, p. 183). In the following, the Swiss Federal Court rejected the Appeals Commission's decision with respect to the formal aspect, but did not comment on the Appeals Commission's observations regarding the evidence. The judgement was referred back to the Appeals Commission for a new decision. (DPC 2005/3, p. 580). In its re-evaluation, the Appeals Commission did not depart from its initial decision regarding quality of proof and referred the decision back to the Competition (cf. DPC 2005/4, p. 704). The Secretariat of the Competition Commission is currently clarifying the available evidence.

3.2 *Enquiry on a cartel between asphalt producers and road companies active in road construction in the canton of Ticino*

In April 2005, the Secretariat of the Competition Commission opened an enquiry on asphalt producers and companies active in road construction in the canton of Ticino. In the pre-enquiry, indications for geographical segmentation and a bid rotation were found. There are indications for a price-fixing cartel on asphalt and asphalt transportation. In the enquiry, it is currently examined, whether infringements against Art. 5 and Art. 7 Acart exist.

4. Conclusion

The framework for public procurement procedures has an important influence on the extent of competition in bidding markets. The importance of a competition-friendly framework is even amplified by the fact that such agreements are difficult to detect and even more tricky to be proven, although they seem to be widespread according to the cited survey.

The revision of the Federal Act on Public Procurement, which aims at harmonising and modernising procurement procedures in Switzerland, is expected to bring significant improvements to the procuring entities and the economy. In a study commissioned by the Federal Office for Constructions and Logistics and the cantonal finance ministers, the partial harmonisation of the procurement framework in Switzerland along with the introduction of e-procurement was estimated to bring direct annual savings of 430 million Swiss Francs. Including indirect effects such as the reduction of transaction costs, the potential savings were estimated at 1.2 billion Swiss Francs, which amounts to 4% of the total procurement volume in Switzerland subject to public procurement legislation⁴.

The revision of the Federal Act on Public Procurement is planned to be sent into public consultation in 2006 and is envisioned to be enacted in 2008.

⁴ Ecoplan (2004): Potenzialschätzung einer Teilvereinheitlichung des öffentlichen Beschaffungsrechts. http://www.bbl.admin.ch/bkb_kbob/beschaffungswesen/00254/00496/index.html?lang=de&download=00180

**ANNEX: CHECKLIST FOR IDENTIFYING COLLUSIONARY PRACTICES
IN BIDDING MARKETS (EXTRACT)**

- The same supplier wins tenderings in a certain market all the time (consider existence of compensation payments to other potential suppliers).
- The same group of suppliers participates in certain tenderings and there seems to be a regular pattern of winning firms (consider rotation principle).
- The number of bids is unusually low.
- The offered price is significantly above the price level expected by the supplier.
- The offered price is significantly above price levels observed in the past.
- The difference in price between the bids seems to be unexplainable.
- The offered prices seem to fall significantly as soon as new or irregularly participating companies submit bids.
- Two or more companies submit a joint bid, although each of the companies should be able to place a bid alone.
- The winner of the bid closes subcontracts with companies that were not successful with their bids.
- Suppliers are not willing to offer discounts although they offered discounts in the past.
- Prices offered by regional companies are significantly higher in one region than in other regions.

TURKEY

The Turkish Competition Authority (TCA) does not have any direct authority to advocate for a better auction design or recommend a certain auction design, for instance, in privatisation tenders which is within the responsibility of the Privatisation Administration (PA). However, it is compulsory to seek the Opinion of the TCA before the privatisation transactions exceeding certain thresholds or including de facto or legal privileges. Basically, the TCA's role at this stage is to evaluate the results of such a privatisation in the relevant market and the condition of legal or de facto privileges of the undertaking to be privatised after the privatisation. Therefore, the main priority of the TCA is to ensure a competitive market following privatisation transactions. However, while carrying out this advocacy role, TCA's opinions may have an indirect impact on the auction design in the sense that it may enable a more efficient tender by enabling more participants. To substantiate this argument, it is necessary to cite some examples.

Before the tender announcement was made public, the TCA sent its Opinion¹ for the privatisation of Turk Telekom (TT - the incumbent fixed line operator at that time). The TCA, in its Opinion, recommended that the dominant GSM operator not be allowed to participate in the tender alone. However, the TCA has left the room opened for this dominant GSM operator to participate in the tender with any consortia provided that it does not have a direct or indirect controlling right over TT in case it wins. Moreover, the TCA also recommended that the persons or groups directly or indirectly controlling the dominant GSM operator (Turkcell) could participate in the tender alone, together and/or separately within any consortia on the condition that all means granting controlling right in this dominant GSM operator and/or any undertakings having a direct or indirect controlling right on it would be transferred to a person outside their economic whole after the tender. It can be said that this recommendation (that was complied with and inserted in the tender specifications by the PA) aimed a more competitive and efficient tender by permitting, albeit with conditions, the participation of the persons or groups holding controlling rights in the dominant GSM operator and their bidding for TT. This can be regarded as a condition that has had a direct impact on both the tender design and its efficiency.

Similarly, the TCA reiterated its recommendation that persons or groups having direct or indirect control over the dominant GSM operator (Turkcell) could participate in the tender for the sale of the second largest GSM operator (Telsim) that was taken over by the State (Savings Deposit Insurance Fund - SDIF²) if they would transfer those rights following the tender.³ As the TCA had the powers to block transfer of Telsim if it was taken over by Turkcell because it was highly likely that the transaction would strengthen Turkcell's dominance and lead to significant decrease in competition in the relevant market, the rationale of the TCA by this recommendation was to illustrate the possibilities following the transfer and therefore remove ambiguities before the tender process that could be faced by the bidders. Moreover, by

¹ Opinion of 2.9.2004.

² The Savings Deposit Insurance Fund, a public legal entity, has been established to insure deposits in order to protect the rights and interests of depositors and to ensure confidence and stability in financial markets; insure deposits and contribution funds; manage the banks with the Fund; strengthen and restructure their financial standing; transfer, merge, sell or liquidate such banks; execute and conclude the follow-up and collection transactions of the receivables of the Fund. Telsim was taken over by the SDIF due to the liabilities of the bank of the group owning Telsim.

³ Opinion of 19.10.2004.

allowing participation in the tender of persons or groups holding controlling rights in Turkcell, the TCA aimed to provide minimum level of measures that would not only provide minimum restrictions on those willing to participate in the tender (which could be compatible with the objective to raise the highest possible revenue) but also ensure more competition in the tender.

Various times, the TCA recommended partial sale of assets against block sale. For instance, concerning the sale of 10 cement factories managed by SDIF and situated in various regions of Turkey, the TCA recommended that cement factories be offered for sale separately because their sale *en bloc*, although possible, could cause negative consequences for the competitiveness of the relevant markets.⁴ It is thought that although this is not a direct intervention to the tender design, it may have an indirect impact on the efficiency of the tender as it may enable more participants. Similarly, regarding the privatisation of cigarette factories and brands owned by the state, the TCA recommended that the cigarette brands be sold separately rather than *en bloc*.⁵ The TCA considered that this could enable more undertakings to participate in the tender, including those who, otherwise, either do not afford to bid in case of block sale or do prefer a strategy to bid for only certain brands rather than all. Moreover, the market, characterised by high entry barriers, was thought to be more competitive in case of partial sale. However, when the PA preferred to privatise the relevant assets *en bloc*, the tender failed to attract any bids and the sale could not be realised in the end. Currently, the PA works on different strategies that also include partial sale. These opinions by the TCA can be regarded as indirect contributions to the tender design as the PA, if concurs with the TCA, inserts TCA's recommendations in the tender specifications.

Two cases, one about pharmaceuticals and the other regarding GSM licences, can be mentioned as examples where tender design has led to negative effects.

In the first case⁶ concerning a complaint including allegations that a pharmaceuticals company abused its dominant position via price discrimination, the TCA commented that tender design was not efficient as tender specifications prepared by the Social Security Organisation were not based on the active ingredient which could increase the number of participants in the tender and improve the competitiveness of it. Because tender specifications included the dose and/or form) (sometimes even the product brand name) in addition to the active substance, number of participants bidding in the tender decreased and the price emerged at the end of the tender increased to maximum price levels which was approved by the Ministry of Health. In contrast, some state hospitals, which mentioned only the active substance in the tenders, could buy the medicines at cheaper prices because of the increase in the number of participants. However, the TCA mentioned that whether a sound competitive environment was achieved in the tenders was out of the scope of the Act No 4054 on the Protection of Competition. Despite this comment, as the allegations caused widespread publicity and criticisms in the press, the President of the TCA made public comments regarding the faulty design of the tenders.

In the second case, in April 2000, a sequential first-priced sealed bid auction to award three GSM concession (1800 MHz) contracts has been held by the Ministry of Transport. Tender specifications⁷ were:

- two GSM 1800 MHz licenses were to be auctioned;

⁴ Opinion of 1.10.2004

⁵ Opinion of 21.9.2004

⁶ 20.9.2004: 04-60/866-205.

⁷ See "The Role of Auction Design in Awarding Spectrum Concessions Turkish GSM Experience" by Uğur EMEK, Senior Expert in General Directorate of Economic Sectors and Coordination Department of Legal Measures and Institutional Arrangements in State Planning Organisation, NOVEMBER, 2002, available at <http://ekutup.dpt.gov.tr/yazar/emeku/>

- one GSM 1800 license was to be awarded to TT (state owned telecom monopoly) at the winning price of first license;
- the conceding authority was the Ministry of Transportation;
- incumbent GSM operators were not allowed to enter the auction;
- the auction method was a first-price sealed bid auction which was to be sequentially held;
- depending on the discretion of the conceding authority, after opening bids taken from the bidders, the owner of the highest bid and next highest bid might be invited to a competitive negotiation;
- after completing the first round of the sequential action, the rest of bidders were going to bid in a first-price sealed bid auction with a reserve price at the winning price of the first license.

At the end of the tender procedure, after first round İş-Tim made a stunning bid of US\$ 2,525 million plus 18 per cent in value added tax (VAT) for a total price tag of US\$ 2,954 million, the rest of bidders did not show up to bid for second license. The government has only been able to award two of three concessions one of which has gone to İş Bankası-Telecom Italia consortium (İş-Tim). The TCA permitted the acquisition transaction on 16.8.2000. The other one has been awarded to TT at winning price of first license. The concession agreement between İş-Tim and Ministry of Transportation was signed on October 27, 2000, while Aycell the subsidiary of TT signed a contract with the Ministry on January 11th, 2001. Emek argues that “... *since the auction design inappropriately dealt with market conditions, İş-Tim, winning bidders of one of two spectrums on offer, was able to make a high bid by deriving the price of first license, the reserve price of second one, up to excessive level, so other bidders were not able to afford to bid over this price at second round. As a result by not selling second license, **Turkish GSM market has been unnecessarily concentrated** [emphasis added]; Turkish Treasury has obtained less revenue than it would; and the liability of TT owner of third license at the extremely high winning price of the first license, has soared more than what it otherwise would be by possibly undermining the market value of TT.*”⁸ Emek, in its study, concludes that “... *if an ascending price auction (possibly backed by a sealed bid component at later stage to discourage collusion and encourage new entrants) was held by the conceding authority, the outcome was going to be better in terms of efficiency. Put it this way,*

- (a) *public revenue from selling spectrum would be more than what it is;*
- (b) ***one more license would be sold and market concentration would be less than what it is** [emphasis added]; and*
- (c) *TT would have less liability than what it has.*”⁹

With respect to law enforcement in auction context, one case¹⁰ concerning bid rigging by the participants to equally share the amount and value of a sealed-bid tender for milk organised by the Fund for the Encouragement of Social Assistance and Solidarity under Prime Ministry can be cited. The tender involved provision and distribution of 1 million packed milk to primary schools. Such an amount exceeded the capacity of any milk producer in Turkey. 8 milk producers joined the tender. The TCA obtained

⁸ Ibid. p. 2-3.

⁹ Ibid., p. 20.

¹⁰ 19.1.2004: 04-05/54-15.

enough evidence indicating that the milk producers held several meetings and shared the amount and the value of the tender equally. However, milk producers alleged that the outcome of the tender was influenced by guidance of the relevant Ministry and therefore it was out of their volition. Moreover, the participants also alleged that the tender specifications permitted the participants to form joint ventures with different undertakings for different regions which enabled the participants to learn the price for the regions in which the tender was related and the tender would not be realised successfully if the participants did not share equally the amount foreseen in the tender.

The TCA mentioned that tender design permitted sharing the amount equally only if all the participants acted in agreement. Refusal to join the agreement even by a single milk producer makes who would be awarded the tender in what region unclear and disallows a clear-cut market sharing.

As to allegations of intervention by the Ministry, the TCA argued that despite attempts by the Ministry to influence the bids to be made by milk producers, the correspondence sent from the Ministry did not designate that outcome of the tender was fixed by the Ministry. Moreover, given the existence of various laws prohibiting such instances, even an instruction by the Minister would be far from binding legally. However, the TCA agreed that the several attempts¹¹ by the Ministry had an impact on milk producers and regarded them as mitigating circumstances.

Regarding the allegations that tender specifications permitting the participants to form joint ventures with different undertakings for different regions enabled the participants to learn the price in the region in which the tender was related, the TCA argued that the tender specifications enabled undertakings to join the tender alone or by a joint venture. The TCA argued that the fact that the tender design was wrong could not justify bid-rigging and the resulting equal sharing of the outcome. Moreover, tender specifications forbade bidding by both the milk producer and the JV it involved for the same region. Finally, the TCA argued that it could not be said that a sealed-bid tender was so falsely designed that it enabled equal sharing of the outcome in terms of the amount and value. At the end of the case, milk producers were imposed fines.

¹¹ The Ministry accepted that it advised milk producers to act responsively and encouraged them to make their bids below market prices. Moreover, the Ministry requested milk producers to determine their prices below the estimated value and distribute the amount among them. The fact that the price in the tender occurred below the estimated value proved that the Ministry had an impact on the behaviour of the milk producers during the tender process.

UNITED KINGDOM

This roundtable covers a range of topics. The UK competition agencies have been actively involved in considering the issues raised by auctions and bidding processes in various ways outlined in this submission. The first section makes some general points. The second section describes some of the OFT's experience of advocacy to government on the organisation of auctions and procurement processes. The third section describes the OFT's experience of enforcing the Competition Act in a number of cases involving collusive tendering. The final section describes the recent experience of reviewing mergers involving bidding markets, in particular the recent Cott-Macaw case examined by the UK's Competition Commission.

1. Bidding markets and processes: general issues

In June 2005 the UK Competition Commission published a report by Professor Paul Klemperer on bidding markets¹ that considered a number of fallacies identified in the way that bidding markets are defined and addressed.

Following on from the Klemperer paper the OFT has commissioned a report from economic consultants DotEcon entitled *Markets Characterised by Bidding Processes* which is due for publication in October 2006. This is intended as an aide for case officers and focuses in particular on the evidence that can be gathered to assess cases where bidding processes are involved and the empirical techniques that have been developed to analyse such processes.

A key message from these reports is that the expression 'bidding market' may be at best unhelpful, and at worst misleading, unless terms are clearly defined. In particular, there may be confusion between whether the price-setting mechanism in a market involves bidding and whether the market exhibits competitive outcomes. Both papers make clear that the former does not imply the latter. Klemperer (2005) describes five features of an idealised bidding market:

- i. 'winner takes all' competition;
- ii. 'lumpiness' - so that each contest is large relative to a supplier's total supply;
- iii. competition begins afresh with each contest – so there is no lock-in;
- iv. entry is easy;
- v. a bidding process is involved.

The first three criteria perhaps describe markets in which price competition might be expected to be fierce, so that even highly-concentrated markets might exhibit competitive outcomes. The fourth criterion might imply that a market is contestable, so that in the extreme even a monopoly provider might be forced to adopt competitive pricing. The fifth criterion describes only the price-setting mechanism. There may be some markets that meet all of these criteria, and could be described (with or without the fourth) as ideal bidding markets. However, there can be markets that do not use bidding processes that nonetheless meet the other criteria and can therefore be expected to be more competitive than concentration measures would

¹ Paul Klemperer, *Bidding Markets*, June 2005, Competition Commission

imply. And, crucially, there can be markets that use bidding processes that are not competitive, or no more competitive than might be expected from their structure.

As such the observation that a market is characterised by a bidding process does not call for a wholly new approach to looking at competition problems. Instead traditional concerns such as entry barriers (criterion 4) and lock-in or incumbency advantages (criterion 3) should remain at the heart of the competition analysis.

Nevertheless there are a number of areas where the presence of a bidding process does require some different forms of analysis to markets where such process is absent. For example, when considering market definition the hypothetical monopolist test may not be appropriate or may need to be adapted. A bidding process is often used when a buyer has a very specific product requirement – for example with a very specific technical specification or characteristics and conducts a procurement auction. As a result demand side substitutability may be limited.² Therefore it is relevant to focus on the competitive constraints on a supplier wishing to supply the specified product. This will typically require a greater focus in the competition analysis on supply side substitution, i.e. the firms who have the capacity or the potential capacity to supply the specific product.

A hypothetical monopolist supplier of a product cannot be said to be ‘setting price’ if the price is determined in a bidding process. Instead when the supplier is the bid-taker it may be conceptually easier to think of the ability of a hypothetical monopolist supplier being able to profitably restrict supply to the buyer in the bidding process. When the buyer is the bid-taker it is important to consider the limits the buyer can place on a single bidder, for example by reserving the right not to enter into a contract if the price is too high.

However, both of these difficulties in applying the tools of market definition can also emerge in markets without bidding processes. Even highly-specified products for which there are no demand-side substitutes *can* be sold at negotiated prices, and of course the notion that a supplier with market power would need to restrict supply is common to all price-setting arrangements.

When considering bidding markets it is sometimes suggested that market shares are simply meaningless when used to assess market power. Obviously, in a one-off contest with ‘winner takes all’, the winner will have a 100% *ex post* market share, and it is true that this *ex post* market share does not necessarily accurately reflect the competitive position of the winner in the market when bidding. However, not all bidding processes are one-off (there might be a sequence of similar contests over the short- to medium-term) and contests are not always winner-takes-all (multi-unit auctions). Therefore the presence of a bidding process does not *automatically* mean that market shares are irrelevant to the competitive analysis, in that a supplier with a large market share might be able to influence price, by accepting a loss in market share³; similarly, market shares might provide valid information about a competitive threat when considering collusion or predation.

Moreover, even in markets without bidding processes there are situations, for example with differentiated products, where market shares are not always a good measure of the competitive constraints.

² This is not automatic, depending on the terms of the bidding process the buyer may reserve the right not to buy under certain circumstances or may leave open or negotiate aspects of the product specification.

³ See, for example, discussion of this point in *Dräger and Air-Shields*, May 2004, Competition Commission. Because products were sold in small lots, through repeated tendering processes, the CC concluded that market shares did convey information about market power.

In assessing market power in a ‘winner takes all’ type of bidding process it is important to examine the intensity of competition *ex ante*. Not all bidders may have an equal likelihood of winning and assessing the asymmetries between bidders can be an important part of the competitive assessment. In some cases, it will be reasonable to take existing market shares (resulting from previous contests) as a proxy for these probabilities. Methods also exist for assessing them directly.⁴

Finally, both of these papers reinforce the central message of auction theory: that auction design matters. For example, ‘incumbency’ advantages are likely to be more acute if contracts are awarded through open auctions (in which bidders can react to one another’s bids) than through sealed bid auctions. If a weaker bidder knows that a stronger bidder will always have an opportunity to rebid, and thus potentially undercut, then the weaker bidder might not participate at all. Similarly, the precise details of auction design, and particularly the information provided to bidding parties, will affect the likelihood of, and the ability to engage in collusion.

2. Competition advocacy

The OFT has a competition advocacy role across government and internationally. In respect of bidding processes, the OFT has been involved in supporting government in auction design and advising the public sector on procurement as described below.

2.1 Auction design - Airport Slots

The Civil Aviation Authority (CAA) and OFT jointly prepared a paper to the Commission’s DG Tren⁵ concerning the proposed introduction of slot trading. This paper was to assist discussion on the proposal for introducing market mechanisms for allocating airport slots.

The OFT and CAA believe the arguments for introducing secondary trading are strong and advised that some simple safeguards could be introduced to boost the improvements in competition and efficiency that secondary trading stands to bring. These included a prohibition on the inclusion of restrictive covenants in slot trades or leases, and the publication of trading information to increase transparency, clarify the opportunity cost of holding onto slots, and hence promote slot trades.

The OFT is a member of the Department for Transport (DfT) Slots Project Board, which is a cross government forum set up to assist in Government’s aim of revising the primary slot allocation system to achieve a transparent, market-based approach⁶.

Through the Slots Project Board, OFT has offered *ad hoc* competition advice, covering areas such the appropriate duration of usage rights and ensuring the new market-based allocation methods support new entry and do not protect or strengthen market power.

2.2 Public procurement

OFT has examined how public procurement can affect competition.⁷ Although the precise nature of competition effects vary across procurement settings, and can be both positive and negative, competition can be affected in a number of ways:

⁴ Such methods are discussed in Markets Characterised by Bidding Processes, report by Dotecon for OFT, forthcoming.

⁵ *Competition issues associated with the trading of airport slots*, June 2005, OFT832

⁶ DfT have commissioned a report on ‘Alternative allocation mechanisms for slots created by new airport capacity’ - yet to be published

- a. short-term effects on competition among potential suppliers i.e. effects on the intensity of competition among existing suppliers in a particular tender;
- b. long-term effects on investment, innovation and the competitiveness of the market, which would be reflected, for example, in the level of competition for future tenders;
- c. knock-on effects on competition in the supply by other buyers; other buyers are, for example, affected by changes in market competitiveness or technology.

The OFT has recently been working with the UK Department for Environment, Food and Rural Affairs and the UK Office of Government Commerce (OGC) to look at how public procurement in the municipal waste management sector can be used to deliver policy objectives, such as diverting waste away from landfill and developing the waste treatment sector.⁸

The OFT's work showed that, given the difficulties in the UK of securing a landfill site, the practice of local authorities aggregating landfill and treatment contracts limited the number of potential suppliers who could bid. The OFT recommended that local authorities should therefore consider carefully what services are aggregated and why, and also encourage bids from suppliers active outside their own region.

OFT has also been working with OGC to develop a practical guide for public sector procurers of construction services to ensure they maximise the benefits of competition. This is expected to be published shortly.

The Competition Commission has also recommended changes to public sector procurement processes, on competition grounds, when relevant to specific cases it has investigated. For example, in the Group 4/Wackenhut merger in 2002⁹, the CC recommended changes to Home Office purchasing of prison services, and in Dräger/Air-Shields it recommended changes to National Health Service purchasing of neo-natal incubators.

3. Law enforcement in auctions

The Office of Fair Trading has taken five infringement decisions under the Competition Act over the past two years dealing with collusive tendering.¹⁰ The cases have largely concerned situations where a local government authority or a private purchaser has put out to tender a contract for roofing services. In each case there was evidence of contact between actual or potential bidders prior to the submission of tender bids. Bidders shared information that affected the bids that were subsequently submitted and hence affected competition in the tenders.

The most extensive form of observed conduct was the provision of 'cover prices'. A cover price is a price that one bidder receives from another (potential) bidder. The second bidder is not seeking to win the contract and enters a bid at or above the price they have been given in order to provide cover for the first bidder, who is submitting a lower bid that is intended to win the contract. Cover pricing harms competition directly as the supplier providing cover does not actively compete for the contract. Furthermore bids

⁷ Assessing the impact of public sector procurement on competition, report by DotEcon for Office of Fair Trading, September 2004, OFT742

⁸ More competition, less waste: public procurement and competition in the municipal waste management sector, Office of Fair Trading, May 2006 OFT841

⁹ Group 4 Falck A/S and The Wackenhut Corporation, October 2002, Competition Commission.

¹⁰ The first decision in March 2004 was Collusive tendering for flat roofing contracts in the West Midlands the most recent, in February 2006, was Collusive tendering for flat roof and car park surfacing contracts in England and Scotland

entered as a cover price can give the illusion to the party organising the tender that there is more genuine competition for the tender than actually exists.

Cover pricing also occurs where the second bidder, for its own benefit, actually requests a price from the first bidder. In this situation, the second bidder does not want to win the contract but nevertheless submits a bid because it considers that, if it does not, purchasers may be less likely to invite it to submit bids in future contract tenders.¹¹ It has been argued that this type of cover bidding should be regarded differently in competition law terms from straightforward bid-rigging. The OFT's view is that, irrespective of who had initiated the provision of a cover price, the presence of a cover price would lead to a substitution of cooperation for competition¹²: an illusion of competition may be created by the existence of the cover price bid. The UK's Competition Appeal Tribunal took the same view as the OFT on this point.¹³

In addition to the provision of cover prices there was evidence in respect of some contracts of market sharing by suppliers allocating between themselves who should win contracts. For example in one case a bidder tried to withdraw a winning bid as 'an arithmetical error' to allow another cartel member to obtain the contract.¹⁴ In another example there was evidence of a supplier being allocated a contract in return for presenting cover prices on other contracts.¹⁵

It is the OFT's experience that cover pricing is not normally accompanied by compensation payments from the party which is trying to win the contract to the party putting in a bid with a cover price and thus which is not going to win the contract. However, in cases where two or more parties are keen to win a contract and believe that they have a realistic prospect of winning the contract this may become a feature of the bid rigging arrangement.¹⁶ Where the OFT has found evidence of compensation payments, it has treated this as an aggravating factor when calculating the appropriate amount of a fine.

4. Merger evaluation in bidding markets

'Bidding markets' are referred to in the Competition Commission's merger guidelines¹⁷ when discussing market definition. The guideline notes that applying the SSNIP test directly to situations where there is competition to win a contract, and contracts are infrequent, may lead to the conclusion that each contract is a separate market. However such a conclusion may not assist in understanding rivalry between suppliers and a variety of other factors may be also be helpful in considering the nature and extent of the

¹¹ The guide for public sectors procurement of construction that is being prepared by the OFT and the Office of Government Commerce (cited above) recommends that procurers avoid obligatory bids as a condition of staying on an approved list but seek objective justification for any failure to bid.

¹² Ibid, paragraphs 193-198

¹³ *Apex Asphalt and Paving Co Ltd v OFT*, [2005] CAT 4 paragraphs 217-218

¹⁴ *Collusive tendering in relation to contracts for flat-roofing services in the West Midlands*, paragraphs 105-6

¹⁵ Ibid, paragraph 110

¹⁶ Ibid, for example, paragraphs 290 and 291 and paragraphs 514 and 524; *Collusive tendering for felt and single ply flat-roofing contracts in the North East of England*, March 2005, for example paragraphs 211, 215 and 220

¹⁷ *CC2 Merger References: Competition Commission Guidelines*, June 2003, paragraphs 2.28-2.29

rivalry. The guideline notes that market shares may be difficult to calculate and misleading in such markets.¹⁸

Several strong statements by merging parties regarding bidding markets are cited by Klemperer, using documents from reports published on the CC website. For example, Arcelor claimed ‘the supply of steel sheet piling in the UK has ... the characteristics of a ‘bidding market’ [that] there are no switching costs between piling from different manufacturers; and most orders are tendered for, project-by-project so that, in consequence, market shares in this case do not offer any significant indication of market power.’¹⁹ Klemperer notes that the CC has generally rejected these claims.

In the most recent relevant CC decision, clearing the merger between two manufacturers of soft drinks²⁰, the parties and the CC cited Klemperer’s paper. In particular, Cott (the acquiring party) stated that the market met the first four conditions listed in paragraph 4 above and therefore claimed that the outcome of the merger would not lead to a substantial lessening of competition. It is notable that neither this claim, nor the CC’s assessment of it, included any discussion of whether prices were set in ‘bidding processes’ (as, in this case, to some extent they were). Thus the report does not consider *the fact* that prices are set in bidding processes as evidence *in itself* of competitive supply conditions, and instead focussed on the underlying technical, cost and demand conditions of the industry that affected the competitive structure of the market.

Past CC decisions, a number of which are reviewed in the forthcoming Dotecon report, seem to indicate that the CC does not regard evidence that prices in a market are set through bidding processes as providing information about the likely state of competition in a market.

Practical techniques for assessment of mergers will, of course, be different for products whose prices are set through bidding processes than for products offered at posted prices. In Zeiss/Bio-Rad²¹, for example, the CC carried out an assessment of incumbency advantages by considering whether winning one contest to supply a customer made a bidder more likely to win a subsequent contest for the same customer. Analysis of bidding data from tender contests has been assessed, with varying degrees of formality, in most of the CC’s cases in which prices are set through bidding processes (such as Dräger/Air-Shields, Arcelor/Corus and Macaw/Cott, as cited above). In principle, a quantitative assessment of the unilateral effects of the loss of a bidder on pricing can be made, but recent CC decisions to block a merger have not been based upon such an assessment.

The economic analysis of markets characterised by bidding processes has been a topic of considerable interest for the UK competition authorities in recent years. Such markets can provide interesting analytical challenges for assessing the competitive situation. However they should not be seen as requiring a whole new paradigm. The process by which price is determined is just one of many factors to be considered in the competitive assessment.

¹⁸ The guideline does not discuss ‘bidding markets’ when describing assessment of competitive effects.

¹⁹ See Paragraph 6.48 of *Arcelor SA and Corus Group plc*, February 2005, Competition Commission, cited in Klemperer (2005).

²⁰ *Cott Beverages Ltd and Macaw (Holdings) Ltd*, April 2006, Competition Commission.

²¹ *Carl Zeiss Jena GmbH and Bio-Rad Laboratories Inc*, May 2004, Competition Commission

UNITED STATES

(FTC and DOJ)

1. Introduction

In analysing proposed mergers, it is common for the economist to treat the competitive process as one where firms set a single price to all potential trading partners. In many cases, however, it is more appropriate in evaluating the merger's potential effect on competition to treat the competitive process as one involving individual bids, with the bids depending on the circumstances of each bidding opportunity. This paper is about "bid markets," and more specifically about quantitative economic approaches to evaluating proposed mergers in such markets.

One of the more straightforward "bid market" mergers to analyse, where (absent entry) competitive effects are likely, is when the merging parties are clearly the two lowest-cost providers of a relevant product, and the costs of the next-best competitor (if one exists) are significantly higher. For such cases, the presence or absence of competitive rivalry that exists only between the merging parties is easy to determine.

Real world mergers, however, typically are not so clear as these categories suggest. Merger partners may compete against one another for some customers, but not for others, and third parties may offer close substitutes for some types of customers, but not others.

A bid market argument, frequently made by advocates for a merger, is that there cannot be any anticompetitive effect unless a merger involves the two most dominant firms. The logic follows that of homogenous good Bertrand (price setting) competition. That is, consumers care only about price so that in equilibrium the lowest-cost provider wins the auction (or market) at a price that matches (or is slightly below) the cost of the second most efficient firm/bidder. As long as a merger does not bring together the auction winner (the most efficient firm) and the price setter (the second most efficient firm), there can be no competitive effects. Namely, the merger does not alter the identity of the winner (still the most efficient firm), or the equilibrium price (still at or slightly below the cost of the second most efficient firm).

The logic of this argument is simple and correct, but should be applied cautiously. Key assumptions, often left unstated by merger advocates, are that all costs are known by all bidders, and that these costs do not vary across bidding events. With variation in costs, a merger will generate competitive effects (price increases) whenever there is some chance that the merging bidders will have the two lowest costs. This is easy to see for open outcry auctions—when the merging bidders do happen to have the lowest costs, price is set not by the second most efficient firm (now part of the merged firm) but by the third most efficient firm. If the second and third most efficient firms have different costs, the merger generates a price increase in all such auctions. For sealed bid auctions in settings with uncertainty about rival bidder's costs, the argument is slightly subtler. A firm that sets its bid to maximise its expected return optimally trades off earning a high margin (submitting a bid much larger than its costs) against winning with high probability (submitting a low bid that is likely to win). Following a merger, the probability that the merged firm wins with each bid level that it contemplates using increases because the merging firms no longer compete against one another. The merged firm takes this into account when it re-optimises its bid, resulting in a higher (less competitive) bid.

Another key assumption in the simple bid market argument introduced above is that consumers care only about price. If products are differentiated, so that buyers select a best alternative based on product attributes in addition to price, then mergers that include a “small” firm (in terms of observed market share) can generate adverse competitive effects if the merging firms’ products have similar characteristics. This is directly analogous to differentiated products Bertrand competition, and is subject equally to the possible caveat that firms may be able to “reposition” by, in the case of bid markets, changing the product characteristics in what they offer to buyers. With differentiated products in non-bid markets, we often find competitive effects for mergers that do not include the two most dominant firms, and we should not be immediately convinced by arguments similar to the one introduced above.

The challenges to building an effective unilateral effects case against a proposed merger in a bid market resemble those found in non-bid market settings. One needs to establish (1) that the merging parties frequently are the two most effective competitors, and (2) that in such cases, the next best alternative is significantly less preferred than the merging parties.¹ Consider the following illustrative example. There are four firms (numbered 1, 2, 3, 4), and four consumer segments (labelled A, B, C, D). All firms have zero marginal costs (*e.g.* the product is a license to use existing software), but their products are differentiated. Suppose that consumer valuations are as in the chart below, and are common knowledge.

	A	B	C	D
Population share	45%	45%	5%	5%
v_1	1000	600	500	500
v_2	600	1000	500	500
v_3	900	899	550	400
v_4	700	900	400	550
No merger	1 wins, $p = 100$	2 wins, $p = 100$	3 wins, $p = 50$	4 wins, $p = 50$
1-2 merger	no change	no change	no change	no change
1-3 merger	1 wins, $p = 300$	no change	no change	no change
2-4 merger	no change	2 wins, $p = 101$	no change	no change

So for example, an A consumer values firm 1’s product at 1000, and its next most preferred product is firm 3’s (valued at 900). The “No merger” row reports the equilibrium outcome of open outcry auctions for each consumer segment. Firm 1 wins bids for A consumers because it offers the most desired product, and sets its price to make the buyer just indifferent between firm 1 and the next best alternative (firm 3). Since firm 3’s product generates 100 less in value to the consumer, firm 1 submits this difference as its bid and wins the auction. This example illustrates the following points:

1. Despite having a combined 90% share of consumers, a merger of firms 1 and 2 generates no competitive effects because these firms are never the two most preferred alternatives. When one of them is most preferred, firm 3 or 4 is second best. There is no head-to-head competition between firms 1 and 2.

¹ In addition, one needs to establish that entry and/or product repositioning by other firms is difficult, and to take account of any cognisable, merger-specific efficiencies.

2. Following a merger of firms 1 and 3, the price paid by A consumers rises from 100 to 300. While firm 1's product is still most preferred, the merged firm does not submit a separate bid for firm 2's product, so post-merger the best alternative to firm 1 for the consumer is firm 4 (whose product is worth 200 less to the consumer than firm 3's product).
3. Following a merger of firms 1 and 3, the price paid by C consumers does not change, even though the merging parties can be considered the two best alternatives. This follows because the next best alternative to the merging parties is as desirable as the second best alternative. That is, pre-merger firm 3 won the auction and could charge 50 because the next best alternative (firms 2 and 3) was worth 50 less to the consumer. Post-merger, the next best alternative (firm 2) is still worth 50 less to the consumer, so the merged firm cannot raise price.²

The kind of analysis set forth in this paper could apply to a variety of settings. For example, in the market for financial management software used by firms, customers typically go through a long process to identify best solutions and negotiate terms. Salespeople may need to submit to a supervisor a discount approval form, which would include information about other potential sellers for a particular buyer's business, before offering a discount to that buyer. Given that discounts are frequently provided to individual customers based on the presence of competing offers, these markets can be thought of as bid markets.

Another example is the market for "school milk" – fluid milk that is packaged and sold via contract to school districts. School milk is an undifferentiated product, and buyers care only about price. The main features that differentiate bidders are their physical location, and their volume of other dairy business in/near a given school district. Dairies located near a school district have lower transportation costs, and therefore are likely to be more effective competitors. Furthermore, dairies that deliver to commercial customers near a school district typically will have lower costs because they can add a school district's milk to a delivery truck route that is already in the neighbourhood. On the buyer side, school districts differ in size (volume of milk consumed), as well as in the distance required to serve all of the district's schools.

The remaining sections of this paper discuss various quantitative approaches that can be used in investigations of proposed mergers in bid market settings.

2. Frequency Analysis

Perhaps the most important step in developing a case to challenge a proposed merger among "bid market firms" is to establish that the merger partners actually compete against one another. One initial approach is to examine a large number, or all, sales of a relevant product and calculate how frequently the merging parties face each other. Such information, for example, can take the form of bids submitted to buyers that employ an auction (*e.g.* school districts purchasing milk), or party documents requesting approval to improve an offer to a buyer that is negotiating with several suppliers (*e.g.* software salespersons completing a discount approval form before offering a lower price to a prospective customer).

Advocates for a merger may respond to this approach by arguing that the analysis should include not just firms that actually submitted bids, but also some other firms that could have submitted bids, but chose

² This point is also illustrated by the "2-4 merger" row. Only B consumers are harmed, but the magnitude of the price increase is small (price rises from 100 to 101) because the third best alternative (firm 3) is a pretty close substitute for the second best alternative (firm 4).

not to.³ Suppose, for example, that geographic distance to a consumer is a key factor in determining the competitiveness of a supplier. If one observes variation in bid participation that does not follow geographic patterns—e.g. firm 1 does not bid for customer A, but does submit bids to customers located in a geographic ring surrounding customer A—then perhaps firm 1 should be included as a competitor for customer A. Data that describes several procurements for a given customer can help counter this argument. That is, data demonstrating that firm 1 never bids for customer A provides additional support for the conclusion that firm 1 should not be included as a market participant for customer A.⁴

The Federal Trade Commission used Frequency Analysis in a recent case involving bidding in four markets, field-erected LNG storage tanks, field-erected LPG storage tanks, field-erected LIN/LOX tanks, and field-erected thermal vacuum chambers. In all four markets, the two merging firms, Chicago Bridge and Iron (CBI) and Pitt-Des Moines (PDM), won the majority of the bids from 1990 to 2001, the time of the acquisition: In the field-erected LNG storage tank market, CBI and PDM won all of the bids between 1990 and 2001. The Commission noted that both customer opinion and the parties' own documents indicated that CBI and PDM were the two strongest competitors in the four markets. While the parties argued that other firms (especially large foreign construction companies) could easily enter these markets, the Commission found that various entry barriers would prevent such firms from restoring the competition lost from the merger.

In examining the merger of BP Amoco with ARCo, the Federal Trade Commission examined the market for bidding for new oil development tracts on both state and Federal lands in the Alaska North Slope oil fields. The Commission reviewed the bidding history for a ten-year period and found that BP Amoco and ARCo were the two highest bidders in 71 percent of the auctions in the year prior to the merger's announcement and that they had been the highest bidders in a majority of auctions for the earlier years. Bids were lower in auctions where only one of the two bid. The Commission argued that the two companies possessed unique geological knowledge and extensive infrastructure from having pioneered the oil field and that no other competitor would be able to replace the competition lost by the two firms merging. The Commission's complaint was resolved by a consent decree in which the firm's agreed to sell ARCo's Alaskan interests to Phillips Petroleum.

3. Regressions

While the frequency analysis described above may be informative about the rivalry between merging parties, it can be criticised for not establishing the magnitude of any anticompetitive price effects. If each bidding competition were to include a third party whose product is an extremely close substitute to at least one of the merging parties, then, all else equal, the merger is unlikely to generate substantial anticompetitive price effects. One approach to quantifying the size of price effects is to use linear regression to estimate prices paid (or discounts offered) as a function of which firms submit bids and buyer characteristics.

Before discussing specific regressions, a brief discussion about data is warranted. For buyers that use a sealed bid auction, information about all bidders often will be available. At a basic level, studying the

³ This is analogous to the argument in markets with posted prices that an attempt to exercise market power (by raising price or submitting higher bids) will invite entry by firms that currently have no sales (or who have not submitted bids).

⁴ Another potential complicating factor is that sellers may improve offers for a collection of products and services that extends beyond the relevant products of a merger investigation. That is, while the competition authorities may be potentially concerned about product x, one of the merging parties may be offering discounts to a customer looking to purchase (x, y, z). In such cases, should the competition authority infer that the discount was due solely, or only partly, to competition for the sale of x?

identities of the two lowest bidders, as well as the difference of the second and third lowest bids should indicate (1) whether the merging parties compete against one another, and (2) whether the next best competitor is a close substitute.

Frequently, however, buyers do not employ a formal auction process to solicit bids from competing suppliers. That is, a buyer may simultaneously negotiate with multiple sellers, playing them off of one another in order to obtain the best price. In such settings, the data gathered by competition authorities typically will not include information about every competitor's "best and final offer". So for example, a buyer may play firms 1 and 2 off of one another to obtain the best price, but not engage firm 3. Such a buyer may suffer if firms 1 and 2 were to merge, but the data available to the competition authority may be uninformative about whether an alternative supplier exists, or how close a substitute that alternative may be.⁵

Let us now turn to a couple of linear regression specifications (among a large number of possibilities) for the proposed merger of two firms that we will (unimaginatively) label firm 1 and firm 2. Suppose that buyers do not employ sealed bid auctions, but simultaneously negotiate with multiple suppliers in order to obtain the best price. Given this manner of selling, firm 1 requires salespersons to justify offering price concessions on a standard form. As part of its merger review, the competition authority has obtained all such completed forms as part in its document/data request.

One specification tries to explain the final percentage discount off of list price that firm 1 makes to one of its customers as a function of which other firms participate, and characteristics of the product(s) being purchased⁶:

$$\text{Discount} = b_2 \text{ FIRM2} + b_3 \text{ FIRM3} + b_4 \text{ FIRM4} + \text{product characteristics}$$

Here the *FIRM* terms are dummy variables that indicate whether one of firm 1's rivals appeared on the discount approval form, that is, if firm 2 was mentioned then *FIRM2* = 1, otherwise *FIRM2* = 0. If the discount is expressed in percentage terms, then the *b2* coefficient can be interpreted as the typical additional discount that firm 1 offers when it competes against firm 2.

What should the analyst infer from the estimated coefficients of such regressions? Is the magnitude of *b2* a measure of competitive effects for the merger of firms 1 and 2? Or, like the frequency analysis above, is this just additional evidence that the merging parties compete against one another? The answer depends on what information one believes is contained in the discount approval forms.

One view is that discount approval forms include the names of all rivals that are (or could be) serious competitors for the sale in question. Provided that the predicted price increase does not induce entry, the magnitude of *b2* may be a reasonable, or even conservative, predicted price effect. Post-merger,

⁵ An analogy can be drawn to open outcry auctions. Imagine sitting among the bidders at an auction house during a fine art sale. One may be able to observe which bidders improve the price for a painting, as well as how the price changes during the auction. Presumably, the final price is at a level that the second strongest bidder is just indifferent to winning or losing. It is unlikely, however, that an auction observer will always be able to ascertain the price at which the third strongest bidder dropped out. In merger reviews, the competition authority may be able to assemble documents and data that provide some information about how a bid evolved, but for similar reasons may not have precise information about the third best alternative.

⁶ If one were able to include all relevant product characteristics as variables on the right hand side of the equation one might, as an alternative to using the size of the discount, use price level as the dependent variable.

each competition would include the same set of bidders minus firm 2.⁷ If firms do not alter their bidding or negotiating strategies, then a merger of firms 1 and 2 is equivalent to having the firm 2 dummy variable switch from “1” to “0” while all other explanatory variables remain at their pre-merger levels. Thus the coefficient on *FIRM2* is a measure of competitive effects.⁸ One should expect an even larger price effect, to the degree that the merger induces firms to bid or negotiate less aggressively.

Suppose, instead, that a sale to a customer proceeds in a manner similar to an open outcry auction, and that the discount approval forms record only the name of the last remaining rival bidder. That is, while we know the name of the last rival to leave the auction, there may be other bidders that left at an earlier phase. Under this scenario, the *FIRM2* coefficient by itself likely overstates the competitive effect. This is because, without any other change in the identities of firms participating in any given bidding competition, a hypothetical firm 1/firm 2 merger would switch the *FIRM2* variable off (from “1” to “0”) and switch another firm indicator variable on (from “0” to “1”) in many cases.⁹ So for example, if one assumed, perhaps unrealistically, that firm 3 would replace firm 2 on every firm 1/firm 2 competition, then the predicted effect would be a price increase of b_2 (firm 2 leaves the auction) minus b_3 (firm 3 “enters”) for a net effect of $b_2 - b_3$.¹⁰ Note that firm 3 has not actually entered the competition—it was there all along—it simply has “entered” the discount approval form to fill the void caused by firm 2’s absence.

This discussion illustrates a challenge in developing a case to block a merger when the firms compete in bid markets that are not sealed bid auctions. As discussed in the introduction, assessing competitive effects in such environments requires information about how often the merger partners are the most effective competitors (lowest cost and/or most desirable product), as well as information about how close the next best alternative is. When a buyer plays bidders off of one another as in an open outcry auction, data obtained from the parties may include only the transaction price and the identity of the winning bidder.¹¹ In some cases, there may be additional information about which firms were in the running toward the end of the competition. Another complicating factor is that a buyer’s bid evaluation may include non-price characteristics that are hard for an econometrician, working at a competition agency or elsewhere, to track.

⁷ Of course, the merger only has an effect for competitions in which firms 1 and 2 would have been active, absent the merger.

⁸ This approach uses the discount approval forms from firm 1 for customers that ultimately purchased from firm 1. It does not attempt to make specific predictions about discounts offered to customers that ultimately bought from firm 2. Presumably, that would require the use of similar data from firm 2.

⁹ The only instances when another firm dummy variable would not change from 0 to 1 are customers for which the merger is literally a merger to monopoly. For such cases, the discount approval form would list all rivals of firm 1 participating in that competition (*i.e.* just firm 2), and the analysis of the preceding paragraph would apply.

¹⁰ A more reasonable assumption about post-merger bidding behavior may be that rival firms replace firm 2 on the discount approval forms at the same rate that they appear pre-merger (*e.g.* if firm 3 is mentioned on 1/2 of the discount approval forms that do not mention firm 2, then *FIRM3* should change from 0 to 1/2, and similarly for other rival firms).

¹¹ While one may be able to assemble additional bid information from the buyers themselves, such buyers may not retain precise information about the third best alternative. After all, they need only identify the two best alternatives and have them compete against one another to obtain the best price.

Another type of regression, among many, explains price as a function of the number of bidders and buyer characteristics:

$$\text{Price} = \text{number of bidders} + \text{buyer characteristics}$$

This general form is best used when the analyst has reliable information about the number of bidders, and thus is appropriate when buyers employ sealed bid auctions.

With respect to the number of bidders, it is often worthwhile to employ a set of dummy variables that indicate the number of bids submitted. Using such a set of dummy variables allows for the second bidder and the third bidder to have different effects on the price. In contrast, a specification that includes the number of bidders in a single variable implicitly assumes that each additional bidder changes the observed price by the same amount. We would expect, however, that the second bidder has a larger impact than the fifth or sixth bidder.¹²

Buyer characteristics include factors that affect bidder costs. These may include size of the contract in order to capture possible economies or diseconomies of scale. If geographic distance between buyer and seller is important, distance to the closest potential sellers can also be included.¹³

If the data include observations over a period of time in which supplier costs have changed (e.g. input costs, fuel), including a set of time dummy variables can control for such changes.¹⁴

3.1 *A few comments about this type of regression:*

1. Observe that in contrast to the previous specification, bidder identities are not included here. The only manner in which bidder-specific attributes enter is via buyer-specific attributes. The implicit assumption here is that the number of bidders, and not their identities, affects prices. This is valid for settings in which the relevant products are undifferentiated (e.g. milk). In the school milk setting, the distance from a given school district to each of some number of closest dairies could be included in the buyer characteristics. If dairies have significantly different costs, say due to more efficient plant equipment or more fuel-efficient trucks, then this specification may not accurately reflect the competitive environment. An advantage to this approach is that one can use the regression results to predict post-merger price effects in a manner that allows a rival dairy to have different effects across different school districts. This permits one to predict which customers are most likely to suffer an anticompetitive price effect, as well as identify which rivals are most likely to provide competitive discipline on a customer-by-customer basis.
2. If buyer characteristic variables that describe distance have small or insignificant coefficients, this suggests that geographic location may not be important for competition. If this is true, more distant suppliers—ones that currently do not submit bids to buyers located near the merging firms—may be capable of submitting competitive bids if the merged firm were to attempt to

¹² The econometric literature suggests such a non-linear relationship. See Susan Athey and Philip A. Haile (2002) "Identification of Standard Auction Models," *Econometrica* for example.

¹³ In the case of school milk, buyer characteristics might include school district size (number of lunches served), distance to some number of closest dairies, and the driving distance required to visit every school in the school district.

¹⁴ School milk auctions typically occur in the late summer of each year. Thus, each dairy likely makes its bidding decisions for all school districts in a given year using the same forecasts about raw milk and fuel costs. Given this, year dummy variables accurately capture potential cost shifters.

exercise market power. This suggests that such distant suppliers might need to be included as market participants.

3. Specifications that regress price (or discount) on a set of variables that include number of bidders (via a single variable or set of dummy variables) or the identity of participating firms are useful only to the degree that the analyst has controlled for characteristics that affect the desirability of winning the auction. If a specification does not control for important features, then a finding that more bidders generates better prices may be due largely to underlying features of the object for sale rather than to competition. In such cases, predicted price effects will overstate actual effects.

Consider the following illustrative example. Suppose that a government uses an auction to sell the right to extract minerals from various parcels of land, and that firms' valuations of such rights depends on characteristics like how hard the ground is (affects drilling costs) and seismographic readings. In addition, assume that the government has set a minimum price for each tract, or that bid preparation is costly, so that bidders do not necessarily participate in every auction. An analyst examining the bid data may find that prices were very high for parcels that had many bidders and therefore conclude that competition between bidders had a large price effect. Armed with this finding, the analyst may recommend blocking a proposed merger. If, however, the seismographic information suggests the presence of an extremely valuable mineral deposit, and the ground is easy to drill, high prices and many bidders may be due, in part or totally, to these attributes of the object for sale rather than to competitive forces.¹⁵ Consider an extreme example: an industry-wide cartel forms and submits a bid above the reserve price only on parcels of land with seismographic data that predicts deposits above a certain expected monetary value. A naïve examination of the results would suggest that sale prices increase when the number of bidders increases (from 0 to 1), so therefore competition (the number of bidders) matters. Yet there is no competition at all in this example. Price differences are driven entirely by underlying characteristics of the objects for sale.¹⁶

Applying this general comment to the school milk hypothetical raises the question, "Are there any other school milk contract attributes (besides district size and location attributes) that can significantly affect the contract's value to dairies?" If regressions of the type described above are to be useful for measuring competitive effects, the answer generally should be no. One can also ask the question for our initial specification as used in the software case. There the dependent variable in the regression was percentage discount off of an initial price rather than price paid. To the degree that the software firms' initial prices (before offering any discounts) capture all of the important features of the sales opportunity (e.g. buyer characteristics, including how well the supplier's product works for the buyer), using discounts rather than prices sidesteps this problem of overstated competitive effects. If initial prices fail to account for all such factors, then this type of omitted variables problem may appear.

¹⁵ More generally, economic theory suggests that in "private value" auctions there will be a clear (although non-linear) positive relationship between price and the number of bidders. However, in common value auctions there may be no such clear relationship. Private value auctions are auctions in which each bidder's valuation of the object would remain unchanged if the bidder observed information about another bidder's valuation of the object. A common value auction is one in which this is not the case. See Susan Athey and Philip A. Haile (2002) "Identification of Standard Auction Models," *Econometrica* and Phillip A. Haile, Han Hong, and Matt Shum (2003): "Nonparametric Tests for Common Values in First-Price Sealed-Bid Auctions," NBER Working Paper 10105.

¹⁶ Of course, a cartel operating in this manner likely would look suspicious to competition authorities. To counter this, cartel members may submit additional phony bids in order to make the bidding appear more competitive. This can further complicate the interpretation of the coefficient on the number of bidders variable as a competitive effect.

4. Other ideas

We conclude by briefly discussing some other bid market ideas.

4.1 *Natural experiments*

Some cases may include “natural experiments” that can be informative about competitive effects. Imagine, for example, that in a proposed milk merger one of the merging parties had been “debarred” – legally prohibited from bidding for some school milk contracts – for a period of time. Did milk prices fall after the debarred firm re-entered? Imagine that while milk prices have generally increased since the time period of the debarment, the price increase in districts where the debarred firm “re-entered” are smaller in magnitude than the corresponding price changes in school districts that the debarred firm did not re-enter. This suggests that the debarred firm has a competitive effect in school milk markets.

4.2 *Structural approaches.*

The quantitative approaches presented here have been reduced form—looking to establish relationships between price and competition without attempting to recover the underlying distribution of firm costs that induces the observed pattern of bids. An alternative is the structural approach that attempts to estimate the underlying cost distribution, as well as the equilibrium bidding strategy (how a firm should bid given its draw from a cost distribution).

Although difficult, structural estimation can have some advantages. One of the most difficult issues for quantitative analysis of bidding markets is modelling the determinants of the number of bidders. For example, if unobserved characteristics cause a project to be a simple low cost one, then those characteristics may induce lots of bidders who bid relatively low. That would induce a negative correlation between bid price and number of bidders. However, that negative correlation would not be an appropriate measure of the effect of the number of bidders on competition and indeed would overstate it.

One approach to separate out the forces of competition (i.e., having one more potential bidder) from the forces that determine the number of actual bidders (conditional on the number of potential bidders) is structural estimation of underlying cost distributions. There is a small but growing auction literature that has made some progress in successfully estimating the underlying structure under some special assumptions. These types of analyses are on the frontiers of quantitative research.¹⁷

4.3 *Auction simulation.*

An alternative method of measuring competitive effects is to assume a flexible form for the cost distributions of firms and calibrate the model to fit pre-merger market shares under the assumption that the firm-specific portions of costs are independently distributed. In sharp contrast to structural approaches, merger simulation in auction settings does not require a great deal of data. Firms that win many bids are assumed to be more efficient on average (draw their costs from a more favourable distribution). If one

¹⁷

Recent examples include Patrick Bajari and Ali Hortacsu (2003), “Winner’s Curse, Reserve Prices and Endogenous Entry: Empirical insights from eBay auctions,” *RAND Journal of Economics*, Unjy Song (2003), “Nonparametric Estimation of an eBay Auction Model with an Unknown Number of Bidders,” unpublished working paper, and Christopher P. Adams (2006), “Estimating Demand from eBay Prices,” unpublished working paper. Methods for non-parametric estimation of auction models using bid data are presented in Susan Athey and Philip A. Haile (2002) “Identification of Standard Auction Models,” *Econometrica*. For a survey, consult Ken Hendricks, and Robert H. Porter, “An Empirical Perspective on Auctions,” forthcoming in *Handbook of Industrial Organization* (Vol. III), edited by Armstrong and Porter, available at: <http://www.csio.econ.northwestern.edu/Papers/2006/CSIO-WP-0078.pdf>.

makes an additional assumption about the fraction of the gross value of the product that accrues to the buyer, one can use the fitted model to calculate expected price effects. In the simulation, cost distributions for third parties do not change while the merged firm's costs are now the minimum of firm 1's cost draw and firm 2's cost draw. Since simulation exercises typically rely on small amounts of data (a benefit of this approach), the selection of functional form can have a large effect on the predicted price effects (a drawback of this approach). Given this, analysts should confirm that their predictions are robust across a range of parameter values and/or functional forms.

4.4 Coordinated effects.

This discussion paper has focused on unilateral effects. Mergers in bid markets can also generate coordinated effects. As in non-bid markets, a challenge to proving this type of harm is establishing that the merger matters. That is, merger-induced coordinated effects require firms not to be colluding pre-merger and becoming able to post-merger, or alternatively, firms that were colluding pre-merger become better colluders post-merger. In other words, does the elimination of an independent bidder make collusion more feasible?

Evidence assembled for a coordinated effects case often is qualitative rather than quantitative. One such approach is the "checklist" of market factors conducive to collusion.¹⁸ Shortcomings of this approach are that the factors are neither necessary nor sufficient for collusion to occur, and real world cases generally will have some factors present and other factors absent. For such real-world cases, employing this approach requires subjectively weighting the factors to determine which of them are important for promoting collusion.

Following the analysis of repeated games, quantitative approaches to assessing coordinated effects have often focused on whether the critical discount factor required to sustain tacit collusion declines substantially post-merger. For example, with estimates of collusive profits, competitive profits, and cheating profits, one might find that pre-merger, the discount factor δ required to sustain collusion among all market participants must satisfy $\delta \geq .9$, and that following the elimination of one market participant via merger, this constraint is relaxed to $\delta \geq .8$. The interpretation here is that collusion is more likely because post-merger there are more discount factors ($.8 \leq \delta < .9$) that support collusion.¹⁹ Such approaches typically only consider the formation of an industry-wide cartel, and do not attempt to verify whether the oligopolists' discount factors are in the appropriate range.²⁰

A complimentary approach is to use merger simulation to focus on the potential gains from collusion in a static game. If collusion would not significantly increase profits pre-merger, but does so post-merger, then one may conclude that market participants have greater incentive to solve the problems associated with forming and maintaining a collusive agreement. This quantitative approach, like others that address

¹⁸ One source for this approach is Richard Posner, *Antitrust Law: An Economic Perspective* (2001). See also the discussion in Andrew R. Dick, "Coordinated Interaction: Pre-Merger Constraints and Post-Merger Effects," *George Mason Law Review* 12 (2003).

¹⁹ Of course, if $\delta < .8$, then this type of collusion is infeasible pre- and post- merger, and if $\delta \geq .9$, then the analysis suggests collusion is feasible pre- and post-merger. This method of analysis, then, suggests the possibility of coordinated effects (induced by a merger) only for discount factors satisfying $.8 \leq \delta < .9$. More complicated versions of this mode of analysis compute a specific critical discount factor for each market participant.

²⁰ For a discussion of some of the related literature, as well as a presentation of one such approach in a differentiated product Bertrand setting, consult Pierluigi Sabbatini, "How to simulate the coordinated effect of a merger," *Autorita Garante Della Concorrenza e Del Mercato, Temi e Problemi* volume 12 (2006).

coordinated effects, does not provide a sharp prediction about when mergers will induce collusion or worsen a collusion problem.²¹

²¹ For one approach, including a discussion of the *Arch Coal* bid market merger investigated by the Federal Trade Commission, consult William E. Kovacic *et al* (2006) “Quantitative Analysis of Coordinated Effects” available: <http://faculty.fuqua.duke.edu/~marx/bio/papers/QACE1.pdf>.

EUROPEAN COMMISSION

1. Introduction

The competitive analysis of bidding markets poses a number of challenges and opportunities for a competition authority and also for merging parties. On the one hand, bidding data often provides useful insights into the competitive dynamics of a market and potential merger effects. On the other hand, structural indicators, such as market shares and HHIs, may have little or no connection to market power in a bidding market.

Parties' lawyers often use the presence of bidding markets to argue that high market shares created by a transaction are not indicative of market power. While this may or may not be true in a given situation, detailed bidding data, which are sometimes available in these markets, can enable the regulator to gain more accurate information about the competitive dynamics of a market than would be possible from market shares and other techniques. Where bidding data can be collected with reasonable resource deployment and can be verified (for example, by collecting similar data from several sources), it should therefore be used.

We refer to Prof. Klemperer's paper and other references quoted by the organisers of this workshop for details on the theory of bidding markets. While the theory has been explored in some depths, its implementation in cases can be challenging. Firstly, the theory of harm needs to be tailored closely to the facts of each individual case, as the competitive impact of a merger in a bidding market depends crucially on the structure of the bidding contests in which the product is sold. By contrast, the formal context in which the bidding takes place, for example by public tender or through informal bids solicited by customers, is not decisive. In some settings, for example, when most sales are made in a small number of large auctions, products and suppliers' costs structures are fairly homogeneous and output is not constrained by capacity, bidding markets can generate competitive outcomes even when they are very concentrated. Market shares at any given moment provide little or no guidance about market power in these situations. However, the opposite may be true if the bidding market in question does not have these highly competitive characteristics.

Secondly, bidding analysis can be resource-intensive, both for the competition authority and merging parties (and other market participants) who have to supply the necessary data. A careful cost-benefit analysis, taking into account the time constraints of the procedure is therefore necessary. For example, a more extensive analysis may be feasible in Article 81/82 cases than in mergers, where time limits are particularly strict under EU jurisdiction.

The Commission's Horizontal Merger Guidelines do not contain a separate section on bidding markets. This follows from the fact that the formal context in which market participants interact is by itself unlikely to be a decisive determinant of market outcomes. However, the Guidelines recognise the role of bidding data as source of information, for example, to "measure whether historically the submitted bids by one of the merging parties have been constrained by the presence of the other merging party"¹. Likewise, the Guidelines state that market shares must be interpreted in the light of market conditions. They are

¹ Horizontal Merger Guidelines, paragraph 29

particular weak indicators of market power in settings that Klemperer characterises as “ideal” bidding markets. However, in other settings, market shares (or, rather, HHI² levels) may be correlated with market power.³

The Guidelines reflect fairly accurately the approach the Commission has taken in market investigations involving bidding markets. Like any competition investigation, the analysis of bidding markets, once the relevant markets have been defined, typically proceeds in three basic steps: formulation of an appropriate theory of harm, collection of data to validate the theory and, finally, assessment of the merger against the data. The remainder of this paper will therefore focus on the implementation of bidding analysis in some of the Commission’s merger investigations of the past few years. The five case studies span a range of industries and highlight some of the challenges frequently encountered in the analysis of mergers in bidding markets. There were, however, many more cases where bidding markets were analysed in one way or another. We conclude by presenting a number of lessons that we believe can be drawn from the cases and the literature on bidding markets.

2. Merger cases involving bidding analysis

2.1 *Siemens/ VA Tech (M.3653): Hydro Power Equipment*

One of the most recent cases where bidding analysis played an important role for the outcome of the investigation is Siemens/ VA Tech. The case was closed on 26 April 2006 following the successful sale, after an auction process organised by Siemens, of VA Tech’s hydro power business to Andritz, an Austrian engineering group.

Both Siemens and VA Tech, which is the largest Austrian-based industrial group, were active in a wide range of technology and engineering sectors. The companies supplied major components for products such as power plants, trains, railway infrastructure, steel plants, electricity distribution systems, cable cars and others. The notified merger consequently led to horizontal overlaps in numerous product markets. The Phase II investigation concluded that the transaction would significantly impede effective competition in two markets, hydro power equipment and metallurgical plant building. The case was cleared subject to divestiture commitments, which eliminated the horizontal competition concerns in these markets. Bidding analysis played a role particularly in the hydro power equipment market.

Hydro power equipment includes all the mechanical and electrical components of a hydro power station, such as turbines, generators, controls, valves etc. (but not civil works, such as dams). Both Siemens and VA Tech were active in this market, Siemens through Voith Siemens, a joint venture with German engineering company Voith. Because all major suppliers of hydro power equipment cover the full range of components, supply-side substitutability led the Commission to define a single relevant product market for hydro power equipment. The geographic market was found to be EEA-wide in scope. All of the major manufacturers (Voith Siemens, VA Tech, Alstom and GE Hydro) participate successfully in tenders throughout Europe and, indeed, worldwide. However, the European market differs from other world regions in so far as Asian suppliers (mainly based in China, India and Japan) have been entirely absent and are not recognised by customers as credible bidders.

Most hydro power equipment is sold in tenders which have the characteristics of winner-take-all bidding contests. Most demand in Europe is for the replacement of parts of existing hydro power plants. By contrast, greenfield projects and full refurbishments, where the entire electrical and mechanical equipment is replaced, are comparatively rare. Consequently, hydro power equipment is sold in a large number of

² Herfindahl-Hirschman Index

³ Horizontal Merger Guidelines, paragraph 15

relatively small tenders involving very different products and specifications. This observation, combined with other factors (such as product differentiation and the cost of submitting bids) led the Commission to conclude that market shares do contain significant information about market power in this bidding market. In the case, they were the result of several hundred purchasing decisions by a large number of customers. At the same time, they reflected suppliers' decisions to participate in a bidding contest with a given set of tender specifications. The parties' high combined market share of [40-60]% therefore led the Commission to presume that Voith Siemens and VA Tech were exercising an important competitive constraint on each other, which would be lost post-merger. Apart from the detailed survey of customers and competitors and their internal documents, bidding data played an important role in verifying the merging parties' competitive interaction.

The Commission collected data about tender participation from Voith Siemens and VA Tech, as well as from their main competitors, Alstom and GE Hydro. Ideally, a bidding analysis would have been conducted on the basis of aggregated bidding data from all sources. However, two obstacles made such an analysis unfeasible: First, all firms considered their bidding information as highly confidential. And secondly, it proved impossible to match individual tenders from the different sources as dates and project names differed in many cases and it remained thus unclear whether a given data point related the same tender or to separate tenders within a larger project. The competitor data nevertheless enabled the Commission to conduct important cross checks of the Siemens data.

The nature of the tender process in this case meant that important information could be derived from the identity of the bidders in a given tender. As bid submission is costly, only those companies that expect to have a reasonable chance of winning (for example, because they can meet the tender specifications) are likely to participate. Frequent interaction of certain companies over a large number of tenders would therefore indicate that they offer close substitutes and, thus, exert strong competitive pressure on each other. This type of information is a significant improvement on market shares because not the winning bid (which is represented by market shares), but the second-best bid is particularly important for the outcome of a bidding contest. Hence, if Voith Siemens and VA Tech rarely participated in the same tenders (for example, because they covered different market segments), the competitive impact of the merger would be small, despite the large market share addition.

The tender data, thus, provided important information about the competitive interaction of the four leading hydro power equipment manufacturers and of the fringe suppliers. In this case, it turned out that Voith Siemens and VA Tech were the companies that interacted most frequently with each other by various measures. Together with other sources of evidence and the market shares, the bidding data formed a robust case indicating that the elimination of VA Tech as an independent bidder would significantly impede effective competition in the hydro power equipment market by creating a dominant position of the merged entity Siemens/VA Tech.

It is in some markets possible to estimate econometrically the quantitative impact on prices of a proposed merger. However, in many cases, the extent and quality of the available bidding data is insufficient for such an approach. In hydro power equipment, like in many other engineering markets, the price of a given project depends primarily on the technical specifications rather than the number of bidders. In some markets, the winning bid may be selected not only on the basis of price, but on a combination of price, quality and other, not directly observable, factors. In Siemens/ VA Tech, the value of individual auctions ranged from thousands to millions of Euros and was not easily accounted for econometrically. This and other complexities, as well as pure incompleteness or unavailability of suitable data, can be challenging to overcome within the time limits of a merger investigation.

The approach applied in Siemens/ VA Tech balances the objectives of an effects-based approach based on a variety of available evidence with the time constraints of the EU merger procedure and the need to provide clear and predictable rules for merging parties.

2.2 Siemens/ Drägerwerk/ JV (M.2861): Medical Equipment I.

The approach to bidding analysis taken in the Siemens/ VA Tech decision was similar to an earlier case involving Siemens. The company's joint venture with Drägerwerk, a German medical equipment manufacturer, involved the merger of the two firms' medical ventilators, anaesthesia delivery systems and patient monitoring businesses.

The merger brought together the two leading players in Europe in ventilators and it also led to high market shares in anaesthesia delivery systems, where Dräger Medical already had a strong position across the EEA. Apart from leading to high market shares, the transaction also removed a particularly close competitor, therefore significantly increasing Siemens/Dräger's market power vis-à-vis its customers (hospitals). The market concerned had undergone a significant consolidation in recent years, as the main players had become bigger through the acquisition of the smaller manufacturers to the extent that they could offer a wide range of medical equipment to hospitals. Whilst many hospitals welcomed the increased efficiency of a "one-stop-shop" on the supply side, they were also concerned that competition would be significantly reduced. In response to the competition concerns raised by the Commission, the parties undertook to divest Siemens's Life Support Systems unit, which includes the company's world-wide anaesthesia delivery and ventilation business. This removed the horizontal overlap between the activities of Siemens and Dräger in this field.

Like hydro power equipment, the medical equipment in the Siemens/ Dräger transaction involved highly differentiated products. Most purchases were made through bidding contests for tenders published by hospitals. Physicians were found to have very strong preferences for certain products, which was reflected in the tender specifications. The preferences appeared to be based on a combination of technical requirements for a given clinical area (e.g. intensive care unit, operating theatre, emergency transport, etc.), but also soft factors like staff's personal experience, ergonomics, etc. Given the safety-critical nature of the products, medical staff appeared to have significant leverage over hospitals' commercial departments when setting tender specifications.

As a result, significant information about suppliers' product positioning could be gained from the identity of bidders involved in bidding contests. Given that participation involves costs, and knowing that hospitals would only accept fully-compliant bids, only companies that meet a given tender specification would be expected to submit a bid. The parties' frequent interaction in bidding contests, relative to other competitors, therefore provided strong evidence that they supplied close substitutes. As in Siemens/ VA Tech, the conclusions from the bidding analysis were complemented by a market survey and companies' internal documents, which together formed a robust case.

2.3 GE/ Instrumentarium (M.3083): Medical Equipment II.

The Commission in this case attempted to estimate quantitatively the price impact of a merger in the bidding market for various types of medical equipment. Bidding analysis played an important role, among other elements, particularly in the market for perioperative patient monitors, which was one of several markets affected by the transaction. Perioperative patient monitors are used in the perioperative area, i.e. primarily in the operating rooms as well as in the induction and recovery rooms, in order for anaesthetists to monitor the patient's vital signs.

Apart from leading to high market shares in several Member States, the transaction had the effect of reducing the number of credible competitors from four to three (GE/ Instrumentarium, Siemens and Philips). Nevertheless, the question arose whether the merger was bringing a significant change to the market. GE's position on the perioperative monitoring market was not as strong as that of Instrumentarium, and the overlap was therefore limited, ranging from 5% to 15% depending on the country.

Competition in the market for perioperative monitors was driven primarily by product differentiation, whereas capacity constraints appeared to play no significant role in manufacturers' decisions on price and quantity. Individual customer preferences were reflected in the technical specifications of the tender limiting the number of eligible bidders for a specific project to those suppliers meeting the given set of requirements. According to the Commission's market investigation, winning bids were not necessarily allocated to the lowest-price bidder, but to the supplier that best meets the individual hospital's requirements on both technical and economic grounds. Anaesthetists effectively played a key role in selecting equipment.

Given the specific features of this case, the Commission sought to supplement its qualitative assessment with statistical and econometric analyses of past tenders. This exercise was aimed mainly at gathering additional evidence to estimate the competitive constraints that the various players, and in particular the merging parties, exercised on one another. The Commission thereby went a step beyond its analysis in earlier medical equipment cases (Siemens/ Dräger, Philips/ Agilent and others), attempting to estimate quantitatively the price impact of the elimination of competition between GE and Instrumentarium.

To this end, each major supplier of perioperative monitors (Instrumentarium, GE, Siemens and Philips) was requested to provide electronic files containing precise information about all the tenders in which it took part in each of the fifteen member states over the past five years. For each tender, it had to specify the hospital, the date and the equipment at stake as well as the price offered (and the discount off the price list when possible), which companies were present, which one won the tender and which one was the second best (the "runner-up").

In addition, the parties were requested to provide the invoices of all the bids they won, the related bidding documents and their price lists in order for the Commission to analyse in greater details how the tenders unroll and to compute the discounts offered by each of the merging parties when they were missing. Hospitals were also contacted to supplement any missing information (e.g. identities of the competitors present in a given tender). This allowed the Commission to compile a database containing information from several thousand tenders across the fifteen Member States.

Based on this database, the Commission conducted two types of empirical analysis. First, it computed summary statistics of the various tenders (statistical analysis), and secondly, it sought to measure to what extent the presence of one of the merging parties in a given tender had an impact on the price offered by the other (econometric analysis).

The statistical analysis of the various tenders brought to the fore useful information on how the various players competed and how they perceived their positioning in the market place. For example, the Commission computed how often the merging parties encountered each other in the tenders. Because the players cannot take part in all tenders but have to select those whose technical specifications make them believe that they have chances to win, the frequency of encounter is a valuable indication as to how close the merging parties are to each other. As a competitive effect may occur only when the merging parties are both present, the frequency of encounters also provided information on the extent of the likely impact of the merger.

The study showed that GE was not the main rival of Instrumentarium in several countries. It also revealed that GE was indeed by far the most frequent runner-up to Instrumentarium in some Member States, such as Germany, France or Spain. In France, for instance, while GE's market share was below 10% and Instrumentarium's in the range of 40%-50%, GE was the runner-up to Instrumentarium in more than half of the tenders, and in a much higher proportion than Philips and Siemens. This again pointed toward GE being more of a constraint on Instrumentarium than its limited market share may have initially suggested.

The Commission, in a second step, conducted an econometric analysis to estimate the likely price impact of the merger. To this end, the Commission sought to compute to what extent the prices offered by one of the merging parties statistically varied depending on the presence of the other bidders and, particularly, the other party to the concentration.

Because of the highly differentiated nature of the products, it was not possible to directly measure the price impact. Most tenders concerned various pieces of equipment and without additional data on product characteristics it was not possible to control for the price difference that was solely the result of difference in product characteristics. As an alternative, the Commission used discounts off list price. Discounts were pervasive in this market and allowed comparison across bids. However, even the construction of a discount variable proved difficult due to the lack of reliable information. The Commission succeeded to build a meaningful data set for discounts offered by GE and Draeger in tenders they won in France.

Multivariable regression analysis helped identify the effect of Instrumentarium on GE's discount while controlling for other factors that also impacted on the discount, such as the value of the bid or the presence of other players. The Commission estimated a simple, yet robust econometric model. The dependent variable of this reduced form model was the discount offered for GE monitors. The Commission estimated one regression for the discount offered by GE and a separate regression for the discount offered by Draeger when selling GE monitors. In both cases, the regression results showed that the presence of Instrumentarium had an impact on the discount offered on GE monitors. The discount was 2% and 7% higher when Instrumentarium also participated in the bidding. These results were statistically significant, and provided additional evidence that Instrumentarium was exerting a significant competitive constraint on GE.

Based on the qualitative and quantitative evidence collected during the investigation, the Commission came to the conclusion that in five Member States the merger would not only lead to the creation of a new entity holding high market shares but would also remove the significant competitive constraint that the two merging firms exerted on each other prior to the operation. Because fringe players played a minor role in the market the merged entity would thus have had the ability and the incentive to raise prices charged to customers in those five countries.

The case highlights both the potential and also the limitations of estimating quantitatively the price impact of mergers in bidding markets. The analysis can be very persuasive and generate robust evidence when appropriate data sets are available. On the other hand, collecting and compiling data sets can be an extremely onerous task both for the competition authority and market participants. Data quality can be a difficult issue particularly in differentiated product markets because the econometric analysis needs to control for a variety of project-specific variables whose impact on price may be significantly greater than the number and identity of competitors.

2.4 Oracle/ Peoplesoft (M.3216): Enterprise Application Software

Bidding analysis also played a role in the Commission's market investigation in the Oracle/ Peoplesoft merger. The case highlights a number of challenges frequently encountered in this type of

analysis, particularly where highly differentiated products are involved. The following sections provide a summary of some of these issues. However, it should be remembered that bidding analysis was only one of several techniques applied in this case. For example, the Commission also conducted a simple, but quite effective merger simulation.⁴

In the statement of objections, the Commission had partially relied on an econometric analysis of a dataset containing information about PeopleSoft's discounting in 101 competitive bidding situations. These data appeared to suggest a relationship between the number of bidders in a given contest and the discount that was offered by PeopleSoft. The Commission noted that the method of analysis on which this finding was based appeared to be rather crude and simplified and that it was based on a somewhat limited number of bids. In particular, the regression did not control for the project size and other product characteristics. After the Oral Hearing, Oracle undertook to produce a similar dataset based on its historical participation in bidding contests. Oracle produced information regarding bids for EAS suites concerning HR and FMS functionality for the period 2001-2003 where the company or its relevant division had more than 10 000 employees or where the turnover of the company or the relevant business division was in excess of USD 1 billion.

The Commission ran a number of regressions on the dataset provided directly by Oracle, two additional Oracle datasets from the US Court proceeding and the PeopleSoft dataset referred to in the statement of objections. The purpose was to investigate the extent to which the competitive situation of a particular bid (measured by the number and identity of final round bidders) had an impact on the discounting offered by the seller in question (that is to say, PeopleSoft in PeopleSoft's dataset and Oracle in Oracle's datasets).

The Commission generally found that there was a very strong relationship between the size of the deal and the discount offered. Deals that tended to produce very high list prices were overall likely to also attract very large discounts. The Commission also found that in a number of regressions in which this relationship between deal size and discount was not properly taken into account, the discounting behaviour appeared to be affected by the number of competitors. Once the size of the deal was taken into account in the analysis the number of final bidders no longer provided any additional explanatory element over the discount offered and no general pattern emerged regarding the presence of a particular competitor prompting particularly high discounts.

A finding, as in this case, that the number and identity of competitors in a given bid appear not to have an effect on a firm's behaviour does not, in itself, prove conclusively that the merger will have no harmful effects on customers. There may be a variety of reasons why such an effect is absent from the bidding data, not all of them due to absence of competitive harm. One reason for the absence of any effects in the data could be that the quality of the data is low or that it suffers from a bias in selection. Another could be that Oracle (and its competitors), when deciding what to bid, does not consider the information about actual competitors sufficiently reliable to want to base its behaviour on it. A third reason could be that the identity of bidders in the final round is an incomplete picture of the actual competitive process.

Sometimes the competitive pressure does affect the price that a customer can obtain even when it does not result in a direct bidding contest. Mr. Wesson, the CIO from the largest owner and operator of apartment buildings in the US, AIMCO, explained in the US Court proceedings how AIMCO had obtained a very substantial discount from PeopleSoft (70%) in return for closing the deal very fast (PeopleSoft

⁴ Cf. Claes Bengtsson (2005) "Simulating the Effect of Oracle's Takeover of PeopleSoft" in "Modelling European Mergers. Theory, Competition Policy and Case Studies", edited by A.G. van Bergeijk and E. Kloosterhuis, Cheltenham: Edward Elgar, pp. 133-149.

wanted to close the deal fast in order to be able to include the deal in the sales for that particular quarter). Such a deal would appear to be one with no competitors, but it is unlikely that AIMCO could have obtained a similar discount absent a significant competitive pressure on PeopleSoft. Furthermore, the elimination of one bidder before the final round cannot always be considered a final decision. So bidders in the final round may be more compelled to offer an attractive price if they perceive a risk that too high a price offer may lead the customer to reconsider previously eliminated options. Mr. Chianowicz testified that Nextel did not invite SAP into the final round. Yet he stipulated: “we felt, though, that the fact that there were three viable alternatives out there still gave us an opportunity to look at SAP if, in fact, negotiations would fall apart with PeopleSoft or Oracle” (transcript of the US trial 061404.txt 1068:13-17).

It was not necessary for the Commission to reach a conclusion on this issue since it was clear that the absence of an appreciable effect of the number or identity of final round competitors on Oracle’s behaviour made the bidding data unsuitable to rely on as proof of an anticompetitive effect of the merger.

The Oracle/ Peoplesoft case, thus, highlights the insights into a market’s dynamics that bidding analysis can give, even when the variables of interest eventually turn out to be not statistically significant. The one-sided nature of the test underlying standard regression techniques needs to be taken into account when conducting the analysis, for example by collecting both quantitative and qualitative evidence from a variety sources. On the upside, a robust regression result can provide the decisive evidence that takes a case in one direction or another.

The customers in Oracle/ Peoplesoft were sophisticated buyers who had the ability to structure the competitive bidding process in order to exert competitive pressure on the bidders, for example by re-inviting bidders previously excluded from the contest, controlling the flow of information to the bidders about who else was bidding, and similar techniques. This element also played a role in the merger case VNU (Nielsen)/ WPP/ JV, which we discuss in the following section.

2.5 VNU (Nielsen)/ WPP/ JV (M.3512): TV Audience Measurement Services

Auction structure and customers’ ability to adjust the structure of a bidding contest so as to achieve competitive outcomes played an important role in this case. It concerned a joint venture between VNU of the Netherlands and Britain’s WPP, which brought together their television audience measurement (TAM) services outside North America. TAM involves the estimation of nationwide or local television audiences on a more or less continuous basis. The resulting information -- so called ‘ratings’ -- and other information on viewing patterns are primarily used by program producers, broadcasters, publishers, media planners and airtime buyers to determine the most effective way of reaching consumers and viewers.

In each Member State, only one TAM service provider was active, with the exception of Poland where two providers offered their services. The reason for choosing only one provider was the preference of the demand side for a common source of rating. Besides VNU and WPP, there were only two other important providers of TAM services in Europe: The UK based TNS and the German based GfK. The relevant geographic market was found to be EEA-wide.

The Commission’s market investigation showed that VNU, WPP, TNS and GfK all had to be considered as credible bidders for TAM contracts in the EEA. All companies had significant market shares by various measures, with VNU trailing somewhat behind the remaining firms. All of the four majors had submitted bids in a variety of countries and customers considered them to offer strong and credible technological platforms. The notified transaction, thus, decreased the number of credible bidders for TAM contracts in Europe from four to three.

The demand side of the TAM services market is concentrated and highly organised. There are basically two models for the provision of TAM services. (1) The industry concerned sets up an organisation which selects a TAM service provider and negotiates the terms of the supply of data. In general, the organisation has the ownership of the data and sells them to third parties. If the organisation is set up by TV stations, media buyers and advertisers, it is called Joint Industry Committee (JIC). In the JIC model, the TV stations usually hold the majority. Where the organisation is set up only by TV stations, it is called a Media Owner (MO) model. (2) The TAM service provider sets up and operates TAM services on his own account. In this Proprietary Service (PS) model, the service provider retains the ownership of the data and supplies them to several different customers on the basis of individual contracts.

In particular, the tenders organised by the JICs, which essentially group the entire demand side, tend to produce competitive outcomes, provided the auction is well adapted to the prevailing market setting and intended to attract competitive bids. In these winner-take-all auctions, competitors submit bids to become the sole supplier of TAM data in a given country for a period of five to seven years (with possible extensions). A JIC, thus, exercises significant buyer power as far as its territory is concerned. Due to the relatively long contract term, tenders occur infrequently. The market investigation found that less than 15 such tenders had taken place in the past 12 years. There existed, therefore, a strong incentive for each competitor to win these auctions.

The main factor that discourages aggressive bids is the cost advantage enjoyed by the incumbent supplier. The cost advantage arises from the fact that a large proportion of costs involved in TAM services, such as panel selection, installation of “people meters” in the viewers’ homes, software development etc., is up-front (and largely sunk). Competitors may, thus, be discouraged from bidding against an incumbent because they know that their bids are unlikely to succeed, except if they have underestimated (overestimated) the costs (potential revenue) from the contract (the “winner’s curse”). However, JICs can declare whether an incumbency advantage exists in a given auction and the evidence suggested that this had had a strong impact on the outcome of TAM auctions. For example, BARB, the UK JIC, in its 2000 auction had indicated that it wished to restructure its TAM system and that a change of supplier would be welcomed, leading to a very aggressive winning bid. By contrast, the Dutch and Belgian auctions generated little interest from new bidders because they were perceived as intended mainly to put pressure on the incumbent.

Because of the “incumbency effect”, a reduction in the number of credible competitors from three to two (instead of four to three) would therefore be likely to raise competition concerns in this market structure, because it would leave only one alternative bidder in cases where the customer has a preference for changing to a new supplier.

The Commission investigated, further, whether the elimination of competition between WPP and VNU would have had a significant competitive effect, for example because they were closest substitutes in terms of costs or technology, or because VNU may be a particularly aggressive bidder.

However, an examination of the 15 tenders that had occurred over 12 years gave no indications that ACNielsen and WPP may be particularly close substitutes. ACNielsen was only active in JIC/MO models in the northern part of Europe, whereas WPP covers all models in the whole of Europe. ACNielsen and WPP were only in a limited number of tenders as direct competitors [numbers confidential]. By contrast, the market investigation confirmed that WPP and TNS are close competitors. They are present in all models and took part in a number of tenders as direct competitors [numbers confidential]. Their bids were perceived by customers as competitive. TNS also competes with ACNielsen (even though ACNielsen only covers parts of TNS’ activities). In several tenders it was in direct competition with ACNielsen [numbers confidential]. Hence, as far as the small number of tenders allowed any conclusions, TNS, and not VNU, appeared to be WPP’s most direct competitor.

VNU, in view of its to date limited presence in Europe, might be expected to act as a particularly aggressive competitor in order to win additional TAM contracts. However, the market investigation did not support this hypothesis. VNU appears to have focused on tenders in mature northern European markets. For about ten years, VNU has not expanded its presence beyond two profitable contracts in Ireland and Sweden and a JV in Finland. This assessment was confirmed by customers and competitors, none of which identified VNU as a particularly aggressive competitor.

Competition in countries where TAM services are supplied under the PS system differs from JIC market in so far as no infrastructure exists at present for customers to tender jointly for TAM services. As parallel TAM services are generally not viable because customers prefer a “single currency”, the supplier who first entered a market not served by TAM (mostly Central and East European countries) typically continues to enjoy a monopoly position. The most likely route to replace an incumbent supplier is either through formation of a JIC or by initiative of a large national TV station (i.e. effectively formation of an MO model). The notified transaction does not alter this competitive situation.

The Commission also considered whether the reduction of suppliers from four to three may enable competitors to tacitly co-ordinate their bidding behaviour in future tenders. Because of the incumbency advantage described above, TAM suppliers could, in particular, adopt a strategy whereby they defend their existing incumbent markets while refraining from bidding aggressively in markets outside their incumbent territory. However, such co-ordination is complicated by the fact that tenders occur infrequently and contract values vary widely (due to country size and technology). Winning a new contract is, thus, a relatively rare and valuable opportunity, whereas opportunities for competitors to retaliate against an aggressive bidder are equally rare. Further uncertainty is added by the fact that the timing of future tenders is difficult to anticipate, as contracts are often extended for one or two years without new tender. In view of these circumstances, and because there were no indications that co-ordination had already occurred in past tenders, the merger did not raise concerns with regard to co-ordinated effects.

In conclusion, although the transaction reduced the number of credible suppliers of TAM services in Europe from four to three, the market investigation indicated that three competitors would be sufficient in the TAM market to generate competitive outcomes. Rivalry between WPP and TNS (and not VNU) had been the main driver of competition in past auctions. In addition, customers, who combined the entire demand in a given country, were found to have significant power to structure auctions so as to encourage competitive bids.

3. Conclusions and Lessons

3.1 *Market shares and their evolution over time contain valuable information*

Market shares can be a good starting point also for the analysis of bidding markets. They represent real purchasing decision by customers based on a variety of factors, in particular prices and product characteristics. Market shares therefore contain important information. The larger the number of transactions underlying the market shares, the richer this information is likely to be. The evolution of market shares over time provides additional information. It is not likely, *à priori*, that consistently high market shares achieved by a given firm are a random outcome, even in a bidding market.

As mentioned above, when most sales are made in a small number of large auctions, products and suppliers' costs structures are fairly homogeneous and output is not constrained by capacity, market shares may indeed not be related to market power. However, one would typically expect market shares in these markets to fluctuate significantly over time. Market shares can therefore also give first indications about how the market may function.

3.2 *Construct realistic model of competitive interaction*

The impact of a merger on competition depends to a large extent on the parameters by which firms compete. This is true whether purchases are made via auctions or any other mechanism. It is therefore important to construct a realistic model of firms' competitive interaction. Relevant factors include product differentiation, capacity constraints, firms' relative costs, the frequency of interaction, the relative size of individual orders, uncertainty, information asymmetries, barriers-to-entry and similar parameters.

3.3 *Find right balance between investigation technique, data availability and time constraints*

Econometric techniques can provide important, and sometimes decisive, evidence for a case. In bidding markets, competitors and/ or customers often keep records of past bidding contests. These can be valuable sources of information, in particular when they can be aggregated or verified by alternative data sets or other evidence. Aggregation of large data sets can be challenging as records are often kept in different formats and are often not consistent across different sources. Separate analysis of different data sets can in these cases still yield valuable information.

Complexity needs to be balanced against data availability and the time constraints of the procedure. Time constraints are a particularly important issue in EU merger investigations. We tend to try to keep it simple, but we also feel that it is sometimes worthwhile trying more ambitious approaches, even if these may not always succeed in producing totally robust outcomes.

3.4 *Look at variety of evidence*

Quantitative and qualitative evidence from a variety of sources, in combination, tend to produce the most robust results. This includes not only bidding data, but also market surveys (information requests to customers and competitors, interviews), firms' internal documents, independent market reports and similar information.

3.5 *Outlook*

The Commission has over time analysed a significant number of mergers in bidding markets. Like in other areas of competition policy, tools have evolved over time. As we have outlined above, that fact that purchases are allocated in bidding contests opens additional opportunities for empirical analysis, but it does not fundamentally alter the nature of the competitive analysis. Like other sources of evidence, bidding data can help us understand the competitive interaction of firms and, hence, the effects of a merger, in these markets.

INDONESIA

Indonesian Experiences in Law Enforcement and Advocacy on Bidding Market

1. Introduction

Government's policies in commerce liberalisation push the make-up of competition between business parties to be more efficient in their operational activity. So that competition can be executed properly, a conducive competitive environment and equal opportunity is needed. With this condition, concentration of economics strength at selected parties can be reduced. But in reality, there are quite a lot of perpetrators which try to get market power through competitor disservice, either through demarcation of market and creation of agreement through cartelisation. Winning tender through collusion is one of the examples conducted by business actors to improve his market power. For KPPU, collusive tender are cases which pull its most attention in case handling, because from 450 reports obtained since year 2000 till June 2006, half of them (209 reports) related to tender, either public procurement or auction.

2. Definition of Tender

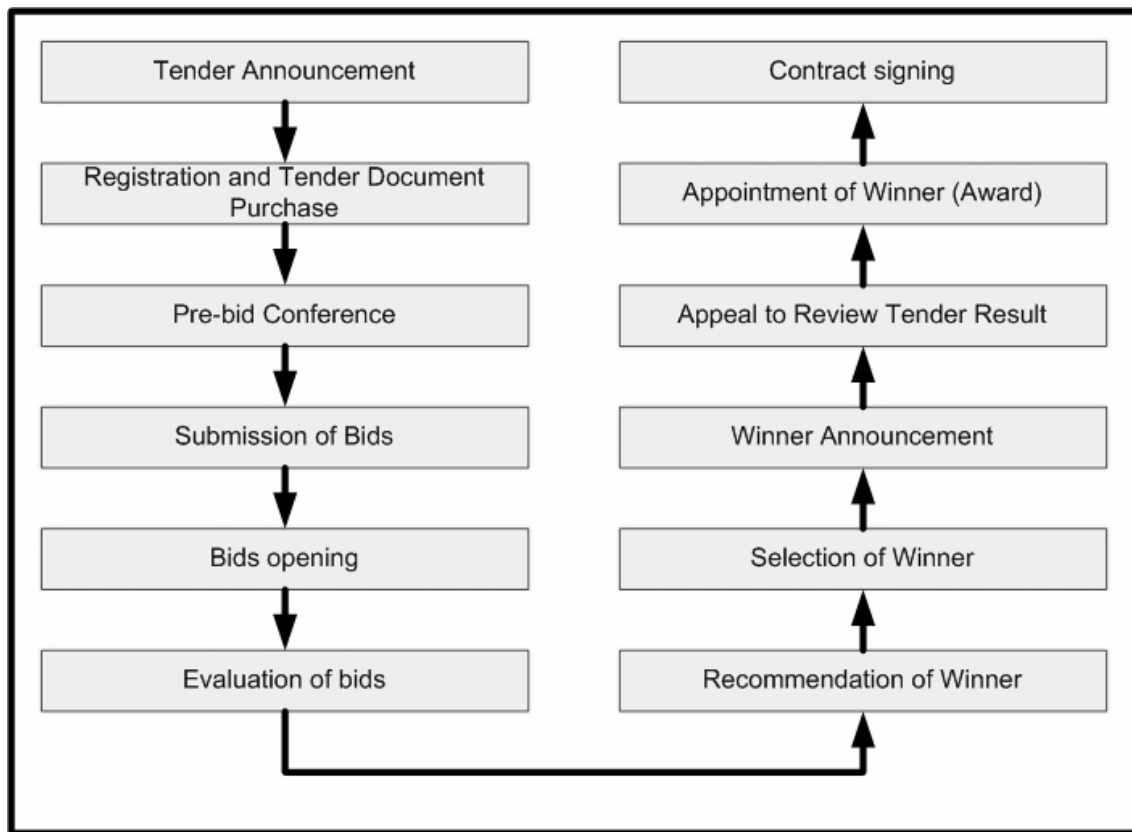
Tender in Indonesia is recognised by two terms, that is public procurement for the purchase of goods/services and auction for the sale of goods/services. Pursuant to definition in Presidential Decree No. 80 / 2003 and its several revisions, public procurement is provision of goods/services through self undertaking or by the supplier of goods/services. Auction is sale of goods in public led by Auction Officer through open/oral bidding or closed/written bidding, preceded by auction notice. By definition, public procurement is purchasing of goods/services, while auction is sale of goods. Both types of tender can be executed by any party, both private sector and government. Law No. 5/1999 gives authority to KPPU to observe collusive tender, public procurement and auction, conducted by government, public companies, Central Bank, and private enterprises having broad public interest.

Bidding market in Indonesia, as so also in many other countries, consists of public procurement of goods and or services and auction. Public procurement in Indonesia is differentiated to several methods:

- a) public tender is selection of provider or purchaser of goods/services, conducted by open announcement so that interested and competent players can follow;
- b) limited auction is selection of provider or purchaser of goods/services, conducted for limited number of qualified players;
- c) direct election or appointment of one player under certain justified condition.

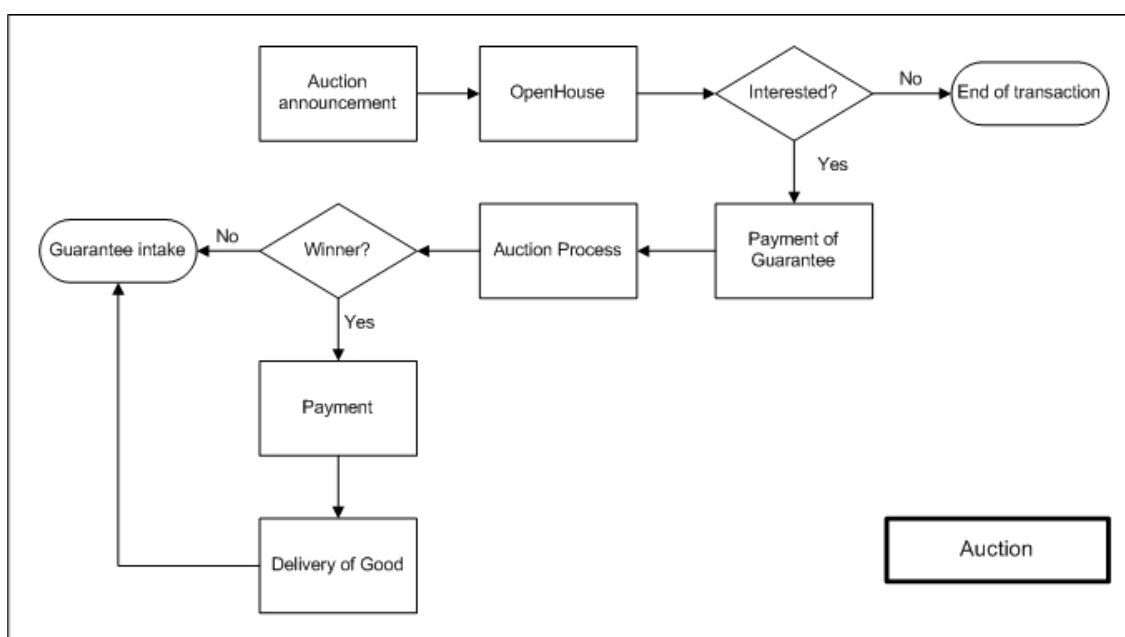
3. Process of Tender

Procedure of public procurement set up by government through Presidential Decree No. 80/2003 with its several revisions. Procurement procedure conducted by private sector and donor institute is set up by themselves. The process for public procurement of goods/service is a little different with auction in the case of duration and procedure. Following is a procedure for public procurement in Indonesia.



Process of tender started with tender announcement, followed by registration and purchase of tender document. After document obtained, a pre-bid conference will be organised. Pursuant to the pre-bid conference, tender participants are given sufficient time to prepare and hence submit their bid. After submission of bids closed, public opening of bids and evaluation of bid documents will be held. Result of bid documents evaluation will be used as base for recommending the winner. Bidders are given expostulating period to review tender result, and only after that tender winner is decided and award is given, followed by signing of contract.

Different with public procurement of goods and services, auction followed more simple process. Auction is usually started with announcement, followed with an open house. Payment of auction guarantee is made along with registration to participate. Through bargain process in open auction, winner decided to the highest bidder. This is different with public procurement which also can involve quality as one of the winner criteria. Following is a procedure for auction in Indonesia.



4. Relevant Competition Issues in Tender

There are several important issues related to promotion of competitive environment in tender, i.e. preparation, announcement, owner's price estimate, and evaluation criteria.

4.1 *Tender preparation*

Planning stage is an important step in tender process because setting up of conditions and specifications will determine the quality of goods/services to be obtained. Appointment of independent tender committee, not related to any participant is a must. In many cases handled by KPPU, the stage of tender preparation is the phase where collusion is mostly conducted. Unfortunately the government only stipulates the no-blood relation with official who appoints members of tender committee, and not stipulates yet any affiliate with business players.

4.2 *Tender Announcement*

Government sets that for an open tender valued up to Rp 1.000.000.000 (US\$ 110.000) is announced in at least one local newspaper or one national newspaper for tender with less than three players in the area could participate. Open tender valued more than Rp 1.000.000.000 (US\$ 110.000), announcement is obliged to be executed at both newspapers (local and national). National and local newspaper is decided by government official in charge. National newspaper decided by Head of National Planning and Development Agency pursuant to recommendation of Minister of Communications and Informations, while local newspaper decided by Governor. Selection process of the newspapers is made through open tender.

Another point which invites attention of KPPU in tender announcement is the inclusion of candidate participants in a limited tender notice. Inclusion of the names of invited participant candidates will surely open opportunity for the perpetrator to conduct collusion. A case like this had advocated by KPPU to a regent when it announced a limited tender for development of stadium in his regency.

4.3 *Owner's Price Estimate*

User of goods/services is obliged to have owner estimate (OE) calculated by proper expertise based on relevant data. Owner estimate is made by tender committee and decided by user of goods/service. Owner estimate used as a means to evaluate the genuity of his, including the detail, and to decide the amount of bond value, but cannot be made as basis to disqualify. In practice, owner estimate is often leaked by members of tender committee who collude with tender participant; so that in several cases KPPU found that some bid prices came very near to owner's estimate.

4.4 *Assessment Criteria*

There are three assessment methods of tender document in Indonesia; three are one envelope method; two envelopes method, and two stages method. One envelope method is submission of bid document consists of clauses of administration, technical, and price put into one envelope. Two envelopes method is submission of bi document consists of clauses of administration and technical packed into one envelope, while bid price packed into another envelope. While two stages method is submission of bid document consists clauses of administration and technical submitted first, while bid price submitted sometime later after the evaluation of the first bid document.

Whichever method is followed, the evaluation criteria should specify the score of each criterion: administration, technical and price.

4.5 *KPPU's Effort in Promoting Fair Competition in Tender*

Various efforts have been undertaken by KPPU in preventing collusive behaviour in tender, for example conducting various socialisation and advocacy with central and local government, public enterprises, academicians and students, business actors, and trade associations. To support the law enforcement in tender, KPPU has also signed memorandum of understanding with Anti-Corruption Commission, to handle tender cases which involves government officials. Besides that, KPPU has also published a Guideline of Prohibition of Collusive Tender according to the Law No. 5/1999 comprises coverage of tender targeted by competition law, explanation of types of collusion, and various indications of collusive behaviour which often happened in each step of tender. To socialise the guideline, KPPU has disseminated it to entire central and local government offices throughout Indonesia.

Since last year, Indonesia has launched the acceleration program of infrastructure development through Infrastructure Summit 2005 and Indonesia Infrastructure 2006 next month in many sectors i.e.: telecommunication, toll road, airport, seaport, energy and mining. Most of the projects are offered through tender. KPPU's focus its attention to observe on how the tender is executed so that fair competition *for* the market can be maintained, and after the tender, where often monopoly or regulated sector policy involved, competition *in* the market is also fairly maintained.

4.6 *Case Handling Related to Tender*

Tender collusion cases which have been handled by KPPU were variative, involved public procurement and auction in regional and national level. Types of collusion faced cover all types of collusion: vertical, horizontal, and combination of both. Types of industry or business activities coped with are also very wide, for example oil and gas industry, telecommunication, capital market, insurance, pharmacy, and transportation. Follows are some cases in casing and tubing tender, procurement of indelible election ink for National Election and tender of security service.

4.6.1 *Case of Casing and Tubing tender by Caltex Pacifik Indonesia (CPI)*

The Commission for the Supervision of Business Competition (KPPU) found CPI, an oil company, and three pipe processors, Citra, Purna, and Patraindo, guilty of bid-rigging in violation of Article 22 of Law Number 5 of 1999, resulting from a tender by CPI to supply it with pipe. Citra, Purna dan Patraindo (pipe suppliers) were found to have exchanged their prices with each other at a meeting the evening before the bids were opened. CPI, in turn, was held responsible for failing to “exercise[] adequate prudence in ensuring fair business competition,” because in setting up the tender process it “should have expected from the beginning that a collusion would occur.” Purna and Patraindo were compelled to obtain a support letter from Citra in order to complete tender requirement.

As a consequence of the violation, the KPPU required that the contract entered between CPI and Citra, the low bidder, be undone, and that the entire tender process be re-done. CPI has accepted the KPPU’s verdict and has not sought an appeal to the district court.

The procurement process required that bidders be able to deliver both low-and high-grade pipe; it specified that only one vendor would be awarded the contract; it established the contract term for three years; it limited the source of the pipe to Indonesian companies; and it required that the winning bidder had to have the ability to perform in-country heat treatment for its pipe. Companies that could only process low-grade pipe were permitted to submit bids, but only if they included a “letter of support” from a high-grade pipe processing company, agreeing to supply the low-grade processor with thigh-grade pipe. The use of letters of support is a common practice in this industry.

Before beginning the tender process, CPI conducted assessments of eight potential contractors. These assessments included an evaluation of the source of the pipe, a review of each companies’ financial capabilities, and other factors. Based on the assessments and a meeting of the Joint Committee of the Government and CPI, CPI determined that only four processors – Citra, Purna, Patraindo, and Seamless -- would be invited to submit bids. Furthermore, three partnership were deemed acceptable by CPI for submitting joint bids: (1) Seamless and Bakrie; 2(Citra; and (3) Patra, Purna, and Multi Guna.

Two months before the bids were to be submitted, Citra sought permission from CPI to form a “consortium” to manage the entire contract, in lieu of using the tender process. CPI rejected Citra’s proposal as inconsistent with its procurement system, and this rejection was approved by Indonesian government representatives.

On May 1, 2000, the day before the bids were to be opened, Citra, Purna, and Patraindo met in a hotel in Jakarta to discuss their bids. At this meeting, Citra agreed to give both Purna and Patraindo letters of support, conditioned on Purna and Patraindo agreeing to reveal to Citra the bids they intended to submit to CPI. Purna and Patraindo shared their bids with Citra, and Citra gave them letters of support. Additionally, Citra promised Purna some work under the contract, should Citra be awarded the contract.

The KPPU uncovered substantial evidence of a bid-rigging conspiracy. In particular, the events that took place at the meeting in the Jakarta hotel between Citra, Purna and Patraindo, on May 1, 2000, in which the parties exchanged their bids the day before they were to be opened by CPI, constitutes sufficient evidence of illegal bid rigging under most nations’ antitrust regimes.

4.6.2 *Case of Procurement of Indelible Election Ink*

The case was based on the report concerning a collusion indication in indelible election ink procurement for legislative general election of 2004 held by National Election Commission (KPU). The case is combination of vertical and horizontal collusion, between the Tender Committee and the business

players, among the business players, and between the Tender Committee and the consortium of business players. According to investigation conducted, KPPU found that collusive conduct is made through limiting the source of ink from India, memorandum of understanding among the tender participants, narrowing the criterion on experience of import to facilitate a consortium to pass, illegal changes on bid price, and a journey of Tender Committee to India financed by tender participants.

Evidences of collusive conduct in this case come from the following findings:

- a) Clauses to form consortium with unclear criteria that opened entrance for perpetrator of unknown business actors;
- b) Special opportunity given to an unqualified consortium to participate in the tender;
- c) Additional clauses to disqualify certain tender participant, while others had passed under same clauses;
- d) Limiting in ink source to India;
- e) Special opportunity given to certain participant to detail bid document to meet tender requirement after closing;
- f) Agreement of price arrangement and division works among the members of consortium after receipt of award;
- g) Appointment of a consortium though not fully qualified;
- h) Price negotiation to adjust price required for each zones to facilitate certain tender participant as winner.

By those evidences, KPPU decided that the conducts of the Tender Committee with the business actors involved were legally and proven as contravened to Article 22 Law No. 5/1999, and therefore fined and banned all perpetrators to participate in public procurement of goods and or services in National Election Commission (KPU) and its branches for 2 years. KPPU further suggested General Election Committee to take necessary follow up with Tender Committee members and public prosecutors to conduct further inspection on the conducts of the Tender Committee.

4.6.3 *Case of Security Service Procurement*

Security Department of Thames PAM Jaya (TPJ), a drinking water joint venture company, delivered purchase requisition to Department Procurement TPJ for procurement of security service. Pursuant to request, Tender Committee and Supervisor Committee were formed to undertake a tender. Through a long process, finally PT. IST was specified as tender winner.

This case is a vertical collusion between the TPJ with incumbent security service provider (IST). Based on the investigation, KPPU found that a conspiracy was done by giving the exclusive opportunity by tender committee to IST. These are based on the following facts:

1. There was an oral and written communication between Director of TPJ and IST, allowing IST to participate in the tender although IST didn't enlist for pre-qualification;
2. TPJ had an internal meeting to accept IST as a bidder, although it didn't enlist to follow prequalification, only because it was a current security service provider.
3. Tender Supervisory Committee of TPJ added additional assessment criteria after Tender Committee finalised evaluation;
4. There was an internal memo from Tender Supervisory Committee stating there was no intention by TPJ to replace IST as its supplier in security service, claiming the tender was held merely to obtain a market price for future contract. This statement was made after tender evaluation;
5. Tender Committee held price negotiation with IST, but not with another bidder recommended by Tender Committee as a first pick.

Through those evidences, KPPU decided that TPJ and IST were legally and proven contravened to Article 22 Law No. 5/1999. Pursuant to this verdict, KPPU punished TPJ and IST to discontinue security service activities stipulated in a contract made based on the tender result. KPPU punished TPJ to pay for penalty for the collusive conduct and asked TPJ to hold a new tender for security service with great transparency, competitiveness, and fairness for all business actors which are qualified. KPPU also banned IST from participation in procurement of good/services held by TPJ for two years.

5. Conclusion

Collusion in tender cases dominates the law enforcement activities of KPPU. Collusion found in many cases started at planning stage by setting up requirement and specification which lead to certain business players. To reduce the collusion in tender, KPPU has taken various efforts, such as establishing a minute of understanding with Anti Corruption Commission, publication of guideline, and advocacy through policy recommendation. KPPU realises that KPPU alone can not wipe out bid rigging through its enforcement of the law, so that various cooperation efforts either in national level and regional level is necessary, with the policy makers, sectoral regulators as well as with other law enforcers.

ROMANIA

1. Competition advocacy

The RCC considers its advocacy activity as one of the pillars of a proper enforcement record. Exercising its ex-ante role in the enforcement of antitrust rules, the RCC can advise on the competition implications of proposed legislation.

The competition-proofing of new legislation is an essential ingredient in avoiding laws that increase costs to business and consumers. Thus, Government and other public sector bodies closely cooperate with Romanian Competition authority at the planning stage of new legislation in order to find together ways to achieve policy objectives without distorting competition.

1.1 Public procurements

Fostering competition in public procurements is of outmost importance for i) maintaining in place a fully functioning free market economy, ii) for ensuring transparency in the public administration and iii) fighting against corruption.

As a result of various reactions from the market regarding the design of public procurement, the Competition Council assessed the legislation in force at that time from the competition point of view. Consequently, it identified a series of potentially anti-competitive provisions and proposed the necessary amendments in accordance with the *acquis communautaire*.

Based on the inter-institutional exchange of views and also on the extensive consultations with the European Commission, the Romanian Government decided to substantially modify the public procurement legislation in order to eliminate any interference between the different types of public procurement and align the laws to the European Community Directives.

The wide purposes of the new law are: to promote competition, to guarantee equal treatment and non-discrimination, to assure the transparency and integrity of the public procurement process and to assure the efficiency and the efficient use of public funds.

The new legislation established also the National Authority for the Regulation and Monitoring of the Public Procurement.

The selection process was redefined in order to protect competition and to eliminate any possibility for the contracting authorities to take restrictions or unfair administrative measures in the process. The respective public authorities involved are also obliged to protect all the property rights of all bidders.

Within the meetings of the Inter-Ministerial Working Group on competition issues¹, public procurements represented a hot topic, debated in several occasions. The Competition Council invited the

¹ Set up in 2004, at the initiative of Competition Council, the Inter-Ministerial Working Group on competition issues was created in order to promote competition in all sectors and to ensure the prevalence of the competition legislation over the other normative acts.

representatives of the newly created National Authority for the Regulation and Monitoring the Public Procurement to participate in the meetings. They took this opportunity to promote the new legislative framework on public procurement and to present their competences, which include monitoring and control of contract allocation.

1.2 Auction design and redesign in practice

According to the provisions of the Competition Law, the Competition Council may state its point of view on aspects of competition policy at the request of various bodies, including professional, employers' and trade union organisations. The points of view are examined in plenary sessions and then communicated to the relevant parties.

In 2006, the Competition Council was asked for a point of view regarding a public procurement procedure for the award of a public supply contract i.e. the acquisition of office equipment consumables.

The requests were made by a group of 8 producers and distributors of rechargeable /compatible consumables and by the European Toner & Inkjet Remanufacturers Association (ETIRA).

The above mentioned companies brought to the attention of the Council that in several cases, the terms of the tender dossier did not allow for the participation in the auction of remanufacturers, since only the original brand products were considered acceptable.

In other cases, compatible products were accepted, but only if the respective remanufacturers presented a compatibility certificate issued by the Original Equipment Manufacturer (OEM).

On the Romanian market of consumables (especially printer cartridges) there are products of OEM as well as consumables produced/remanufactured by other producers/remanufacturers under their own brand (non-OEM products). The non-OEM products are either Romanian made or imported.

In analysing the substitutability of the relevant products, the Competition Council found that the equipment manufacturers do not impose the mandatory use of original consumables. Therefore the users may replace used consumables with remanufactured or compatible ones without breaching the clauses of the service contract with the OEM.

Therefore, the terms of the tender dossier were not justified and were considered restrictive from the competition point of view. Requiring from the potential bidders a compatibility certificate for the consumables in question may represent an entry barrier, thus restraining potential bidders from participating in the auction and not granting equity of chances for all.

Since in most cases, OEMs are likely to participate in such auctions for consumables, it would be anticompetitive to require from the non-OEM bidders a compatibility certificate issued by their OEM competitors present in the auction.

Therefore, the contracting authority may only request participants to guarantee the compatibility of their products with the relevant original equipment and to meet the appropriate quality standards and technical specifications.

This point of view of the Competition Council was transmitted to the producers' group and professional association in question, as well as to the contracting authorities. It was also made publicly available, through the Competition Council's website.

Subsequently, CC experts had meetings with the involved parties and, as a result, the design of the auctions was improved, restoring free competition on the relevant market and providing fairness of opportunity for all potential tenderers.

Moreover, it is notable that CC's approach in this matter was in accordance with the new EU public procurement policy, which contains provisions supportive of sustainable procurement criteria, such as environmental protection, in awarding public supply contracts. The use of rechargeable consumables should be encouraged in public procurement contracts due to the environmental gains involved.

1.3 Law enforcement in auctions

Agreements between bidders participating in an auction result in the annulment of any benefit for the bid-taker. This is the reason why the Romanian Competition Law explicitly prohibits bid-rigging, in article 5(1) f).

The case presented below illustrates the way this provision of the competition law was applied by the Romanian Competition Council.

1.4 Background information

The case is related to the privatisation of the state owned company Obcina Radauti (hereinafter called Obcina), active in the field of marketing of both industrial products and food products. The privatisation method of Obcina, chosen by the Romanian Authority for State Assets Recovery (RASAR, called, at the time, The State Ownership Fund) was an ascending auction for the sale of the shares it owned in Obcina.

The bidders in the auction were company X2, company Y and the Employees Association Obcina Radauti (hereinafter called EAO). Y won the auction, by offering the highest price, and signed the privatisation contract.

The privatisation contract was annulled as Y did not pay the price for the shares within the period provided for in the contract. Therefore, a second ascending auction was organised. The participants in this second auction were company A and company B. The two companies participated in the auction as independent bidders.

Due to the fact that none of the bidders offered the opening price, the second auction turned into a descending one, as provided by the relevant regulation. The auction was won by company B, at its first offer. During the auction, company A did not bid at all.

1.5 Proceedings of the case

The case was brought to the attention of the Competition Council by EAO, who submitted a complaint. The complaint showed that a possible anticompetitive agreement might have occurred at the second auction, as A's behaviour during the auction was extremely unusual. Furthermore, EAO had information that both B and its' sole shareholder were significant shareholders of company A, even though they did not hold the controlling interest. Following the complaint, the Competition Council decided to further investigate the case.

The Romanian Competition Council found several links between A and B, among which:

² For a better understanding and an easier reading of the case, the real names of the companies involved will be replaced with X,Y, A and B.

- both **B** and its' sole shareholder were significant shareholders of **A**;
- there were family links between the executive management of company **A** and the sole shareholder of **B**;
- **A** and **B** had a long history of active cooperation in their commercial activities, both on a formal, as well as on an informal basis.
- **B**'s sole shareholder was also the sole shareholder of company **Y** that won the first auction and did not accomplish the contractual clauses of the privatisation.

In addition, the Competition Council found that company **A** facilitated the participation of its competitor **B** in the auction. Since company **B** could not come up with the letter of bank guarantee for 800.000 euro (bid bond guarantee), required to participate in the auction, company **A** provided real estate company assets as security collaterals for the bank's letter issued in favour of company **B** specifically for the second auction. This cooperation is a decisive evidence of the anticompetitive agreement between the two so-called "competitors" and their pursuance of a common goal.

Moreover, once entered in the auction, both bidders refrained from bidding for the opening price, forcing the auction into a descending one. Company **A** took on a passive role and did not bid altogether, facilitating for company **B** to win the auction at a much lower price than the start-up price.

Given the evidence in the case and the behaviour of the undertakings involved, the Competition Council found that company **A** and **B** had an anticompetitive horizontal agreement and fined them for the infringement of article 5(1) f) of the Romanian Competition Law. The effects of the second auction, including the privatisation contract were also annulled.

The decision of the Competition Council has been upheld by both the Bucharest Appeal Court and by the Romanian High Court of Justice.

SOUTH AFRICA

1. **Murray & Roberts Limited and the Cementation Company (Africa) Ltd (Case No: 02/LM/Jan04)**

Our submission to the roundtable on bidding markets comprises the reasons provided by the Competition Tribunal for its decision in a merger between Murray and Roberts Limited and the Cementation Company (Africa) Ltd.

In this transaction, which was unconditionally approved on 23 May 2004, Murray & Roberts, a well-known South African company engaged in a wide range of construction, engineering and industrial manufacturing activities, acquired 79.13% of the issued share capital in Cementation, a company regarded as the leading underground mining subcontractor in South Africa. The product market is the provision of mining infrastructural services – notably including shaft sinking and raise drilling – to the South African mining industry.

This is by any definition a ‘bidding market’. However, although this feature of the market undoubtedly played some role in the decision to allow a 3-2 merger, it does so in the context of more conventional merger assessment criteria *inter alia* the existence of strong countervailing power and, *prima facie* views to the contrary notwithstanding, low entry barriers. Also important is the nature of product, namely large lumpy infrastructural projects – at any given point in time the entire market comprises a small number of very large projects. While bidding is a common form of interaction between purchasers and sellers of infrastructural projects, bidding also commonly occurs in a great many other markets particularly in respect of public sector procurement.

The merging parties were both active in a range of activities related to underground mining. The Tribunal however defined the relevant product market as that for the provision of a broad range of mining infrastructure as it was of the view that “*each of the more significant players - and this naturally includes both the merging parties - could, if they so desired, enter each of the sub markets.*” The Tribunal nevertheless focused its competition evaluation on the sub-markets for shaft sinking and raise drilling, these being the most sophisticated segments of the broader market and subject to the most substantial entry barriers.

The relevant geographic market was defined as national due to the inability of international firms to simply substitute for local players – local knowledge of factors ranging from geological conditions to labour markets were considered important advantages in competing successfully in this market. However, the evidence revealed that international firms were well placed to enter the South African market *in partnership with domestic firms* – hence a domestic firm with little experience in shaft sinking but with experience of engineering project management and financial resources could form a consortium with an international firm that would bring shaft sinking experience to a joint bid. These consortia are a ubiquitous feature of the relevant product markets.

At first glance, the transaction appeared to raise serious grounds for concern

“...by any measure the transaction increases concentration in two already concentrated markets; it results in the elimination of successful competitors in both markets, including one in which the

competitor eliminated has adopted a competition-enhancing aggressive pricing strategy; in reducing the number of competitors from three to two it may enhance the likelihood of co-operation; and barriers to new entry appear to be high.”¹

In undertaking its evaluation of the merger’s likely impact on competition, the Tribunal noted that in a market for large lumpy projects it is particularly difficult to draw inferences of market power from an examination of market shares because an individual firm’s victory (or defeat) in a single tender impacted significantly on aggregate market shares. It is noteworthy that although the acquiring firm, Murray and Roberts, was generally considered to be one of three South African firms active in the shaft-sinking sub-market and was a regular bidder for contracts in this market, at the time of the merger it was not undertaking any shaft-sinking and so its market share was zero.

After a full consideration of the evidence the Tribunal decided that the merger was unlikely to give rise to a substantial lessening of competition. In arriving at this decision the Tribunal took cognisance of the following factors:

- The prospect of new entry in the face of a post-merger attempt to exercise market power. A likely source of new entry emanated from the large mining groups themselves that had until relatively recently undertaken many of the activities in question in-house. Moreover the possibility of local firms who were not currently able to participate in the shaft-sinking market entering through the formation of consortia with international firms is also likely to constrain an exercise of market power.
- The difficulty of co-operation in this market. Firstly, as a result of the features of the bidding process it will be relatively easy for the technically sophisticated staff of the customer to detect collusion. Secondly, it will be difficult for firms engaged in collusion to detect or to punish cheating.
- The high risk entailed in undertaking predatory conduct in this market. In particular predation – even in one contract – would be extremely costly and, unless wholly successful after a single shot at predation, the losses would be difficult to recoup.
- The existence of countervailing power among a relatively small group of powerful customers. The mining groups, many of whom previously undertook shaft-sinking and raise-drilling in-house, retain technically sophisticated and experienced teams in the preparation and adjudication of tenders and bids. Moreover the mining companies – particularly the gold and platinum miners who, by and large, are the customers in question – are price takers in their product markets and are accordingly strongly incentivised to resist cost increases because of their inability to pass these on to their customers.

In summary then while the fact that the relevant markets are ‘bidding markets’ played some part in the decision to approve the merger, this feature of the market has to be seen in the context of its particular facts. The lesson from this merger is that while the features of a bidding market are certainly factors to consider in a merger evaluation, they will rarely, on their own, constitute dispositive evidence in favour of, or against, a merger. The appropriate context in which to examine a ‘bidding market’ remains that provided by mainstream market analysis, namely, entry barriers, countervailing power, the likelihood of post-merger collusion and other stock-in-trade of conventional merger regulation.

¹ Paragraphs 27-8.

ANNEX

COMPETITION TRIBUNAL

REPUBLIC OF SOUTH AFRICA

Case No.: 02/LM/Jan04

In the large merger between:

Murray & Roberts Limited

and

THE CEMENTATION COMPANY (AFRICA) LIMITED

Reasons for Decision

Approval

1. On 18 May 2004 the Tribunal unconditionally approved the transaction between the abovementioned merging parties. The reasons for the Tribunal's decision follow.

Background

2. This is a transaction in which Murray and Roberts Limited will acquire control of the Cementation Company (Africa) Limited from Skanska AB, a multinational company based in Sweden. It is intended that Murray and Roberts will acquire Skanska AB's 79,13% controlling interest in Cementation Africa.¹

3. The transaction was notified to the Tribunal on 16 March 2004. A pre-hearing in this matter was held on 24 March 2004. The matter was heard on the 12th and 13th of May 2004.

¹ Refer to page 3 (para. 2) of the Commission's mergers and acquisitions report.

4. Various witnesses testified at the hearing. The Tribunal subpoenaed three witnesses:
 - Mr Les Jagger (General Manager of the Mining Projects Division at Impala Platinum Limited),
 - Mr Herman Fourie (Financial Director of Shaft Sinkers) and
 - Mr Andre Deventer (Financial Director of Master Drilling).
5. The merging parties called the following witnesses:
 - Mr Henry Laas (Managing Director of Murray & Roberts RUC),
 - Mr Brian Bruce (Group Chief Executive of Murray & Roberts), and
 - Mr Timothy Wakefield (Director of the Cementation Skanska South Africa operations).

The Parties

6. The primary acquiring firm is Murray & Roberts Limited (“M&R”), a wholly owned subsidiary of Murray & Roberts Investments Limited, which is in turn controlled by Murray & Roberts Holdings Limited (“M&R Group”). M&R Group is a public company listed on the JSE Securities Exchange South Africa. The shares are widely held with the major institutions including Old Mutual and Liberty as well as the Public Investment Commissioners all holding significant stakes.

7. The primary target firm is the Cementation Company (Africa) Limited (“Cementation”), a firm listed on the JSE Securities Exchange South Africa. 79.13% of Cementation’s issued share capital is held by Skanska Cementation International Holdings Limited (a company incorporated in the United Kingdom), which is in turn controlled by Skanska AB (a Swedish construction, project development and facilities management firm).² Cementation controls three subsidiaries in South Africa as well as other interests elsewhere on the continent.³

8. **M&R** is a well-known South African construction company, which focuses on a wide range of construction and industrial manufacturing activities. M&R RUC is the division within M&R that provides mining contracting services and infrastructure development and is the business that is relevant in the context of the proposed transaction. RUC, originally a joint venture between M&R and Gencor, then a prominent South African mining house, has been wholly owned by M&R since 1997. It competes with the target firm, Cementation, in various product markets. RUC operates its business through two divisions, namely raise drilling and mining.

9. The services provided by RUC in the raise drilling division include raise drilling, shaft boring and exploration drilling. In the mining division RUC provides services such as mechanised and conventional horizontal and incline development, mechanised stopping and contract mining, mine and engineering design, shaft sinking and associated infrastructure, cementation and ground stabilisation, drop raising and long hole stopping, feasibility studies and associated construction and specialised support work.⁴

10. **Cementation** is regarded as the leading underground mining subcontractor in South Africa. It operates two divisions, namely, drilling and mining. Its drilling division provides services such as surface

² See page 286 of the record.

³ Its South African subsidiaries are Cementation Mining Skanska (Pty) Ltd, Cementation Emgodini Skanska Ltd, and William Bain & Company (S.A.) (Pty) Ltd.

⁴ Refer to page 44 of the record.

drilling, underground drilling, raise boring and drop raising *whilst* the mining division focuses on underground construction and mine development, tunnelling and stopping, shaft sinking, and cementation and underground drilling.⁵

Rationale for the Transaction

11. Skanska avers that the businesses in South Africa, Canada and Australia do not form part of its strategic areas of business. For M&R, on the other hand, the transaction is a significant step towards realising its ambition of becoming a pre-eminent player in a number of markets related to mining construction and development, markets which, it is argued, are increasingly global in character. M&R claims that this deal will enhance its ability to tender for major projects in Africa, outside South Africa, as well as in North America (mainly Canada), South and Central America, Australia and Southeast Asia.⁶

Relevant product markets

12. There are two main methods of mining, namely pit mining and underground mining. The merging parties as well as a number of other large players in the broad mining contracting industry are active in underground mining. Open pit mining involves the mining of massive ore bodies characteristic of copper and iron ore. Neither M&R nor Cementation is involved in open pit mining. The skills and capital equipment required in undertaking underground and open-pit contracting activities are quite distinct and it is only the underground mining category that is relevant for purposes of this transaction.⁷

13. In his testimony to the Tribunal, Mr. Laas, the managing director of M&R RUC, identified three broad areas of activity in underground mining, namely, *ore body evaluation*, *infrastructural development* and *mining of the ore*. Before commencing a mining operation, the ore body must be evaluated in order to determine whether the reserve is of a quality and size necessary to sustain a mining operation. Once a viable ore body has been established the necessary *infrastructure* must be put in place. This infrastructure essentially secures access from the surface to the ore body and enables the ore to be removed from the mine. Once access to the ore body is secured actual *mining* commences. One or other – or both - of the merging parties is engaged at each stage of the mining process.

14. As already noted, M&R RUC and Cementation group their activities in two broad divisions, namely drilling and mining. In the drilling division one or both of the merging parties are engaged in **raise drilling** and **exploration drilling**. In the mining division one or both of the merging parties are engaged in **toll mining** (“contract mining”), **shaft sinking and mine construction**, **drop raising**, **cementation and underground drilling**, **construction and erection**, and in **mine design, feasibility study and project management**.

15. A more detailed exposition of these activities follows:

15.1 Raise drilling

15.1.1 Raise drilling is a specialised technique for drilling vertical shafts. The purpose of raise drilling is to establish a vertical or an inclined excavation used for ventilation or ore passes. It is done by means of drilling a small hole of approximately 40cm in diameter from the surface to a horizontal shaft within the mine. Once the horizontal shaft is reached a reaming device is attached to the drill string and the reamer is

⁵ Ibid page 45 as well as page 5 of the Commission’s mergers and acquisitions report.

⁶ See page 286 to 287 of the record.

⁷ See Mr Henry Laas’ testimony, pages 12 & 13 of the transcript.

pulled upwards whilst rotating. The rock, which is broken down as a result of the drilling, collects in the horizontal shaft and is then removed via the mine's existing infrastructure. The drilling continues until the reamer reaches the surface. Upon completion a vertical shaft has been drilled. Raise drilling does not make use of explosives.

15.1.2 The parties argue that the holes being drilled can be classified into three categories or sizes, these being small, medium to large and very large holes. It appears further that different types of drilling machines are required to drill the different types of holes. The Commission's investigation revealed that machines used to drill small holes could not be used to drill large to medium holes or very large holes. Again, machines used to drill large to medium holes are not strong enough to drill very large holes and inefficient to drill small holes. Nor, it appears, are the customers easily able to substitute different sizes of holes as each hole has different functional requirements, for example, for ventilation purposes or for removing ore.

15.1.3 In light of the above information, the Commission concluded that each of these types of holes drilled by means of raise drilling machines constitute relevant product markets.⁸ Only three players are active in the raise drilling market, namely M&R, Cementation and Master Drilling. It appears that Cementation does not own machines capable of drilling very large holes. M&R and Master Drilling both have the capacity to drill very large holes.

15.2 Exploration drilling

15.2.1 The purpose of exploration drilling is to extract reef drill core for mineralisation assessment by geologists. This is sometimes done from the surface while, in other circumstances, the exploration drilling process commences from existing underground excavations. Cementation and M&R are both active in surface exploration drilling as are other prominent players such as Boart Longyear and Rosond. It appears that a number of smaller companies are also active in this area.⁹

15.2.2 Underground exploration drilling is used for purposes of assessing the quality of the ore body. It is principally used for short to medium term planning for mining purposes. Cementation, although not M&R, is active in underground exploration drilling. There are also other companies active in underground exploration drilling including Rosond, Boart Longyear, Pro-Drilling and other smaller black economic empowerment ("BEE") companies.¹⁰

15.3 Toll mining (also known as "contract mining")

15.3.1 This involves the actual mining, stopping and removal of ore from the mine. This is generally viewed as the core business of the mining companies themselves, although recently outsourcing has even made inroads into this area. The merging parties indicated at the hearing that contracting companies are currently being invited to undertake this work on a project basis.¹¹

⁸ See the Commission's report (page 6) and Mr Laas' testimony (pages 34 to 36 of the transcript).

⁹ Refer to page 48 of the record as well as the Commission's report, page 11, para 5.1.4.

¹⁰ See Mr Laas' testimony, page 18 of the transcript dated 12 May 2004.

¹¹ See Mr Laas' testimony (page 45 of the transcript).

15.3.2 It appears that M&R is not active in this market. The existing players in this market are Cementation, JIC and BTX (prior to liquidation).¹² We were informed at the hearing that Grinaker LTA is also currently undertaking this kind of work and that Shaft Sinkers has also started a project of this kind.¹³

15.4 Shaft sinking and mine construction

15.4.1 Shaft sinking and mine construction primarily involves the construction of vertical shafts which are utilised for transporting workers and ore to and from the surface. Hence, whenever a new underground mine or a new section of an existing mine is started a vertical shaft must be constructed.¹⁴ The shaft is the main access from surface to levels underground to access the ore body. The shaft could either be vertical or declined. The engineers decide whether a vertical or declined shaft is required to access the ore body.

15.4.2 The minimum diameter for vertical shafts is 4.5 metres and in South Africa these shafts are of the order of 1 500 metres deep. A declined shaft has an average dimension of 4.5 metres to 3.5 metres at a gradient of 8 to 10 degrees. According to the parties, the deep level vertical shaft is primarily for gold and platinum mining and the shallower shafts would be for platinum in the eastern part of South Africa, chrome and coal.

15.4.3 M&R and Cementation are both active in shaft sinking. The other major player – in the South African market, at least – is a company called Shaft Sinkers. There are a number of other South African firms interested – it cannot be put much higher than that at this stage – in this sub-market. There are also international firms actively engaged in shaft sinking, some of which enjoy a presence in the South African market, usually in partnership with a South African firm. Among the better known non-South African firms active in the shaft sinking market are Deilmann Haniel (a German company), the Canadian-based, Redpath, and an Australian company, Brandrill.¹⁵ M&R is also active in this product market outside of South Africa.¹⁶

15.4.4 The parties indicated that mine construction and development work, which refers essentially to the infrastructure required between the shaft and the reef, forms part of the shaft sinking and mine construction product market. It appears that the mining companies undertake much of this work themselves. However, all the major construction companies such as M&R, Cementation, Grinaker LTA, Deilmann Haniel, Concor and other small BEE companies such as Ubuntu-Ubuntu can do this kind of work, and many are already active in this area.¹⁷

15.5 Drop raising

15.5.1 Drop raising is a method used to construct vertical excavations on a much smaller scale than is possible through raise drilling. This is used for ore passes and vertical dams for excavations of small diameter with a maximum length of about 50 metres and an average diameter of about 1.5 to 2 metres inside the mine. During this process, holes are drilled over the full length of the required excavation where

¹² Note that Brandrill, an Australian shaft sinking firm, acquired a local firm, Torrex, to form BTX which, is now in provisional liquidation after what appears to be a period of very aggressive pricing and imprudent cash flow management.

¹³ Refer to page 46 & 47 of the transcript.

¹⁴ Refer to the Commission's report, page 7 and also page 19 of the transcript.

¹⁵ See footnote 12 above.

¹⁶ Refer to page 21 of the transcript.

¹⁷ Ibid page 33.

after the holes are charged with explosives from the bottom. The hole is plugged and the explosives are detonated. The blasted rock falls down into the existing mine shaft and is transported out.¹⁸

15.5.2 Firms currently engaged in drop raising include Cementation, JIC, Boart Longyear, Master Drilling and various other smaller players. It appears that M&R is no longer involved in the drop raising market.¹⁹

15.6 Cementation and underground drilling

15.6.1 The parties submitted that the cementation process was the traditional product offering of the target company, Cementation. It involves the pumping of cement into mining cavities and fissures and the lining of underground shafts and tunnels with cement. It is done to limit the ingress of high-pressure water into the mining works. This process also stabilises underground operations and facilitates the development of underground shafts. Indeed, the parties claim that it is this process that made underground mining possible in many of those areas in which South Africa's gold reserves are to be found.²⁰ According to the Commission, the cementation process includes underground drilling and thereafter the pumping of cement.

15.6.2 M&R RUC is not involved in this activity. Firms which provide this service are Cementation, JIC, Rosond, Boart Longyear and other small players. It therefore appears that no overlap exists between M&R and Cementation in this sub-market.

15.7 Construction and erection

15.7.1 It is indicated that this service involves minor construction work, which is not associated with major mining projects. It appears that small civil engineering firms can perform these types of projects.

15.7.2 Both the merging parties as well as Shaft Sinkers, Grinaker LTA, Deilmann Haniel and various other small players are active in this market.

15.8 Mine design, feasibility study and project management

15.8.1 This is a service in which highly skilled personnel are engaged in assessing the feasibility and developing the design of mining projects. Participants in this market include companies such as M&R RUC, Shaft Sinkers, RSV, Hatch and TWP.²¹ Cementation does not offer this service.

Conclusion in respect of relevant product market

16. We are, in principle, reluctant to adopt the approach - apparently favoured by both the parties and the Commission - that would effectively place each service provided by the merging parties in a separate relevant market. While we are prepared to concede that many of these activities are legitimately designated as distinct sub-markets, we are equally persuaded that each of the more significant players - and this naturally includes both of the merging parties - could, if they so desired, enter each of the sub-markets. Certainly, while, in order to enter a particular sub-market, they may be required to acquire additional machinery or skills, these are easily within their grasp, and the absence of one or other of the

¹⁸ For a detailed explanation of these processes, see Mr Laas' testimony (pages 43 to 44 of the transcript) and the Commission's report (page 7).

¹⁹ Supra footnote 16.

²⁰ See page 294 of the record.

²¹ See page 49 of the record as well as page 13 of the Commission's mergers and acquisitions report.

major players from a particular sub-market may reflect an implicit market sharing arrangement or simply historical circumstance rather than a meaningful market segmentation. That, for example, M&R is no longer involved in drop raising or that Cementation does not currently possess the range of machinery enabling it to offer every possible raise drilling service, should not necessarily lead to the conclusion that these are separate relevant markets. At very least, each of the merging parties has the potential to enter, with little difficulty or delay, each of these sub-markets. Within this broad market, we will undoubtedly find active participants in certain of the less technologically or financially demanding sub-markets who are unable to engage in the more demanding sub-markets, for example shaft sinking. By the same token we may find that certain of the more sophisticated participants have elected not to participate in some of the lower value markets.

17. Although, then, from the perspective of a competition evaluation, we will focus on the former set of sub-markets – those in which overlaps are significant – this does not alter our conclusion that the **relevant product market is that for the provision of a broad range of mining infrastructure**. Within that broad market, our competition evaluation will focus on the shaft sinking and raise drilling sub-markets. These are sub-markets in which both merging parties are active and from which many of the smaller players engaged in other sub-markets are effectively excluded. There are clearly other sub-markets – for example, mine design or toll mining – from which all but the best resourced and most sophisticated companies are excluded. However these do not appear to be well-developed markets, that is to say, these are markets in which the mining companies remain the dominant players, and so do not loom large in our evaluation of the competitive effects of the transaction.

The relevant geographic market

18. The Commission, the various witnesses who appeared before us, and, indeed, the merging parties themselves all appear to accept that, should the shaft sinking and raise drilling providers active in the South African market attempt to exercise market power, it is not effectively open to their customers, the mines, to procure these services from other players active in other national markets, for example those currently active in Australia or Canada. The parties acknowledged that “generally in the past, foreign mining contracting companies, specialising in raise drilling, shaft sinking and mine development have not been successful *in their own right* in tendering or establishing a mining contract company in South Africa.”²²

19. Moreover, all those testifying to the inability of international firms to substitute for local players offered the same set of persuasive reasons. They all averred that South African geological conditions and mining practices – notably, although not exclusively, the unusual depths at which mining is undertaken in South Africa – fatally inhibited the ability of firms schooled in other mining environments to offer a substitute service.²³ They argued that South African ‘cultural’ particularities also constrained the ability of foreign players to enter this market, these ‘cultural’ factors ranging from language barriers through to, even more pertinently, the importance of established ‘connections’ between the service providers and those in the employ of the mines responsible for awarding contracts. More tangible inhibitors such as the certification that South African mining regulations demand of those employed on shaft sinking projects and the, partially related, fact that international firms would be obliged to remunerate their key personnel in hard currency whilst earning their contract fees in the volatile local currency were also mentioned. And, at least as important as any of these constraints, all acknowledged that South African mining companies would, partly for many of the reasons outlined here, be extremely reluctant to entrust a massive shaft sinking or raise drilling project to a firm with no established track record in South Africa.

²² See page 76 of the transcript and page 26 of the Commission’s mergers and acquisitions report. We emphasise the phrase ‘in their own right’ and will elaborate the significance of this below.

²³ See, amongst others, the Commission’s report (page 9) as well as Mr Fourie’s testimony (page 201 of the transcript).

20. For all these reasons we have no hesitation in finding that the geographic markets at issue in this transaction are national. However, we hasten to add that this does not mean that international firms are unable to participate in the national South African markets for the provision of these services. This does not however effect the delimitation of the geographic market although it does have important implications for our assessment of barriers to entry and, hence, of the competition implications of the transaction, and is elaborated below.

The impact of the transaction on competition

21. As already indicated, our competition evaluation will focus on two sub-markets within the broad market for the provision of mining infrastructure, these being shaft sinking and raise drilling. From a competition perspective this transaction appears, at first glance, to raise serious grounds for concern. Consider the bald facts that characterise the two sub-markets:

22. In the shaft sinking sub-market one of the two largest participants, Cementation, is merging with the third largest firm, Murray and Roberts RUC, leaving Shaft Sinkers the only other well-established domestic firm in this sub-market. Although there are other firms – both local and international – that are active in the (national) geographic market, they are, though frequently substantial companies in their own right, still relatively minor players in the relevant markets.

23. In raise drilling, the second of the sub-markets under consideration, the second largest firm, Murray and Roberts RUC, is merging with the third largest firm, Cementation. Master Drillers is the only other active participant left in what becomes a two firm sub-market.

24. It cannot be denied that the transaction will eliminate a significant competitor in each of the sub-markets. Although the merging parties point out that Murray and Roberts does not enjoy a significant share of the shaft sinking sub-market and that Cementation is, similarly, a small presence in the raise drilling sub-market, it is clear that both are, at least, significant *potential* competitors in each of these areas – certainly both actively bid for tenders in these sub-markets where they are clearly viewed by the competitors and customers as serious contenders and thus undoubtedly serve to constrain the behaviour of the other two, more successful, players.²⁴

25. Note also that both principal competitors left in each of these sub-markets, Shaft Sinkers and Master Drillers, fear the prospect of the merged entity, backed by the financial strength of the Murray and Roberts group, engaging in predatory pricing, that is, tendering below cost, the better to force their less well endowed competitors out of the market and, thereafter, to exercise market power.²⁵ Evidence from Shaft Sinkers suggested that Cementation's position in the shaft sinking market has been won through exceptionally aggressive pricing which had already depressed margins in the shaft sinking market.²⁶ Shaft Sinkers – and Master Drilling in respect of the raise drilling market – aver that the financial backing of Murray and Roberts would allow this to be taken a step further, beyond the realm of highly competitive pricing into that of anti-competitive predatory pricing. They also fear that the merged entity's capacity to offer, in contrast with their more specialised competitors, a 'one-stop shop' – ranging through mine development, shaft sinking, raise drilling, toll mining – will enhance their position in the market to the ultimate detriment of a competitive market structure.

²⁴ In any event, as we point out below, it is, in these markets, difficult to draw the usual inferences from market share data.

²⁵ See pages 467 & 479 of the record as well as pages 202 & 274 of the transcript.

²⁶ See Mr Fourie's testimony (pages 203, 204 & 241 of the transcript).

26. Moreover, we have already determined that the geographic boundaries of both market are national – in other words, local customers, if confronted by an exercise of market power, have a limited ability to turn to providers located elsewhere. Nor, on the face of it, are these national product sub-markets particularly susceptible to new entry. Certainly capital requirements – both financial and human – are significant, and experience or ‘track record’, including the valued contacts that it brings, is widely acknowledged to weigh heavily in the considerations of those who award tenders.

27. On the face of it then, this transaction fails many of the important tests commonly used to evaluate the competitive impact of mergers – by any measure the transaction increases concentration in two already concentrated markets; it results in the elimination of successful competitors in both markets, including one in which the competitor eliminated has adopted a competition-enhancing aggressive pricing strategy; in reducing the number of competitors from three to two it may enhance the likelihood of co-operation; and barriers to new entry appear to be high. And yet a detailed evaluation of the dynamics of this market reveals factors sufficient to mitigate these concerns.

28. We will turn now to a consideration of those factors that, in our view, mitigate the prima facie concerns outlined above. These may be grouped under two broad headings. The first are what may be termed the general features of a market in which the products or services provided comprise a relatively few, but extremely large, ‘lumps’ of infrastructure. For want of a better term, we will refer to these as ‘large project markets’. As will be elaborated below, particular characteristics of these markets make it difficult to draw the usual inferences from market share data. In addition the nature of the customer and the particular role of bidding or tendering in promoting competition in these markets have persuaded us to approve this transaction.

29. Secondly, we will show that the barriers to entry are markedly lower than first impressions suggest.

Large project markets

Market Shares

30. In each of the sub-markets post-merger market shares are, on the face of it, extremely disturbing although there are significant differences between the merging parties and the Commission regarding precise market shares.²⁷ In shaft sinking the Commission calculates that market shares move from a pre-merger 24.2% to a post-merger 59.9%.²⁸ On the other hand, the merging parties’ revised figures indicate the market share move from a pre-merger 12.47% to a post-merger 30.85%. In raise drilling (small holes category) the pre- and post-merger market shares, as determined by the Commission, are 39.6% and 79.3% respectively, while the merging parties estimate the pre- and post-merger market shares in raise drilling at 29% and 58.1% respectively.

31. Although market share data are rarely dispositive and must always be complemented by an analysis of entry barriers and other dynamic features of the market in question, they are legitimately and widely used as reliable prima facie indicators of the competitive temperature in a given market.

32. However, in the sub-markets under consideration market share data are to be approached with particular circumspection. This is simply because the markets – substantial though they are – are composed of a small number of extremely large contracts and that an individual firm’s victory (or defeat)

²⁷ At the hearing, the Commission accepted some of the merging parties’ arguments and conceded that the market share figures as portrayed in its recommendation should be appropriately reduced.

²⁸ Refer to page 12 (paragraph 5.16) of the Commission’s mergers and acquisitions report.

in a single tender may impact significantly on aggregate market share data. In the shaft sinking sub-market, Shaft Sinkers is currently undertaking some 9 out of 12 active projects, with Cementation responsible for the remainder.²⁹ M&R is, currently, not engaged in a single shaft sinking project. However, were a new entrant to gain a foothold in a market such as this – and the prospect of that happening is examined below – its gain in market share would not accumulate in the incremental fashion associated with most other markets. Were it to win one of the larger tenders it would be immediately propelled into the first league of participants in the market – on present performance it would give it a larger, actual market share than M&R itself. And conversely of course, failure to be awarded a significant contract may result in an immediate and precipitous decline in market share. For example, Shaft Sinkers, which was until relatively recently a division within the Anglo American stable, has a particularly significant share of AngloGold and Lonmin's shaft sinking work – indeed the witness from Shaft Sinkers all but presented this as a captive market, work for which his company did not even have to tender. Were this privileged position to be compromised in any way, a major realignment in market shares may result.

33. For these reasons we cannot readily infer low levels of competition from the high levels of concentration apparent in these sub-markets – they are always likely to be high but the identity of the players occupying these heights may nevertheless be unusually susceptible to rapid change.

Countervailing Power

34. Merging parties frequently argue – as they do in the present matter – that the market power that might accrue to them as a result of the merger is blunted by the countervailing strength of their customers. It is not an argument that has always found favour with this Tribunal. We have elsewhere questioned the glib notion that large, well-resourced customers are necessarily better able to resist a monopolistic supplier of an important good or service than are less privileged consumers. Indeed, the customer best able to resist – or, better termed, to *accommodate* – the exercise of market power on the part of a supplier, is precisely one that enjoys market power vis-à-vis its customers and, hence, is able to pass on an increase in the price of an important input to its own customers. This, as we have pointed out elsewhere, may serve to allay the concerns of the direct customers of the merging parties, but it is cold comfort to the end consumers.³⁰

35. However, the customers of the merging parties in this transaction, for all their undoubted purchasing power and sophistication, are, for the most part, price takers in their own product markets. This is certainly true of the gold producers, and while the platinum producers may be better placed to influence the price of their output, this influence, if it exists, is indirect at most. In other words, the mining companies have little or no ability to pass on cost increases to their customers and so the incentive to resist upward pressure on the cost of their key inputs is considerable.

36. Bear in mind, also, that shaft sinking and raise drilling are important parts of the initial capital investment and are carefully costed by groups of experts in the permanent employ of the mining companies or by consultants retained for this purpose. At the end of a lengthy process, the mining company's board of directors is presented with a project, the viability of which is critically dependent upon the scale of the initial capital outlay. Only after approval has been obtained from the Board do the mining company managers go out to the market in order to procure the capital goods and services that are the necessary precursor to undertaking the business of mining. And they do so within parameters established by their own experts and approved by their Board of Directors – to overshoot on the initial capital outlay is not only to flout a specific board decision but it is also to tamper with the very assumptions that underpinned the decision to undertake the project in the first place. This, we are persuaded, is to be distinguished from the

²⁹ Refer to pages 65, 238 and 239 of the transcript.

³⁰ See Competition Tribunal case *Daun / Kolosus*: Case No.: 10/LM/Mar03.

daily purchase of working inputs where it is possible to accept cost overruns occasioned by exercises of market power without thereby threatening the underlying viability of the project.

37. We are satisfied, then, that the inability to pass on cost increases coupled with the character of a large capital investment project will powerfully incentivise the mines to resist attempts by the merging parties to exercise market power. We are also persuaded that the mining companies have the ability to act on this incentive.

38. Indeed, the presence, inside most of the established mining houses, of staff effectively responsible for representing the customer in its purchases of technically complex goods and services is, arguably, the most important source of countervailing power – it addresses the massive informational asymmetries that characterise the interplay between, on the one hand, a purveyor of a technically complex product, and, on the other as is frequently the case, an infinitely less knowledgeable customer. Nor is it surprising that the mines should possess this countervailing power, this internal capacity. It manifests the importance attached by the mines to their purchases of capital equipment and services. Whether from a managerial, financial or safety perspective, it is inconceivable that purchasers of capital equipment and services on this scale and of this type would subordinate their decision making capacity to their suppliers. This is, of course, why, until relatively recently, most shaft sinking and raise drilling work was undertaken in-house and why there remains, to this day, an unusually close connection between, on the one hand, the division of the mine responsible for undertaking feasibility studies for new capital investment, and, on the other, the senior personnel of the shaft sinking and drill raising providers.

39. In short, we are persuaded that the mines possess countervailing power not simply by virtue of their size and importance – indeed unlimited financial resources may render them particularly susceptible to powerful suppliers. It is rather their vulnerability to cost overruns on their critical capital investment projects coupled with their inability to pass these on to their own customers that provide a particularly powerful incentive to resist an exercise of market power in the relevant markets under consideration. And this, in turn, compels the mines to retain an internal capacity capable of matching the technical sophistication of their input suppliers.

40. While the right incentives and technically competent staff go a long way towards understanding the countervailing power possessed by the customers of the merging parties, they are not sufficient. The ability on the part of the suppliers to exercise market power is further weakened by the manner in which large capital investment tenders are solicited and awarded. We turn now to a consideration of these factors broadly grouped under the heading ‘bidding markets’.

Bidding Markets

41. The manner in which project specifications are developed and in which tenders are adjudicated limit the ability to exercise market power. We will group these features under the heading ‘bidding markets’ although not all are, strictly speaking, features that belong to bidding markets alone. Nor, we hasten to add, are all bidding markets equally capable of limiting the ability of their participants to exercise market power. There appears to be no particular reason why the existence of bidding markets should prevent an exercise in market power in the market for providing, for example, protective clothing or explosives or some other input that is required by the mines on a regular basis. There may be other reasons why confidential bidding is preferable in markets in which working equipment is supplied on a relatively small scale and on a regular basis – it may limit corruption, it may provide the appearance of fairness and contestability and, as such, may, from a governance perspective, be preferable particularly where a public entity is the purchaser – but it does not necessarily provide a greater degree of protection from market power. However, we are persuaded that bidding markets do provide a considerable counter to the exercise

of market power where the product or service that is the subject of the bidding is a large, lumpy capital investment project.

42. As already intimated, the prospective purchaser of a large capital investment project does not go to market with an approximate idea of the prices and quantities at which he wants to purchase, say, protective clothing, ideas that are usually based on what he paid in the last, usually quite recent, round of purchases of the identical products. Rather the purchaser of a large capital investment project approaches prospective suppliers after an extremely detailed round of technical investigations conducted by its, that is, the purchaser's, own expert employees and consultants and after several rounds before experienced board committees and the board of directors itself. In this process, the detailed requirements of the project – inevitably quite distinct from other shaft sinking or raise drilling projects – are specified. The technical features of the project and the attendant risks are evaluated. Detailed forecasts are undertaken of likely market conditions for the product that is to be mined and, again, the attendant risks are evaluated. Financial models are built and evaluated. The technical, financial and other relevant parameters of the project are specified. Detailed knowledge of the costs entailed in performing the specified project – including labour and material costs – is brought to bear on the decision making process, combined, naturally, with a sophisticated understanding of the impact on costs of a range of imperfectly known factors from interest rate or exchange rate shifts to variable geological conditions. In short the purchaser understands what is required from a technical standpoint, how much he is willing to pay and, within quantifiable limits, what could go wrong. Not all of this knowledge will be revealed to the prospective suppliers but it will be in the possession of the purchaser and the seller will clearly appreciate the extent of the purchaser's knowledge.

43. In short, the client sets, at a high level of detail, the terms of the bid. These parameters are then communicated to a pre-selected group of prospective suppliers. These pre-qualifying bidders are then given access to a data room and to the site of the project. A series of exchanges then takes place between the client and the bidders. The fruits of these various exchanges are communicated to each of the bidders. However, the individual bidders are not given sight of the proposals of their competitors.³¹ The client ultimately conducts a confidential review and selection process. Because the client stipulates the design and the key specifications of the project, specifications which have to be met by all of the bidders, the critical, if not the sole, criterion governing the ultimate selection is price.

44. Although, theoretically, there is nothing to prevent the client from dividing up discreet pieces of the project between various providers, it appears that the norm is to make a single award although it is common for the lead bidder to assemble a consortium of bidders. At times a particular company is invited to join a consortium because it possesses skill in a particular area of the project that is not within the core competence of the lead bidder. Or a consortium partner may lend financial security to the project. Or, and this is elaborated below, a consortium partner may bring the necessary local knowledge and experience that its partners are unable to demonstrate.

45. However, once the award is made, the winner, be it in the form of a single bidder or a single consortium of bidders, takes all. And, unlike an award for the supply of some or other element of working capital, in this case the award will usually account for a not insubstantial share of the successful bidder's total activity going forward. Nor is there any particular reason to expect a second bite at the cherry in the

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The witness from Shaft Sinkers cast doubt on the actual confidentiality of the bidding process. Certainly he claimed – quite plausibly – that the unsuccessful candidates were, through the grapevine of a small and tightly knit community, made aware of the size of the successful bid. Through this knowledge, he inferred – again quite plausibly – that price was not the only criterion governing a successful bid. He did however acknowledge the overriding importance of price particularly where the price of the mined commodity itself was under price pressure.

form of another tender offered by the same client – that is, the award may well account for a substantial share of the total market.

46. It is this combination of factors that persuades us that the markets in question are competitive and that, despite the elimination of an important competitor and apparently high levels of concentration, they will continue to exhibit high levels of competition. In summary, because the project is specified to a high level of detail by an unusually sophisticated client, there is little basis for competition other than price. While the competing bidders share knowledge of the technical specifications of the contract, the individual bids and the ultimate award are confidential. And the winner takes all of a project that is likely to loom large in the total amount of work available to each bidding company. A useful analysis (not least, because it was not specifically commissioned for this merger) of bidding markets by Lexecon, a group of consultants, expressed it thus:

“In bidding markets, each bidder will want to submit the highest cash bid that it believes will secure the contract, taking into account other factors such as quality and the likely bids of other bidders. If a bidder bids too high and loses the contract then it has gained nothing.

In these circumstances competition for a given contract does not necessarily increase as the number of firms increases – as long as there are at least two firms capable of making credible bids, competition can be as vigorous with two firms as with three or more. Even if there is only one rival bidder, bidding any price but the lowest results in no sales whatsoever.”³²

47. It is appropriate to add here that these factors have also served to ameliorate concerns around possible post-merger collusion between the merged entity and Shaft Sinkers as well as possible post-merger predation on the part of the merged entity.

48. In any ‘3 to 2’ merger, the prospect of post-merger collusion must loom large.³³ However, even if we discount the prospect of new entry, we believe that collusion between Shaft Sinkers and the merged entity is an unlikely outcome of this transaction.

49. In a bidding market collusion would take the form of bid rigging. The features of a ‘large project’ market will constrain this. Firstly, the customers’ detailed knowledge of the activities in question will make it extremely difficult to construct a collusive bid that does not invite detection by the customers. Secondly, the opacity of the tendering process atomises the sellers and makes it extremely difficult for colluding sellers to detect cheating on the part of their co-conspirators. And, thirdly, this is a market where the incentive to cheat is enormous – insofar, of course, as the cheat stands to gain a multi-million rand contract that may represent a substantial share of total work available – but where, because of the once-off nature of the product or service sold, the means to punish cheating are all but non-existent.

50. Similar considerations cast doubt on the argument that the transaction will incentivise and better enable the merged entity to engage in predatory pricing. In the wake of this transaction, argue the proponents of the view, there will be two active participants in each of the shaft sinking and the raise drilling market, these being, respectively the merged entity and Shaft Sinkers and Master Drilling. In each sub-market then the merged entity is but one competitor away from achieving a monopoly. This provides a powerful incentive to the merged entity to adopt strategies aimed at excluding its remaining competitor in each of the markets. The financial strength of the Murray and Roberts group will provide the wherewithal

³² See ‘When Two is Enough’ – Lexecon Report – June 1995 www.lexecon.co.uk

³³ While we refer here to the extreme of a ‘3 to 2’ merger, in fact our conclusions regarding potential entry or, more accurately, the role and presence of credible bidders (even if not always active participants) implies that this is not a ‘3 to 2’ in the sense in which this is usually understood.

to employ predation as the exclusionary strategy. It was, indeed, intimated, although strongly denied, that Cementation's aggressive pricing strategy may already be tantamount to predation.

51. In fact, we consider predation in a large project market to be a particularly risky strategy. The predator must be reasonably confident of its ability to eliminate its competitor through predation. And, then, of course, the predator must be similarly confident that it will, through the exercise of post-predation market power, be in a position to recoup the losses suffered as a result of the predatory scheme. Neither proposition appears credible in the markets under consideration. Simply put, initiating a predatory scheme in a large project market implies a willingness – and the considerable means – to sustain a loss on a contract that may constitute a very significant part of the predator's total share of the market, in fact it may constitute a sizable portion of the total market. And, of course, it may not be sufficient to predate on one contract – it may imply a willingness to sustain a loss on a number of simultaneous and equally large contracts. Moreover, if the scheme is successful and does result in the removal of the competitor from the market, the timing of the payback, of the recoupment, is, at best, uncertain. It may present itself immediately. Or it may take several years to acquire a contract that will enable the predator to recoup the losses sustained during the period of predation. The predator has, accordingly, not only to have confidence in his ability to remove his competitor through predation, he has to be confident that the monopolistic structure created by the predation will still prevail when the opportunity for recoupment presents itself. The predator has, in other words, to take a view on market conditions stretching some considerable time into the future.

52. In our view, then, there is no serious threat of predation in this market. This is, of course, not to say, that competitive conditions may not result in bidding on very narrow margins, and that this may result in the successful bidder sustaining significant losses on a contract. However, in this eventuality, it is the bidder itself that will (as appears to be the case with BTX) sustain the harm arising from a commercially imprudent strategy, which is not to be confused with the logic of predation.

Barriers to entry

53. We have already noted the existence of apparently high barriers to entry. To recap, it is clear that the financial strength required to enter the sub-markets under consideration and to credibly bid for the massive contracts characteristically at stake, is considerable. So, also, are the skills required. We have also been told that the mines, in awarding tenders, place considerable store in the 'track record' or level of experience of the bidders, in particular, of the teams that will actually undertake the complex tasks that characterise these activities. 'Cultural' barriers and geological specificities constrain the entry of foreign competitors, as do more prosaic, but no less significant, factors like exchange rate volatility.

54. As already elaborated, we are persuaded that the features of a bidding market, particularly one in which the product or service takes the form of a large, lumpy project, ameliorate the anti-competitive significance of high levels of concentration. We would, nevertheless, be hard pressed to approve a three to two merger in circumstances in which we deemed new entry to be an unlikely prospect.

55. The record indicates that the parties themselves do not have a high opinion of their South African-based competitors – except, of course, of Shaft Sinkers in the shaft sinking sub-market and of Master Drilling in the raise drilling sub-market both of whom are rated very highly and who are, arguably, the leading firms in their respective sub-markets. As for the prospect of new international entrants, it appears to be common cause that international companies are unlikely new entrants.

What, then, are we left with?

56. Firstly, we are persuaded that the customers themselves – that is, the mining companies – are, in the face of an exercise of market power on the part of their providers, capable of entering the market themselves. Or, certainly, they are capable of facilitating new entry on the part of alternative suppliers and consortia should this prove necessary.

57. Secondly, while new entry by South African firms or by international firms *acting on their own* or, as the merging parties put it, ‘*in their own right*’, may be discounted, we are persuaded that consortia of international and local firms may prove, and already have proved, to be credible new entrants in these sub-markets.

58. As will be elaborated, our assessment of potential new entry is underpinned by the combined effect of the mining companies’ countervailing power, by the features of what we have termed a large project market, and by the characteristics of a bidding market.

59. Let us first examine the prospect of the mines themselves entering – or, rather, *re-entering* – the various sub-markets in which the range of infrastructural products and services are provided. In particular we will examine this prospect in the sub-markets of shaft sinking and raise drilling.

60. It is instructive to recall that each of the three major shaft sinking providers were, until relatively recently, aligned to one or other major mining house. Hence, until a mere two years ago, Shaft Sinkers was part of the Anglo American stable; M&R RUC was, until 1997, part of what is now the BHP Billiton group; and Cementation was, until six years ago, part of the Goldfields group.

61. We are, in fact, persuaded that these relationships, the fact that, in the relatively recent past the South African-based shaft sinking companies were owned or part-owned by one or other of the major purchasers of shaft sinking services, is one important reason for the limited penetration of international firms into the South African shaft sinking market. The witness from Shaft Sinkers boasted of his firm’s privileged relationship to AngloGold, suggesting that much of AngloGold work in this area was not even put out for tender, but simply awarded to Shaft Sinkers, their previous associate. It is our view that as these historic relationships work themselves out, as the association between each of the shaft sinking firms and their erstwhile mining house partners becomes more attenuated – and this merger is part of that process – international firms will perceive the South African market as more susceptible to new entry.

62. It appears, moreover, that certain of the mining companies continue to undertake significant shaft sinking work in-house. Hence, while conceding that shaft sinking is highly specialised work which the mines prefer to contract out to specialist providers, the witness from Impala Platinum indicated that his company has constructed 10 (ten) of its 15 (fifteen) shafts itself.³⁴ In general, it appears that the mining companies continue to undertake a significant proportion of the shaft construction and development work in-house with outside contracts only accounting for 28% of the capital expenditure involved.³⁵

63. With respect to raise drilling it appears that the Anglo American group has retained significant capacity to undertake this work in-house. Hence we were told that Anglo American possesses 23 drill raising units. Master Drilling, the leading provider in this sub-market, owns only 25 of these units, only one of which is capable of drilling very large holes.³⁶

³⁴ See Mr Jagger’s testimony on page 85 of the transcript.

³⁵ Refer to page 301 of the record.

³⁶ See Andre van Deventer’s testimony, page 284 of the transcript.

64. We have, in our discussion of countervailing power, already commented, at some length, on the in-house technical capacity that each of the mining houses retain in order to prepare the tenders and to evaluate the bids received. We must bear in mind that the companies retain on their books a core permanent staff that, it appears, undertakes work similar to that undertaken by the core capacity retained by the mining companies themselves. That is, they identify the tenders and they engage with their prospective clients, the mining companies, in preparing their responses to the tenders. Once the tenders are awarded, the successful bidder then sets about assembling the team necessary to undertake the actual work. Indeed a witness from one of the mining companies indicated that, along with price and the financial strength of the bidding party, the composition of the team that would undertake the actual work was a critical factor in the evaluation of a bid.³⁷

It appears that, in order to assemble an effective team, each company retains a valuable database of prospective employees – including, of course, those who may be in the permanent employ of, or temporarily contracted to, opposition companies. Each witness emphasised that the members of this labour force are well known across the industry and that it is a labour market characterised by its mobility and flexibility. At the highest level of skill, the members of this work force regularly move between companies and regions of the country (and, indeed, the world) as they respond to the demand for their highly valued services. There appears to be no reason why the mines – given the project leadership capacity that they retain in-house – should not avail themselves of this peripatetic labour force should they elect to undertake the projects themselves.

65. This, in our estimation, is the key challenge to the barriers to new entry because even if the mines are reluctant to undertake the actual shaft sinking or raise drilling work themselves, they clearly have the in-house knowledge to specify their requirements, and then, critically, to identify, assemble and supervise the consortia necessary to undertake them.

But are alternative consortia available? In other words, should the mines elect not to undertake the projects themselves are there alternative external providers to whom they could turn and who are likely to enter credible bids to undertake work of this nature? We are persuaded that there are and that consortia composed of international and domestic firms are the most likely new entrants.

66. There are clearly credible international companies active in the shaft sinking arena. The Canadian firm, Redpath, has been frequently mentioned, as has Dilemann Haniel, the German firm, and there is the Australian provider, Brandrill. Each of these already enjoy a presence in the South African market and they have invariably achieved this through forming consortia with local firms. There are, on the other hand, local South African firms who are financially sound and who have considerable experience of leading large infrastructural projects – Concor, LTA and Grindrod were mentioned – who could, in co-operation with international shaft sinking firms, enter credible bids. Many of these are companies that have undertaken significant work on the mines although not necessarily in shaft sinking or raise drilling. We should also add that South African firms experienced in the management of large infrastructural projects in combination with international shaft sinking firms would have access to the same mobile labour force on which the mines, the merging parties and Shaft Sinkers currently rely.

67. The mining companies are, through the tendering process, capable of facilitating the formation of consortia. It appears that tenders and the contracts subsequently awarded are often split up on an Engineering, Procurement and Construction Management (“EPCM”) basis where design is done internally or by one firm, materials being procured from other suppliers whilst the contractor effectively provides only a specific construction service.

³⁷ See page 87 of the transcript.

68. We take comfort from evidence of actual entry by these consortia. For example, Mr. Fourie, the witness from Shaft Sinkers, testified that his company had successfully submitted a joint tender with Dielmann Haniel on the important Buffelsfontein Chrome project – this consortium was awarded a R500 million for undertaking the first phase of the project. This would, as argued by the merging parties, presumably have well positioned Shaft Sinkers together with its partner to tender for the second phase.³⁸ It appear that Dielmann has participated in a number of joint projects for the purposes of tendering on certain business, including with M&R.³⁹ The parties also referred us to the entry into the shaft sinking sub-market of Brandrill (an Australian company) which acquired Torrex, a local company⁴⁰, and as a result won significant market shares in this sub-market. In his testimony, Mr Les Jagger indicated that Impala Platinum has invited bids from five potential providers including Shaft Sinkers, Cementation, Murray & Roberts, Grinaker LTA and Dielmann Haniel for a major shaft sinking project planned by the platinum giant. He added that about 8 years ago there was a shaft that was sunk at Beatrix Mine in the Free State by a Brazilian company.⁴¹

69. It also appears that there are projects in which part of the work is undertaken by a contracting company and part by the mining company itself. For example, the shaft sinking project at Boschfontein in Rustenburg was partly undertaken by Anglo Platinum itself.

70. We should add that, in the context of a bidding market of this nature, we must, when assessing credible new entry, be persuaded that there are credible alternative *bidders*, that is, alternative potential providers who, by virtue of entering a bid of their own, are thereby able to restrain an exercise of market power on the part of the merged entity. They do not actually have to win the bid in order to establish their presence in the market. As already noted M&R is not actively undertaking any existing shaft sinking contracts and yet it is clearly and legitimately perceived as a significant actual participant because, regardless of its current lack of success in acquiring contracts, it is perceived to be capable of actually undertaking shaft sinking work. Hence, M&R is a credible bidder. Therefore extant providers of shaft sinking contracts like Shaft Sinkers and Cementation will, in preparing their bids, be restrained by the prospect of M&R submitting a successful competing bid. Similarly, although Cementation enjoy a small share of existing raise drilling contracts, those currently active on a significant scale in this sub-market – namely, Master Drilling and M&R - will, in preparing future bids, look over their proverbial shoulders at Cementation because they are viewed as credible bidders for these contracts. A critical fact in our decision to approve this transaction is our assessment that there are in existence credible *bidders* for both shaft sinking and raise drilling contracts even though certain of these may not have ever participated in a shaft sinking or raise drilling contracts in this country or, indeed, at all. We are, as indicated in our discussion of relevant markets in the province of the provision of mining infrastructure. We are persuaded that there are South African firms experienced in the provision of mining infrastructure and in managing other large engineering or construction projects who could team up with an international shaft sinking or raise drilling firm and make a credible bid for a contract in one of those markets. By the same token, there are well resourced, highly regarded international shaft sinking firms who could team up with South African firms possessing local knowledge, connections and experience and, in this combination, could lead a credible bid for a shaft sinking contract.

³⁸ See page 313 of the transcript.

³⁹ See the merging parties' close submissions, page 316 of the transcript.

⁴⁰ See footnote 12

⁴¹ See page 87-88 of the transcript.

Conclusion

71. We accordingly find that there is no substantial lessening or prevention of competition in the relevant markets. No public interest issues militate against the approval of this merger. Hence the transaction is approved unconditionally.

David Lewis

28 June 2004

Date

Concurring: Phatudi Maponya and Merle Holden

For the merging parties:	Adv. David Untenhalter SC instructed by Robert Legh & Nikki Bush (Bowman Gilfillan Inc.)
For the Commission:	Lungile Oliphant (Legal Services) assisted by Martin van Hooven (Mergers & Acquisitions)

BIAC

1. Importance to Businesses

Markets characterised by bids or auctions frequently are crucial markets for businesses. They often involve extremely large segments of commerce, both in the public and private sector. Entire industry segments – *e.g.*, road construction, aerospace supply chain, automotive supply chain, telecommunications equipment, oil and gas exploration equipment, enterprise application software, and others – are often dominated by an auction process. In these and other markets, the economic future of a company can be determined by the outcome of a handful of opportunities. Moreover, the purchasers of these goods and services frequently are businesses interested in ensuring that the bidding process remains competitive.

Competitive analysis of bid markets arises in several contexts, including the potential for collusive conduct in public and private tenders and the analysis of mergers in markets involving bidding. BIAC supports the enforcement of anti-cartel laws against companies engaged in collusive behaviour for public and private tenders. These comments will focus on the analysis of mergers in markets characterised by bidding. Much of the discussion of the Secretariat's Background Note focuses on the theoretical underpinnings of bid market analysis. The specific focus of these comments will be on the types of factual evidence that can assist in the analysis of competitive effects in bid market mergers.

2. Analysing Mergers Between Competitors in Bid Markets

2.1 *Standard Market Share Thresholds and Presumptions Should Not Apply*

Merging parties often note that where bid markets exist, market shares are not an accurate depiction of market power. At times, it is noted that the level of market concentration should be judged principally by the number of bidders – so-called “1/n” analysis, where each firm represents an equal “share” of the market – rather than by the existing market shares of the companies. In practice, pure 1/n markets rarely exist, but it is clear that a party's market share may not reflect their competitive potential as a future bidder. The Secretariat's Background Note properly distinguishes between “equilibrium” and “structural” market shares, which can help to explain temporal aberrations in market shares. Additional factual inquiry, as discussed below, also is necessary for the proper assessment of competitive effects.

In making a threshold evaluation of whether a transaction may result in a substantial lessening of competition – and in an attempt to promote judicious use of regulatory resources – agencies often rely on certain presumptions based on the market shares of the merging parties. These presumptions may be useful in some cases, because they may reflect the relative strength of market participants and may provide a useful means of predicting the effect of a merger. The utility of market share presumptions, however, depends upon their predictive capability. The question in every merger case, therefore, is to what extent market share presumptions reflect actual competitive dynamics with respect to future competition between the merging parties. Bid markets represent a situation in which the likelihood of a divide between market shares and competitive dynamics is greater than normal.

There are many contexts in which current market shares of merging parties are not predictive of future competitive strength. One well known example is *United States v. General Dynamics Corp.*,¹ in which the United States Supreme Court permitted a merger among two leading producers of coal in a highly concentrated market. Despite the high current market shares of the merging parties, the Court found that no anticompetitive effect was likely because the acquired firm had very limited coal reserves, which severely limited its ability to compete for future contracts.² Thus, market shares were not an accurate predictor of the future market strength of the merging parties. The EC's Guidelines on the Effects of Horizontal Mergers similarly recognises the limitations of market shares as an analytical tool for assessing competitive effects.³ This has been applied, for example, in the EC analysis of the automotive supply chain where mergers have been approved despite high market shares in view of the purchasing power of the automotive OEMs.⁴

In sum, market shares may not accurately reflect the future competitive strength of merging parties in markets in which bids or auctions are the prevalent form of competition, and market share presumptions should not be deemed as reliable in these situations. This does not suggest that a merger in a bidding market cannot harm competition. The ultimate determination – as in all merger analysis – should rest on an evaluation of the sum of the factual evidence.

2.2 *Competitive Effects Analysis Is Still Required*

It is well established – at least in developed competition jurisdictions – that market share presumptions are merely a starting point for the evaluation of competitive effects, not an ending point. Market shares are designed to inform the competitive effects analysis. The limited utility of market share information in analysing bid markets often causes confusion, either because merging parties may seek to extend the application of this premise to the competitive effects analysis, or if properly asserted by the parties, because regulators may misconstrue the parties' position and perceive that they are improperly extending the premise to suggest that anticompetitive effects can never result from a merger among competitors in a bid market.

Assertions that market concentration is *always* irrelevant in assessing mergers in bid markets are not credible. In some circumstances, market shares may reflect or approximate the market strength of merging companies. Likewise, suggestions that mergers occurring in bid markets cannot create anticompetitive effects are not credible. Clearly, however, historic market shares and standard measures of concentration should not be used as the key measure of likely competitive effects.

3. **Key Factual Evidence in Mergers Involving Bid Markets**

For many markets, the key to assessing the relative position of bidders is an understanding of their costs. Economic models often rely on marginal costs, but in practice firms price above marginal cost in auction competitions. Thus, in a merger setting, agencies should consider the extent to which the merging

¹ 415 U.S. 486 (1974).

² *Id.* at 502.

³ See, Guidelines on the Assessment of Horizontal Mergers Under the Council Regulation on the Control of Concentrations Between Undertakings, 2004 O.J. (C 31) 3, ¶15 (“the Commission interprets market shares in the light of likely market conditions, for instance, if the market is highly dynamic in character and if the market structure is unstable due to innovation or growth”).

⁴ See, Guidelines, *supra* note 3; Case COMP/M3486, *Magna/New Venture Gear*, 2005 O.J. (C 9) 3; and Case COMP/M 3789, *Johnson Controls/Robert Bosch/Delphi SLI*, available at http://ec.europa.eu/comm/competition/mergers/cases/decisions/m3789_20050629_20310_en.pdf.

firms have sought to recapture fixed costs in their bids and how the merger will impact the fixed costs of the firms. Significant reductions in both variable and fixed costs could impact future bidding behaviour, particularly in private values auction models.

It also should be noted that bid markets, by their nature, provide some indicia of buyer power in that buyers cause sellers to conform their selling practices to the buyer's purchasing preference. In other words, buyers have at least enough power to force the seller to come to them. This typically shifts some level of costs to the seller. This may not be dispositive or even particularly important in any individual merger evaluation, but it may justify the consideration of arguments that buyers have the ability to discipline potential anticompetitive behaviour due to buyer power.

3.1 *Coordinated Effects*

Coordinated effects are more likely to occur where the products at issue are undifferentiated and where the costs of competing firms in the market are roughly equal. In a bid market, the 1/n model is most readily applicable in cases involving undifferentiated goods where all market participants have roughly equal *marginal* costs.

A frequent error in the analysis is for parties or agencies to assume that firms with the lowest average unit cost or variable cost on *current* output are most likely to succeed in *future* bids, particularly where demand is lumpy. This ignores the importance of capacity constraints. The firm with the lowest average unit cost is often the firm with the highest level of capacity utilisation. Such a firm may not be well placed to win future bids, particularly if it is engaged in long-term contracts that consume most of its capacity. If a firm with lowest average or variable costs would have to expand capacity to service additional business, then the marginal cost of that company could well be the *highest* of all bidders. Likewise, if overall capacity utilisation in the industry is high and a bid entails a significant "lump" of business, it may well be the bidder with the highest total costs – *i.e.*, the only one that would not have to expand capacity – that has the lowest marginal cost and may be expected to win the bid.

Where certain conditions exist – "lumpy" demand, high capacity utilisation, high marginal costs, undifferentiated products – not only can average costs not necessarily be relied upon, but also historical success in bidding also cannot be relied upon. These facts make post-merger coordination less likely to occur in the bid market context.

3.2 *Non-Coordinated/Unilateral Effects*

In other markets, particularly markets where products are differentiated and marginal costs are extremely low, an understanding of costs is less important and sometimes irrelevant. In these cases, an understanding of systematic customer preferences is crucial to the analysis of whether a merger will remove a pricing constraint.

One example of such a market is computer software. In such an industry, fixed costs are very high but marginal costs are approaching zero. Thus, prices do not reflect short-run variable costs but instead seek to capture a portion of the fixed long-term investment. In analysing a merger that takes place in such a market, the presence of a bid market significantly impacts the nature of the factual evidence that should be considered.

Oracle/Peoplesoft is outstanding example. The Background Note by the Secretariat captures relevant background facts concerning the parties and the merger.⁵ One fact that deserves greater attention

⁵ See, OECD, Roundtable on Competition in Bidding Markets, Background Note by the Secretariat, DAF/COMP(2006)27 (Sept. 27, 2006) at ¶¶92-95.

is the differentiated nature of the companies' products and the differential value placed upon those products by customers.

Unlike some products where the "quality" spectrum is readily observable, there is no reliable distribution of product quality that can be objectively observed. In most cases, the utility and functionality of the EAS products was based chiefly on customer perception and preference. At the same time, enterprises – including the large and complex enterprises that were the focus of the investigation – used many different solutions for their enterprise software needs. Many of these companies managed all of these functions through internally-developed software or with modified versions of "old" software. Thus, there were many companies of the large and complex variety that had no demand for products of the type sold by Oracle and Peoplesoft.

These factors made "market share" a difficult, and effectively meaningless, fact to establish. The combined companies' share of *installed* EAS systems for large or complex enterprises was quite small. The combined shares of new EAS solutions for large or complex enterprises, *i.e.*, those installed within the last few years, was higher, especially for certain applications, *e.g.*, HRM, and in certain industries. But these metrics did not help to analyse the likely effect of the transaction on future bidding competition, especially as new versions of software and new competitors' offerings entered the market. The only effective way to measure the potential competitive effect of the merger was to consider whether the parties were constraining each other's prices, and these prices were set through a bidding process.

An anticompetitive effect might arise from the merger if Oracle could either make a comparative assessment on a case-by-case basis of which customers would view the Oracle and Peoplesoft products as next-best alternatives – *i.e.*, pure price discrimination – and increase prices to these customers, *or* if there was an identifiable group of customers – *e.g.*, primary care hospitals – that Oracle could systematically identify as likely to have a preference for the two companies' products – *i.e.*, categorical price discrimination. If Oracle and Peoplesoft had not been the first and second choice of a buyer, then one company would not be constraining the price of another and no anticompetitive effect would result.

The fact that EAS prices are set through a bid process is highly significant to the method of evaluation of the merger. As noted in the Background Note, EAS suppliers do not sell their products based on marginal cost, which approximates zero. Rather, the seller attempts to evaluate the buyer's demand – *i.e.*, the value placed on the product as used by the buyer – while at the same time evaluating the identity of competing bidders and the relative value of the competing bidders' EAS products to the buyer. The desire of the EAS provider is to perfectly price discriminate and establish a price that represents the buyer's reserve price. The key information required by the seller to perfectly price discriminate includes a number of variables, including (1) the value placed on its EAS product by the buyer, (2) the identity of the competitor(s), and (3) the value placed on the competitor's EAS product by the buyer. It may not be necessary for the seller to have perfect information on all of these facts, but certainly the lower the quality of information it possesses, the more limited its ability to extract a premium for its product.

Unfortunately, these conditions could be adequately modelled in the *Oracle/Peoplesoft* merger. These facts often do not lend themselves to econometric analysis or fit squarely within the economic models that have often been used to evaluate bid models.

Information on these key facts is difficult for the bidders – and for the evaluating agencies – to obtain. Notably, each element of this information rests solely in the hands of the buyer. The buyer may, either out of naïveté or for its own strategic reasons, elect to share some of this information with the seller, but the buyer's evaluation and selection of EAS does not depend on sharing this information with the seller. The DOJ maintained that Oracle could glean some of this information from its analysis of the customer's

systems and intended uses of EAS, but the ultimate preference information was not shared directly in the large majority of cases.

In Oracle, there was quantifiable factual evidence, gathered in the regular course of business, that revealed how successful Oracle was at identifying its competitor in a bidding competition. Because the evaluation of EAS by a buyer is costly, buyers tend to limit the competition to two, or occasionally three, buyers before soliciting bids. In developing final pricing, Oracle would frequently (though not uniformly) attempt to identify its main competitor. Once the competition was finally over – win or lose – Oracle would solicit this information directly from the seller. At that point, with nothing to lose by revealing the key competitor, the customer would usually divulge the information. Thus, there was factual evidence that would permit a comparison of how often Oracle *believed* it was competing with Peoplesoft and how often it was correct in that belief.

This factual evidence would also have allowed for an analysis of the level of discount offered by Oracle when it believed it was competing against Peoplesoft. This evidence did not support a conclusion that effective price discrimination was plausible and was not presented at trial.

4. Conclusion

Theoretical analysis and even econometric modelling of mergers in bid markets often fails to account for numerous key facts. Information is often a crucial asset in bid situations and many models fail to account for the value of that information, or who possesses that information. While it is clear that market share presumptions are often unreliable in bid market mergers, there is no formula for analysis that captures the factual evidence that is required to make sound judgments on competitive effects. Therefore, case-by-case analysis should be conducted in evaluating those mergers that present a preliminary risk of anticompetitive effects in order to ensure that the relevant competitive dynamics of the bid market, and the realistic competitive constraints offered by the merging parties, have been identified. A reliance on standardised analytical tools, which may be sufficient in the majority of merger cases, often are inadequate in markets involving bidding or auctions.

BIDDING MARKETS

PAUL KLEMPERER

Abstract¹

The existence of a ‘bidding market’ is commonly cited as a reason to tolerate the creation or maintenance of highly concentrated markets. We discuss three erroneous arguments to that effect: the ‘consultants’ fallacy’ that ‘market power is impossible’, the ‘academics’ fallacy’ that (often) ‘market power does not matter’, and the ‘regulators’ fallacy’ that ‘intervention against pernicious market power is unnecessary’, in markets characterized by auctions or bidding processes.

Furthermore we argue that the term ‘bidding market’ as it is widely used in antitrust is unhelpful or misleading. Auctions and bidding processes do have some special features— including their price formation processes, common-values behaviour, and bid-taker power— but the significance of these features has been overemphasized, and they often imply a need for stricter rather than more lenient competition policy. © Paul Klemperer, 2004, 2005

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¹ These views are personal and should not be attributed to the UK Competition Commission or to any individual Member other than myself. I had neither any advisory nor any decision-making role in any of the Competition Commission cases discussed below. Furthermore, although some observers thought some of the behaviour described below warranted regulatory investigation, I do not intend to suggest that any of it violates any applicable rules or laws. I am very grateful to all the consultants, academics, and regulators, who have helped and advised me on this paper. Special thanks are due to Claes Bengtsson, John Davies, Giulio Federico, Christian Kobaldt, Daniel Marszalec, Marco Pagnozzi, David Reitman, Amanda Rowlatt, Max Tse, and Mark Williams.

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1. Introduction

The rise of e-commerce, government privatizations, and both public and private outsourcing has greatly increased the role of auctions in the economy.¹ At the same time auctions are often regarded as ‘different’ from ordinary markets, and antitrust policy is often conspicuous by its absence.

Similarly, many market transactions, especially business-to-business, are conducted through informal bidding processes, but it is often claimed that these ‘bidding markets’ have such desirable features that ordinary competition policy concerns do not apply. Moreover, it has become commonplace for companies to contend that they compete primarily in ‘bidding markets’ and that there is therefore little need for further antitrust scrutiny.² Perhaps because of the frequency with which such arguments have been made, they seem also to have seeped into some antitrust agency thinking, and ‘the existence of a bidding market is a commonly cited reason by competition authorities to tolerate the creation or maintenance of highly concentrated markets’ (UK Office of Fair Trading 2004a, paragraph 5.33).³

Three distinct strands of thought seem to lie behind the widespread view that antitrust can safely ignore markets conducted through bidding processes:

First are the claims, heavily pushed by legal and economic consulting firms, that in ‘bidding markets’, market share does not imply market power; that the existence of two firms is enough to imply perfect competition, or even that just one firm is enough.

Second, some academic literature argues that collusion, cartels and mergers can actually be desirable in an important class of auctions.

Finally, some regulators have themselves contended that even if market power can in principle be both present and pernicious in auctions and bidding processes, there is nevertheless often no need for regulatory intervention.

This paper explores and—I hope—explodes these myths. More generally, this paper analyses the (limited) extent to which the special features of auctions and bidding processes mean that competition policy should indeed be different than in ‘ordinary’ economic markets.

We begin with the ‘consultants’ fallacy’ that (roughly) ‘market power is impossible’ in a bidding market.⁴ We discuss the characteristics that are often claimed for bidding markets, and notes that the extreme assumptions of an idealized bidding market can indeed yield the extreme conclusions that are often claimed for them. However, neither many auctions, nor many more informal bidding processes, satisfy all these extreme assumptions, and once we relax any of them we are quickly back into the familiar world of problems of dominance and unilateral and coordinated effects.

¹ See *Auctions: Theory and Practice*, Klemperer (2004). Chapter 1 is an introduction to the theory of auctions. See also Klemperer (2000).

² This has been argued in at least five cases before the UK Competition Commission in the last year.

³ The UK Office of Fair Trading has identified bidding markets in about one-quarter of the merger cases it has handled since it started publishing decisions in 2000.

⁴ It is expressed almost this extremely in some consultants’ submissions to the competition authorities.

Furthermore, the characteristics of (imperfect) bidding markets that cause these problems are the standard ones that are commonplace in the checklists that competition authorities use worldwide to identify these problems in ‘ordinary markets’.

The ‘academics’ fallacy’ that (often) ‘market power does not matter’ in an auction⁵ starts from the fact that auctions and bidding processes are often used precisely because different market participants have different, and poor, information. In these settings each bidder has to worry about the ‘winner’s curse’ that it is more likely to win the auction when its rivals have discouraging information about the value of the prize. So bidders are more cautious than if they were more confident about their own information. In this context a cartel or merger that allows bidders access to more information reduces their winner’s curses and so, it is argued, makes them bid more aggressively. Unfortunately this analysis is incomplete: we show this so-called ‘common-value’ effect does not much affect the overall costs of collusion to the bid-taker. More generally, we emphasize that in either the ‘common values’ or the (more standard) ‘private values’ case, the clear formal rules of auctions can facilitate predation and collusion.

Furthermore, markets that operate through ‘ascending’ auctions can be both more conducive to coordinated effects and collusion, and less attractive to potential entrants (especially in the ‘common values’ case), than either markets with ‘sealedbid’ processes or ‘ordinary’ markets. These issues have become more significant since the ease of running ascending auctions over the internet has made them far more common than previously, when it was harder to conduct them unless bidders were physically in the same location.

Finally, the ‘regulators’ fallacy’ that (put in extreme form) ‘intervention against pernicious market power is unnecessary’ contains some truth: it is based on the view that bid-takers’ power to set the rules and procedures of the auction can resolve any competitive problems.⁶ However, if the bid-taker cannot commit to its future behaviour, or is susceptible to lobbying, that can undermine its power. Moreover, the bid-taker is often severely restricted by legal and political constraints, or its own organizational structure (this is particularly likely if the bid-taker is a government agency). It is true that with enough care and determination it is usually possible to design an auction that can overcome all these problems,⁷ but it is often unrealistic to expect this to be achieved in practice. Competition policy must sometimes take the decision-making structure of other organizations as given—just as it must sometimes accept the current industrial structure. In short, we should not be overly sanguine about what bid-taker power can achieve.

Section 2 gives a typical definition of an ideal ‘bidding market’, but shows that auctions and bidding processes are often far from this ideal, and section 3 argues that the resulting competition problems are therefore essentially the same as those of ‘ordinary’ markets. The remainder of the paper discusses the limited differences. Section 4 outlines the special price-formation process in auctions and bidding processes, and shows how their clearly defined rules often facilitate anti-competitive behaviour, especially

⁵ Of course, none of my academic colleagues would dream of expressing this statement without hedging it around with many qualifications; the danger is that the qualifications get lost as the ideas enter the policy arena.

⁶ This is the fallacy that is least easy to pin on any one group. But I have heard it more often in debates about public policy (albeit from policy-makers pushing for less regulation) than either from advocates in specific cases, or in more academic fora. Perhaps it should be called the ‘deregulator’s fallacy’. Certainly, as will become clear, I exempt my colleagues at the UK Competition Commission from this error.

⁷ The UK 3G auction (that Ken Binmore and I designed) overcame challenges of most of these kinds, but that auction design process lasted over two years and was for an auction worth billions of pounds (see Binmore and Klemperer (2002)).

in ascending auctions. Section 5 demonstrates that cartels and mergers are probably no less damaging to bid-takers in ‘common-value’ auctions than ordinarily, while the predatory and entry deterring possibilities are greater, so the existence of common values is probably an argument for tougher rather than more lenient competition policy. Section 6 shows how bid-takers’ monopsonistic power to set the rules of bidding contests can in principle mitigate the competition problems, but why this power is often much less effective in practice. Section 7 briefly discusses a number of special topics, and section 8 concludes.

2. Auctions vs ‘bidding markets’

We begin by discussing the features that are often associated with ‘bidding markets’, and the extent to which they are found in auctions and bidding processes.

2.1 (Ideal) ‘bidding markets’

While the term ‘bidding market’ is frequently used informally, there seems to be no agreed definition of one.⁸ However, Patterson and Shapiro (2001) write ‘the [European] Commission described a true bidding market as one where ‘tenders take place infrequently, while the value of each individual contract is usually very significant. Contracts are typically awarded to a single successful bidder (so-called “winner-takes-all” principle),’ and although it can be debated whether the European Commission actually intended this to be a general definition of a ‘bidding market’, this is certainly a common interpretation.⁹ That is, the term is associated with contests where:

1. Competition is ‘winner take all’, so each supplier either wins all or none of the order. There is therefore no smooth trade-off between the price offered and the quantity sold.¹⁰ (This is the last part of the European Commission’s definition quoted above.)
2. Competition is ‘lumpy’. That is, each contest is large relative to a supplier’s total sales in a period, so that there is an element of ‘bet your company’ in any contest. (Or, in the European Commission’s definition quoted above, ‘the value of each individual contract is usually very significant’.)
3. Competition begins afresh for each contract, and for each customer’. That is, if there is any repetition of a contest, there is no ‘lock-in’ by which the outcome of one contest importantly determines another. (This corresponds roughly to the part of the European Commission’s definition quoted above ‘tenders take place infrequently’, together with its statement elsewhere that ‘in bidding markets, market shares may not be informative of the likely competitive impact of a merger’.^{11 12}

⁸ I will use the term ‘market’ in an informal economic sense. I am not intending to delimit formal antitrust markets. See footnote 23.

⁹ Patterson and Shapiro have quoted the European Commission’s statement from Pirelli/BICC merger (European Commission, 2000). Shapiro had left his position as chief economist at the US Department of Justice at the time of writing.

¹⁰ Or quantity bought, if the contestants are potential buyers. Whether the bidders are suppliers competing to sell, or purchasers competing to buy, makes no difference to the economic analysis.

¹¹ Draft notice on horizontal mergers (European Commission, 2002 para 14).

¹² It fits even more closely with parties’ arguments I have seen (but not accepted) at the UK Competition Commission that, for example, ‘in a pure bidding market, the obstacles to switching from one supplier to another are low, and every tender is a new contest to be won solely on the merits of the bid’. In publicly-available testimony in another case (in which I was not involved) before the Competition Commission,

Sometimes a fourth characteristic is assumed either implicitly or explicitly:

4*. Entry of new suppliers into the market is easy.¹³

Finally, users of the term ‘bidding market’ typically implicitly or explicitly assume:

5. A ‘bidding system’ or ‘bidding process’ is involved.¹⁴

Note that assumption (5) is a description of the price-formation process whereas assumptions (1) to (4*) reflect deeper structural features of the market.¹⁵

The kind of example often offered as a prototypical bidding market is a large, indivisible, defence contract for a major weapons system (though this would probably not satisfy the additional assumption (4*)). At the opposite extreme, competition between supermarkets for consumers exhibits none of these features. Of course, many markets lie between the extremes.

Clearly these assumptions neatly lead to the conclusion that there are few antitrust problems in bidding markets:

With two identical firms, characteristics (1) to (3) perfectly fit a once-and-for-all, Bertrand (price-setting), competition for a single consumer who accepts the lowest offered price. Such a competition is, of course, also equivalent to the standard Bertrand competition in a homogenous-product market with many consumers that is described in elementary text-books.

It is straightforward that the existence of two identical firms is indeed sufficient for perfect competition (assuming constant marginal costs and no capacity constraints), and that historic market shares imply neither future success nor market power.¹⁶

Arcelor said ‘the supply of steel sheet piling in the UK has ... the characteristics of a ‘bidding market’ [that] there are no switching costs between piling from different manufacturers; and most orders are tendered for, project-by-project so that, in consequence, market shares in this case do not offer any significant indication of market power.’ See UK Competition Commission (2005, para 6.48). Similarly, Owen (2004) writes “A bidding market is one in which the competitive significance of each firm, ... , is not correlated with its past success and not limited by its current capacity”.

¹³ Typical parties’ arguments I have seen (and rejected) at the UK Competition Commission include that ‘because a market is a bidding market it is easy for non-incumbents to win contracts—most or all sales could easily be lost to a competitor in the next round—so existing market shares are of little relevance’. For example, in publicly-available testimony of a case (in which I had no involvement) before the Competition Commission, Dräger submitted that ‘The existence of a bidding market makes the relevance of historic market shares questionable ... The sales process allows competitors to showcase their products on an equal footing with established players. ... Purchases are made by tender process and as such all potential competitors have the chance to offer a contract to supply ...’. See UK Competition Commission (2004b).

¹⁴ For example, Lexecon (2003) writes ‘... In many industries, firms purchase services or products through a bidding system ... The ‘all or nothing’ characteristic of such markets implies ... in particular when the size of the tender is high relative to the size of the bidder and when new tenders are infrequent ...’, thus combining (5) with statements with the flavour of (1), (2), and (3), respectively.

¹⁵ The other assumptions can also depend on the details of price formation. For example, (4*) (like the theory of contestability) may partly depend on incumbents’ prices responding only slowly to new entry.

¹⁶ To take just one example of the use of this logic, in one recently completed case at the UK Competition Commission, one of the merging parties submitted that ‘the CLSM/MPR and MPLSM sectors should be

If we add the ‘easy entry’ assumption, (4*), we have described a perfectly contestable market (as described by Baumol, Panzar, and Willig (1982)), and in this case it follows that an optimal outcome is obtained even when only one firm is actually present.

Thus, using (1) to (3), or (1) to (4*) to define a bidding market, it makes sense that ‘the existence of a bidding market is a commonly cited reason by competition authorities to tolerate the creation or maintenance of highly concentrated markets’ (UK Office of Fair Trading (2004a, para 5.33)).

2.2 Auctions and ‘bidding markets’

The question, of course, is the extent to which the real markets that are described as ‘bidding markets’ in practice actually correspond to the idealized markets described by (1) to (3) or (1) to (4*). In fact, as we now discuss, many markets associated with bidding systems or auctions (ie markets satisfying (5)) violate at least one of (1) to (3), while (4*) may very often not be satisfied and, in particular, may apply only rarely when (1) and (2) also apply.

First, many formal auction processes are multi-unit auctions with several winners, so violate the ‘winner take all’ condition (1). In particular, in a uniform-price auction, or in a simultaneous-ascending auction for multiple homogenous units, all bidders receive (essentially) the same price and any bidder who lowers his quantity offer can improve his terms of trade (and the terms of trade for all winners). These auctions are common for, eg electricity, financial securities and radiospectrum though some of them—for example a one-off sale of radiospectrum by the government—may well satisfy conditions (2) and (3).

Furthermore even many *single*-unit sealed-bid auctions effectively violate condition (1): if a bidder cannot predict the required level of a winning bid (perhaps because the bidder doesn’t know its opponents’ costs, or perhaps because bidders’ products or services are differentiated so that it is not clear how the bid-taker will respond to any given price difference) then the bidder faces a trade-off between the price and the *expected* quantity sold. If bidders are risk-neutral, the effects on price-setting behaviour and the incentives to exploit market power are identical to the case in which there is a smooth trade-off between price and actual quantity. And even if bidders are risk-averse there is no fundamental difference.¹⁷

Transactions in many industries are characterized by more or less formal bidding processes that may perhaps satisfy (1) and (3) but not the ‘lumpy competition’ assumption, (2). For example, the supply of consulting, architectural, building, or other professional services, or contracts to supply retailers, or the supply of steel pilings (as in the UK Competition Commission’s recent investigation of Arcelor/Corus) might all be characterized by many small essentially independent contracts and so fail (at least) criterion (2).

characterised as bidding markets. As a result, a competition assessment based on the analysis of market shares is not useful for assessing the level of competition in these markets, as market shares are not indicative of market power ... any increase of share resulting from the merger is irrelevant due to the existence of the bidding market.’ See UK Competition Commission (2004a). The UK Office of Fair Trading (2004b) is correct to write in its current guideline on the assessment of market power ‘if competition at the bidding stage is effective, ... currently higher market share would not necessarily reflect market power.’ The European Commission (2002) was treading more dangerous ground when it wrote that ‘in bidding markets, market shares may not be informative of the likely competitive impact of a merger’—the problem of course comes when the UK Office of Fair Trading’s qualifying statement, or the EC’s ‘may’, is omitted.

¹⁷

That is, there is still a smooth tradeoff between price and the bid-taker’s expected utility.

On the other hand, a contract to supply information technology to a large public health authority such as the UK National Health Service, or competition for a rail or bus franchise, or to run the UK National Lottery, might satisfy (1) and (2), but not (3), because whichever company wins the current contract will have a significant advantage in winning a subsequent competition when the current technology needs updating or the current franchise expires. The winning bidder may also have an advantage in similar contests in other jurisdictions.

Indeed, the ‘every competition begins afresh’ condition (3) is quite likely not to apply if there is repetition of an auction or bidding process, especially if (1) and (2) do apply. The reasons for holding an auction include that there is poor information about the right price, in which case the winner of the first contract learns valuable information about how to bid in future, which makes entering to compete with him very dangerous—see our discussion on ‘common values’ in section 5 below. If (1) applies, so there is only one winner, that single winner may gain a learning-by-doing advantage. And if (1) and (2) both apply, this may be because of economics of scale deriving from sunk costs, again, contradicting (3).

Many auctions fail the ‘easy entry’ assumption, (4*). Of course, many auctions that fail (3), eg because of lock-in, fail (4*) for the same reasons. More important, satisfying (1) to (3) is likely to be associated with new entry being hard, i.e. assumption (4*) failing, for several reasons: first, the investment and organization required to credibly demonstrate to a bid-taker the ability to enter the market on the large ‘lumpy competition’ scale implied by (2), is likely to require at least some sunk costs. If it is efficient to have a single winner, as suggested by (1), the economies of scale this implies may derive from sunk costs that again make entry hard. The very fact that there will be only a single winner blocks small-scale entry that an incumbent might otherwise accommodate, and guarantees any potential entrant a fierce reception. More generally, if (1) to (3) apply so competition would be very fierce with two or more firms, then entry is not very attractive to a second firm even if a single incumbent is currently earning substantial rents. So relatively small barriers to entry may successfully deter entry, and assumption (4*) fails more easily than if (1) to (3) did not hold.

Some auctions may satisfy *none* of our criteria. For example, the repeated auctions that characterize many modern electricity wholesale markets clearly violate (1), (2) and (4*), and also—because of the effects of the frequent repetition on bidders’ strategic behaviour—often violate (3). The same may apply to some financial securities auctions.

Indeed whether or not the detailed process of price formation is an auction—ie (5) holds—may be a completely academic point. For example, airline tickets are sold both through traditional non-auction retail routes, and through priceline.com’s auction procedure in which each consumer first enters details of a proposed itinerary and airlines then bid electronically to offer the best schedule and fare.¹⁸ But, although airlines nominally bid for each customer individually in priceline’s auction, they must in practice have pre-specified rules that automatically determine their responses to particular requested itineraries, just as in their traditional retailing.¹⁹ Furthermore this market (whether run using a formal bidding process or not) seems little different from our example of supermarket pricing which exemplified the *opposite* of a bidding market and satisfies *none* of (1) to (4*): setting a slightly higher fare for a particular offering slightly reduces an airline’s sales in just the same way as it would slightly reduce a supermarket’s sales;²⁰ no single

¹⁸ There are other services in which airlines simply compete to offer the lowest fare, and Priceline is also famous for a ‘name your price’ service.

¹⁹ Considering the retail and auction segments as different, or as different markets, might make sense if the different sales routes accessed different customers, but not because of any difference in the price-formation process.

²⁰ As noted above, even if there is only one or a small number of passengers on a particular route, a slight increase in fare slightly reduces the probability of making a sale.

transaction is significant; previous sales affect the likelihood of future sales (if only because of the existence of frequent-flyer programmes, etc.); and, contrary to views expressed in the 1980s, it is now generally accepted that there are substantial sunk costs of entering the air travel market.

In short, just like ‘ordinary’ economic markets, auction markets cover a wide spectrum from being close to the ideal ‘bidding market’ described above, to being very far away from it.

So using the term ‘bidding market’ as it is now widely used, to mean either ‘Bertrand market’ (restricting to assumptions (1) to (3)), or ‘contestable market’ (if the ‘easy entry’ assumption (4*) is added), seems, at best, unnecessary, since the terms ‘Bertrand market’ and ‘contestable market’ are perfectly adequate. More often—and one fears this is why the ‘bidding market’ term is so often used by antitrust advocates—the confusion between assumptions (1) to (4*) about the market structure, and assumption (5) about details of the price formation process, is positively misleading. As we now discuss (in section 3), and as should come as no surprise, auctions and bidding processes are beset by the same range of competitive problems as ‘ordinary’ economic markets.

Nevertheless, so called ‘bidding market’ issues often arise particularly starkly in auctions. While an auction process is neither necessary nor sufficient for a ‘bidding market’, markets with one or more of the ideal characteristics we described are very often organized using a more or less formal bidding process or auction. (The reason is that a large transaction size (cf (2)), poor information about the ‘right’ price—more likely for a ‘one-off’ contest (cf (3)), or for an idiosyncratic transaction that is likely to be efficiently handled by just one winner (cf (1)), or poor information even about who the bidders are (cf (4*)), all make an auction relatively more efficient and posted prices relatively less efficient.)

Furthermore, there are several ways in which the antitrust of auctions and bidding processes can be a little different from usual, and sections 4 to 7 of this essay will consider these.

Thus the remainder of this essay focuses on (all) those markets that satisfy assumption (5), ie involve a ‘bidding system’ or a ‘bidding process’²¹.

3. How auctions and bidding processes are like ‘ordinary’ markets

The competition problems of auctions are broadly the same as those of ‘ordinary’ economic markets. Statements such as ‘in bidding markets ... competition can be as vigorous with two firms as with three or more’ (Lexecon (1995))—cited approvingly in the South African Competition Tribunal’s recent decision permitting a ‘three-to-two’ merger²²—depend on the two firms being genuinely identical and genuinely

²¹ I am reluctant to engage in further semantic issues by defining ‘bidding systems’ or ‘bidding processes’, but their important characteristic is ‘customer-by-customer pricing’ by contrast with an ordinary retail market in which a seller makes the same offer to many buyers. That is, when ‘bidders’ are sellers, each bidder generally treats each buyer separately and so makes a separate offer (or no offer) to each buyer. (Conversely, bidders who are buyers each make a separate offer to any seller they deal with.) The offer may be a price, or may include other dimensions. The offer may be improved, or refined, during the bidding process, perhaps in response to discussions or negotiations with the bid-taker (though a formal definition would probably exclude full-blown one-on-one bargaining in a bilateral monopoly). Assuming bidders are sellers, the buyer may be the final customer, or may (eg in an electricity pool) represent several final customers. However, as discussed above, the buyer may split her purchases between several bidders (contradicting (1)), may be one of many buyers (contradicting (2)) and may have substantial costs of switching sellers (contradicting (3)), and there may be significant costs of developing the capability to approach her with a credible bid (contradicting (4)).

²² The merger of Murray & Roberts Ltd and The Cementation Company Ltd—see Competition Tribunal South Africa (2004).

competing, just as in an ‘ordinary’ (non-auction) market. If one firm is advantaged, eg by lower costs or reputation, it has market power; if firms are differentiated, both have market power; and even if they are identical, they can jointly exercise market power if they can coordinate. With more firms there are generally fewer problems, but problems are more likely if some or all of (1) to (4*) fail—all just as usual.²³

3.1 *Dominance*

As discussed above, especially when contracts are large and specialized, the winner of the current contract will often have a substantial advantage at the re-contracting stage, and new entry is likely to be hard and unattractive (ie (3) and (4*) are likely to fail). For example, after being the winner among eight bidders of the contest for the seven-year monopoly franchise to run the UK National Lottery when it was founded in 1994, Camelot had developed substantial learning-by-doing and reputation advantages by the time of the subsequent contest in 2000. Not surprisingly there was far less competition (just two bids) in the second contest.²⁴

This is just the standard problem of competition in markets with ‘switching costs’ as elaborated by eg Klemperer (1995), Farrell and Klemperer (forthcoming), Klemperer (forthcoming a). As those papers emphasize, this does not necessarily mean competition is weak or inefficient overall—the reduced second-stage competition can be compensated for by correspondingly fiercer first-stage competition that reflects the (quasi) rents that the first-stage winner expects to earn at the second-stage.²⁵ However, as those papers also explain, the resulting bargain-then-ripoff offers that the buyer (or bid-taker) receives often do create inefficiencies, and make competition more fragile—for example, making predatory behaviour easier and more tempting. In the second National Lottery competition, the first-stage winner (Camelot) brought substantial public relations, legal, and other resources to bear in defeating its sole challenger (Virgin’s People’s Lottery), including successfully overturning the government’s initial decision to award the second franchise to the challenger,²⁶ and the experience of this has certainly had a chilling effect on the possibility of serious challenges emerging to contest the award of the third franchise due in 2006.²⁷

A distinction from the standard analysis of ‘switching cost’ markets is that the bidtaker may have more control over the auction process than buyers have over the rules of competition in an ordinary

²³ The claim that one firm is enough for an optimal outcome is as highly sensitive as usual to (generally implausible) assumptions of speedy, costless, entry. As we noted above in our discussion of airline-ticket sales, whether or not the detailed process of price formation is an auction is sometimes completely unimportant. On the other hand, simplistically-measured past market shares may reflect market power even less accurately in auction markets than usual. Most obviously, if a ‘market’ consists of only a single winner-take-all contract, even symmetrically placed firms have ex-post shares of 0 per cent or 100 per cent (and it would be ridiculous to argue all possible mergers are therefore irrelevant). Measures of firms’ capabilities and capacities, perhaps summarized by their estimated ex-ante probabilities of winning a contest, or average shares over a longer history may be helpful. (Also if each bidding contest is, technically, a separate antitrust market, then ‘multi-market contact’ effects between these ‘separate’ markets supporting predation or collusion are particularly likely (Bernheim and Whinston (1990)).)

²⁴ Arguably the surprise was that there was a second bidder at all.

²⁵ So policy must consider whether observed current rents merely reflect a competitive return on past investments.

²⁶ I am not suggesting that Camelot’s behaviour was in any way improper or that it contravened any laws or regulations.

²⁷ Lock-in effects have been found to be important in what were claimed to be bidding markets in several recent cases before the UK Competition Commission.

market. However, this distinction is less important than it might seem, as we discuss later (section 6). The main message is that the ordinary economics of dominance applies.²⁸

3.2 *Coordinated effects*

Where entry is hard (ie (4*) fails), and especially when bidding is not winner-takes-all (ie (1) also fails), coordinated effects (ie tacit collusion) can emerge as easily in auctions and bidding processes as in ‘ordinary’ economic markets.²⁹ The standard kinds of repeated-game analysis apply, and the standard checklists of factors that competition authorities use worldwide remain appropriate for predicting the likely emergence of coordinated effects. The UK Competition Commission, for example, cites all of the following as facilitating coordination: few firms, high degree of market transparency, high frequency of firms’ interactions,³⁰ predictability of demand and costs, low likelihood of disruptive innovation, similarity of firms, lack of serious financial constraints on firms, long-term commitment of firms to the market, standardization of the product, inability of buyers to self-supply and difficulty of entry by new firms.

It is no surprise, therefore, that the UK electricity (auction) market which satisfied almost the Competition Commission’s entire checklist³¹ is suspected of having fallen prey to coordinated effects in the late 1990s.³² It may be that the specific auction rules contributed to the problems (see Klemperer (1999b, 2002a, 2003b)), and it was partly in response to this concern that the UK regulator introduced New Electricity Trading Arrangements (NETA) in 2001. However, it is clear that even with a more ‘ordinary’ economic price-formation process the electricity market would be very vulnerable to coordinated effects as long as it satisfied so much of the Competition Commission’s checklist. Indeed, a common view is that the post-NETA fall in prices is much more due to the substantial reduction in market concentration that occurred around the same time than to the change in the market rules (see eg Newbery, 2004). That is, the standard factors facilitating collusion mattered; replacing an auction by a more ‘ordinary’ price-setting process did not much matter.

We will discuss below some special issues about how the details of auction-market rules can facilitate coordinated effects (and explicit collusion), in particular through creating the standard checklist conditions

²⁸ In some cases a lock over the market may be jointly held by several firms. (This could perhaps be described as a case of ‘joint dominance’, though the term is usually used in the context of concerns about collusion rather than exclusion.) For example, when in 2000 the Netherlands auctioned five 3G mobile-phone licenses it was very hard for any other bidder to compete with the five incumbent mobile-phone operators in the market, and the only new entrant that dared to bid was swiftly eliminated by what many described as predatory behaviour, so the auction raised less than one-third of what the winners valued the licences at. (See sections 5.2 and 6.2 below, and Klemperer (2002b, 2003a) for more details; in principle, the government’s control of the sales process should have allowed it to mitigate the problems; in practice, it exacerbated them.)

²⁹ Explicit collusion is also common in auction markets. For example, according to McMillan (1991), two-thirds of the criminal cases brought by the US Department of Justice’s Antitrust Division during 1981 to 1988 involved bid-rigging by construction firms.

³⁰ This feature is not explicitly in the UK Competition Commission’s list, but is implicit in its (and other agencies’) guidelines.

³¹ There were exceptions. For example, the firms were not all similar (though the relevant firms—ie the firms that had flexible capacity (not Nuclear Electric)—arguably were similar).

³² Sweeting (2004) finds that generator behaviour after 1996 was inconsistent with static Nash equilibrium and consistent with tacit collusion, Macatangay (2002) finds evidence of coordinated bidding patterns in 1996 to 1997, and Evans and Green (2003) also seems to support suspicions about coordinated effects. Similar suspicions have been voiced about the Spanish electricity market. See eg Fabra and Toro (forthcoming).

of market transparency, high frequency of firms' interactions, and difficult entry. But the main message is that the fundamental issues are no different than in 'ordinary' markets.

3.3 *Unilateral effects*

Just as for ordinary markets, several of the most important factors supporting coordinated effects including, especially, high concentration, lack of buyer power and difficulty of entry, also facilitate standard unilateral effects (ie monopolistic supply reduction or monopsonistic demand reduction).

Thus, for example, while the extent to which electricity markets have suffered from coordinated effects can be debated, there is a broad array of evidence that they have at least suffered from the unilateral exercise of market power (see eg Wolfram (1998) on the UK electricity market, and Borenstein et al (2002), Joskow and Kahn (2002), and Wolak (2003) on the Californian market³³).

To take another example, Cramton (2002) writes that in the 1994 US Nationwide Narrowband spectrum auction, 'The largest bidder, PageNet [which he advised] reduced its demand from three of the large licences to two, at a point when prices were still well below its marginal valuation for the third unit. [It] felt that if it continued to demand a third licence, it would drive up the prices on all the others to disadvantageously high levels.' This seems to have been unilateral behaviour, rather than (attempted) coordinated behaviour, since there is no suggestion or evidence that the bidder expected any other bidder to behave more co-operatively in response to its demand reduction, nor that any other bidder did so.³⁴ Cramton also provides evidence of unilateral effects in the subsequent 1995 to 1996 'CBlock' US spectrum auction.

As usual, while auction-market rules may sometimes exacerbate some of the standard conditions supporting unilateral effects (for example, by making entry hard—see sections 4.3–4.4) the fundamental principles are the same as in 'ordinary' markets.³⁵

4. **Bidding rules and procedures**

Both the formalization of a bidding process into an auction with a small number of clearly defined rules, and those rules themselves, sometimes facilitate predatory and/or collusive strategies, especially in ascending auction processes, as we now discuss.

³³ Tapes of telephone conversations obtained in the FBI's investigation of Enron show the extreme way in which that company unilaterally exercised market power to raise prices, including arranging to shut down a power plant supplying energy to California on January 17, 2001 when blackouts affected up to a 0.5 million consumers (see Egan (2005)).

More generally, 'The many investigations of the causes of the California Electricity Crisis currently underway have not uncovered evidence that suggests suppliers coordinated their actions to raise prices in California' (Wolak (2003)), suggesting that the significant market power effects that many studies have found for California in 2000 to 2001 were unilateral effects.

³⁴ On the contrary, if there was any response, it seems to have been to try to persuade the largest bidder to reduce its demand further without any recompense. See also Cramton (1995).

³⁵ See Klemperer (2006) for further discussion.

4.1 *Price formation in auctions and bidding processes*

4.1.1 *Formal auctions*

When formal auction procedures are used, two basic designs of auction, and variants of these designs, are most common. The first basic design is the ascending auction, in which the price is raised successively until only one bidder remains, and that bidder wins the object at the final price she bid, as is common in sales of art and antiques.³⁶ The other standard design is the first-price sealed-bid or ‘pay your bid’ auction, in which each bidder independently submits a single bid without seeing others’ bids, the object is sold to the bidder who makes the highest bid, and the winner pays her bid, as is common in sales of oil or mineral rights, or in bidding for procurement contracts (although in the latter cases it is the low- rather than highbidder who is the winner).

4.1.2 *Informal bidding processes*

In more informal bidding processes, it may be unclear how best to think of the ‘auction’. If a seller conducts parallel negotiations with two or more potential buyers simultaneously, this is probably in effect a standard ascending auction. But even in a so-called (first-price) sealed-bid auction, if the bidders repeatedly interact with the bid taker, asking ‘what kind of bid is likely to be successful?’, the process can mimic what an economist would call an ascending auction. Furthermore, bidders may not believe a nominally ‘sealed-bid’ process will end when the bids are opened: it is always in the bid taker’s interest to entertain further bids, and shareholders might sue him if he turns down a subsequent improved bid; disappointed bidders who would like a further bid may also bring legal proceedings.³⁷ Even if the bid taker originally attempted to precommit to not accepting further bids, reasons can usually be found why the original bidding failed to satisfy some rule, or why the situation has changed so additional bids are needed.³⁸ And if bidders expect the process will later turn into an ascending auction, they will bid as if it was an ascending auction in the first place.

On the other hand, superficially ascending processes may really be sealed bid. When bidding for a house you may not know whether you’ll get another chance to bid.³⁹ When buying a car, you can in principle go back and forth between dealers soliciting improved offers, but in practice a dealer may refuse

³⁶ Of course, this design becomes a descending one when the bidders are sellers. In this case the price is lowered until only one bidder remains and that bidder wins the object at the final price bid. For simplicity, we will continue to refer to such an auction as an ascending auction.

³⁷ For example, the government commission’s original 2000 decision to award the UK National Lottery to a new-entrant bidder was overturned by a legal challenge from the incumbent which then won the contract after improving the terms of its offer. See section 3.1.

See also the discussion of the proposed Manchester United/BSkyB combination in section 6.2.

³⁸ For example, in the sale of RJR-Nabisco there were several successive rounds of supposedly-final sealed-bids: after the first set of ‘final’ sealed-bids had been opened (and revealed to all), an extension was arranged to allow a bidder time to clarify some details of its offer prior to a second ‘final’ round of sealed-bids; one of the losers in this second round then submitted and made public a further, unsolicited, higher bid to pressure the board into reopening the sale, and yet more bids then followed as the process degenerated into something more closely resembling an ascending auction (see Burrough and Helyar (1990, pp 415–6, 479–502)).

³⁹ Agents may have little incentive to extend the process, preferring to manage the matching of buyers and sellers than to maximize price on any one transaction (in the UK agents typically receive 1.5 per cent of the transaction price and it can be hard to arrange higher-powered incentives), or a competing bidder may credibly make a take-it-or-leave-it offer (which seems more common in the real world than the current theoretical literature can easily explain).

to put its offer in writing and so prevent you from credibly communicating it to a competitor; if so you are in effect running a sealed-bid contest. Sometimes when companies put themselves up for sale it is understood that there will be a series of rounds (even though these may all be called 'final'), with the investment bankers talking up the price between rounds, but if there is no hard information about competitors' bids until after a deal is sealed, only the final round really counts.⁴⁰

Bidding is closer to sealed-bidding if bidders are differentiated and the criteria for evaluating bids are not fully transparent, so that bidders would not necessarily know whose bid would win even if they were fully informed about others' offers.

Note that sealed-bidding corresponds to standard Bertrand price-setting. With perfect information, the sealed-bid process corresponds to Bertrand competition in a market in which all consumers make the same choice between firms. And, as noted above, with imperfect information about rivals' costs or about the bid-taker's preferences, bidders making sealed bids face a trade-off between the price and their *expected* sales that is similar to the price-quantity trade-off firms face in standard differentiated products Bertrand competition (and also similar to the similar trade-off in Cournot competition).

Unfortunately, though our understanding of whether particular informal industrial bidding processes are best thought of as ascending or sealed-bid is often poor,⁴¹ the distinction is also often crucial as we now discuss.

4.2 *Ascending auctions vs sealed-bid and ordinary markets I: efficiency*

A key distinction between ascending and sealed-bid auctions for a single fixed prize is that the efficient bidder generally wins an ascending auction, because if a high valuation bidder is initially outbid it can always raise its bid later. By contrast, a sealed-bid auction may be efficient when bidders are symmetric, but is not generally efficient.⁴² The reason is that bidders cannot revise their initial bids, and a bidder with a lower valuation may therefore win at a price that a bidder with a higher valuation could have beaten but did not because it was hoping to win more cheaply. Likewise 'ordinary' economic markets that are not 'winner-take-all' are typically inefficient, because less efficient firms typically make some sales.

Thus, for example, a merger that makes an industry asymmetric may be less socially desirable if prices are set in sealed-bid auctions or in 'ordinary' economic markets, than if prices are set in ascending auctions.⁴³ However, a regulator who (like most antitrust regulators) cares about consumer welfare rather

⁴⁰ As a demonstration of this, I have heard of sales in which the winner's final bid exceeded its initial bid, and its initial bid exceeded all subsequent competitive bids.

⁴¹ Interestingly, when reviewing the recent merger between Oracle and PeopleSoft, the US Department of Justice and the European Commission came to quite different views on whether the bidding process was best described as an ascending auction or as a sealed-bid auction. It seems the two authorities (which both originally opposed the transaction) had differing views on whether buyers could be believed when they told competing bidders what the other bidder(s) had offered. So the US Department of Justice (which felt buyers could credibly report bidders' offers) did modelling based on the assumption that sales were ascending auctions, while the European Commission (which felt buyers couldn't do this) looked at studies that modeled the sales processes as sealed-bid auctions. (See European Commission, 2004; US et al. v Oracle Corporation.)

⁴² In reality the strategic uncertainty induced by a sealed-bid auction means that it may not be efficient even with symmetric bidders. This probably does not affect our argument.

Pure common value auctions are an exception, since any allocation is efficient. See section 5.

⁴³ In this discussion we assume mergers do not affect the price-formation process.

than efficiency may have the opposite preferences, since bid-taker surplus is the same under the two auctions if bidders are symmetric but is often higher in a sealed-bid auction if bidders are asymmetric (see Maskin and Riley (2000)). (Put differently, efficiency savings of asymmetry-creating mergers are more likely to be passed through to bid-takers in the sealed-bid case.) Furthermore if the auction reveals information that improves the efficiency of the sealed-bid auction (perhaps merely by sharing information between the merging partners), both efficiency-maximising and consumer surplus-maximising regulators may be more enthusiastic about mergers when prices are set in sealed-bid auctions than when they are set in ascending auctions.

However, one suspects that these direct efficiency effects on the relative attractiveness of mergers in different auction regimes, and further results that can be developed along these lines,⁴⁴ are much less important than the indirect effects to which we now turn.

4.3 *Ascending auctions vs sealed-bid and ordinary markets II: entry*

Because ascending auctions are always won by the strongest party, it is also often known who that winner will be. There is then no incentive for any other bidders to turn up—a disastrous outcome for the bid-taker, especially if he does not have the ability to set a reserve price (perhaps because he lacks the information).

Klemperer (2002a) provides several examples of this—for example, Glaxo's 1995 takeover of Wellcome without serious competition, and for literally billions of dollars less than its valuation, after the largest shareholder in the target company had made commitments that forced the sales process to be essentially an ascending auction. By contrast, entry is more attractive into a sealed-bid auction in which there is usually some uncertainty about who the winner will be,⁴⁵ or into an 'ordinary' economic market in which a slightly-inferior firm may win an only slightly-inferior market share.⁴⁶ Klemperer (1999a,b, 2002a, 2003a) and Bulow and Klemperer (1996) argue that this is a crucial issue in auction design—see also section 6.1.

Furthermore, since entry into an ascending auction can be deterred by even a small disadvantage, entry deterring and predatory strategies of reducing one's own costs, or raising rivals' costs, or making threatening statements, can all be far more profitable than in a sealed-bid auction, or in an 'ordinary'

⁴⁴ Marshall et al (1994), Dalkir, Logan and Masson (2000) and Tschantz, Crooke and Froeb (2000) make detailed comparisons of the price effects of mergers in sealed-bid and ascending auctions, assuming particular functional forms for distributions of valuations. However, the results are sensitive to the functional forms assumed. Changing the functional forms can reverse the relative magnitudes of the price effects of mergers in sealed-bid and ascending auctions. So the suggestion (Froeb and Shor (2000)) that we use the magnitude of the effect in an ascending auction as an upper bound for the magnitude of the effect in a sealed-bid auction may be risky.

⁴⁵ But sealed-bid auctions may discourage potential bidders who have only small amounts to trade, because such bidders need better information about their rivals to bid intelligently than they would need in ascending or uniform-price auctions, and the costs of obtaining good information might not be worth their paying (see Klemperer (2002a)).

⁴⁶ As in, for example, a Cournot market, or a Bertrand market with heterogeneous consumers without price discrimination.

economic market. Indeed a common tactic for an incumbent or otherwise advantaged firm is to attempt to (re)structure the bidding process as an ascending auction.^{47 48}

4.4 *Formal rules facilitate communication*

One of the biggest problems faced by firms who wish to collude or predate is how to signal their intentions to rivals when ordinary communication is illegal. Unfortunately for regulators, the formal rules of auctions often solve firms' problem by defining a 'language' that bidders can use to communicate with each other. Klemperer (2002a) gives many examples, including a multi-license US spectrum auction in 1996 to 1997, in which US West was competing vigorously with McLeod for lot number 378— a license in Rochester, Minnesota. Although most bids in the auction had been in exact thousands of dollars, US West bid \$313,378 and \$62,378 for two licenses in Iowa in which it had earlier shown no interest, overbidding McLeod, who had seemed to be the uncontested high-bidder for these licenses. McLeod got the point that it was being punished for competing in Rochester, and dropped out of that market. Since McLeod made subsequent higher bids on the Iowa licenses, the 'punishment' bids cost US West nothing (see Cramton and Schwartz, 2000).⁴⁹

Thus clear rules permit clear communication, and so facilitate both predatory and collusive behaviour.

Furthermore, auctions like the one described provide a rich enough vocabulary to communicate without providing too much. A simple single (sealed) bid auction would have made the behaviour described impossible; an ascending auction with fixed increments (eg each new bid must be exactly 10 per cent higher than the bid it is beating) would have made it very hard.⁵⁰ On the other hand an 'ordinary' market with many different strategies available to firms may yield too rich a vocabulary for clear communication. For example, it is very hard for consumer-goods retailers who are selling hundreds of products, many of which are at least slightly differentiated from their rivals' products, and who can also follow different strategies in advertising, service quality etc, to communicate suggestions about how to

⁴⁷ For example, governments are often lobbied heavily for ascending auction processes for this reason. The 2001 Hong Kong 3G auction is just one example in which the government disastrously gave in to this lobbying (see section 6.2).

⁴⁸ Note, therefore, that the US Robinson-Patman Act that outlaws price discrimination where this 'reduces competition', and is generally thought to be intended to protect weaker competitors, is less well designed for this purpose than often assumed. The exemption in the Act that allows a firm (eg a large firm or an incumbent) that has previously made sales at a higher price to discount its price to meet the price of a competitor (eg a small firm or new entrant), but not to beat the competitor's price, essentially permits the large firm to compete in an ascending auction contest, but would rule out its participation in a sealed-bid contest (or at least put the large firm in a very weak position since it could not take the risk of beating its rival by more than a trivial margin). If the Act really wished to encourage smaller firms, it should instead make ascending auctions hard for larger firms to participate in, but encourage 'sealed-bid' sales processes that favour weaker firms.

⁴⁹ For another example of bidders using their bids to signal to each other see footnote 54.

⁵⁰ It might still have been possible for US West to signal the same message by overbidding on the Iowa licenses whenever McLeod bid on Rochester. But it would certainly have been harder for US West to be confident its message was understood; perhaps McLeod would have pretended not to understand and, without common knowledge that its message was understood, US West might have given up trying to communicate in this way.

coordinate prices or divide markets, and to monitor whether their rivals are sticking to tacit agreements, without breaking the laws prohibiting explicit communication.⁵¹

Although the problems are worst for ascending auctions they are not restricted to them. For example, in repeated sealed-bid auctions the clearly defined history of past behaviour may allow enough communication to permit coordinated pricing.^{52, 53}

Thus a key distinction between a bidding process with formal rules and an ‘ordinary’ market is that the formality of the rules itself makes market behaviour much more transparent, and so much more vulnerable to competition problems.

4.5 *Ascending auctions vs sealed-bid and ordinary markets III: collusion*

4.5.1 *One-off markets*

Where ascending auctions clearly allow more strategic behaviour than single-bid auctions or ordinary markets is in ‘one-off’ markets that will never be repeated. Because an ascending auction turns a one-off market into a multi-stage game, it permits complex interactions and communications between bidders that would be impossible in a one-shot game. A good example is the behaviour in Iowa described in the previous subsection; see Klemperer (2002a) for more examples.⁵⁴

It is important to observe, however, that the reason ascending auctions encourage anti-competitive behaviour is that they create the standard conditions that facilitate it. This is clearly seen in that they provide easy answers to the four problems that firms must solve in order to support collusion in an ordinary industrial market—these problems are listed in, for example, the European Commission’s current (2004) merger guidelines, and in standard industrial organization textbooks:

1. How can firms reach agreement on a division of the market?
2. How can they monitor adherence to the agreement?

⁵¹ Note that communication is made harder when firms have incentive to feign at least partial misunderstanding of their rivals. This is often the case (and was certainly the case in the US West/McLeod example discussed above).

⁵² For example, the kind of price coordination that has been alleged about some concentrated electricity markets might perhaps arise in any repeated single-bid auction, including pay-your-bid and uniform price auctions.

⁵³ Fabra (2003) argues that collusion is easier in repeated uniform-price multi-unit auctions than in repeated discriminatory multiunit auctions. See also footnote 61.

⁵⁴ [Another favourite example of bidders’ ability to ‘collude’ in a ‘one-off’ ascending auction was provided by the 1999 German DCS-1800 auction: ten blocks of spectrum were sold, with the rule that any new bid on a block had to exceed the previous high bid by at least 10 per cent. There were just two credible bidders: the two largest German mobile-phone companies, T-Mobil and Mannesman; and Mannesman’s first bids were DM18.18 million per megahertz on blocks one to five and DM20 million per MHz on blocks six to ten. T-Mobil—who bid even less in the first round—later said ‘There were no agreements with Mannesman. But [we] interpreted Mannesman’s first bid as an offer.’ (Stuewe, 1999, p.13). The point is that 18.18 plus a 10 per cent raise equals 20.00. Clearly T-Mobil understood that if it bid DM20 million per MHz on blocks one to five, but did not bid again on blocks six to ten, the two companies would then live and let live with neither company challenging the other on the other’s half. Exactly that happened. So the auction closed after just two rounds with each of the bidders acquiring half the blocks for the same low price, which was a small fraction of the valuations that the bidders actually placed on the blocks.

3. How can they credibly punish any observed deviation from the agreement?
4. How can they deter non-participants in the agreement from entering the industry?

In terms of the checklist of section 3.2, ascending auctions make the market very transparent helping to solve problems (1) and (2) much more effectively than in an ‘ordinary’ industrial market whose definition may not be obvious, so in which efficient agreements are unclear, and in which defection is often ambiguous and slow to observe. Ascending auctions enormously increase the frequency of interaction,⁵⁵ so bids can be used to signal proposals about how to divide the ‘pie’, to signal agreement with others’ proposals, and to quickly and easily punish defectors, helping to solve problems (1) and (3) (especially since punishing a defector by raising price only on objects it will win, as in Iowa—see section 4.4—is costless to the punisher). And ascending auctions help deter entry, solving problem (4) (see section 4.3).⁵⁶

To a limited extent similar strategic behaviour is possible in other auctions and ‘ordinary’ one-off markets. For example, by offering ‘meet the competition’ clauses (MCCs) or ‘we will never be undersold’ promises which guarantee rebates to any customer who finds a better price at a rival, firms can sustain collusive prices in a one-shot game—in effect MCCs introduce a dynamic component into the game by promising a reaction in the event an opponent deviates from a tacitly-understood agreement. However, MCCs cannot help firms signal or negotiate what that agreement might be (at least in a one-off context). And a MCC is also risky if you may face an opponent who has very low costs.

Likewise in uniform-price multi-unit auctions (in which all the units are sold at the (same) price that equates supply and demand), bidders can in principle achieve collusive prices as an ‘implicitly collusive’ equilibrium by choosing bids that would result in very competitive outcomes in the out-of-equilibrium event that the opponents fail to cooperate in the collusion.⁵⁷ Again, however, it is unclear how in a one-off market bidders can agree what the collusive shares should be, and the strategy is very vulnerable to opponents’ mistakes in understanding these shares or to additional bidders entering unexpectedly. So the existence of these equilibria in theoretical models is probably more relevant in practice to assisting collusion in repeated markets than to allowing it in actual one-off markets.⁵⁸

However, the greater danger of collusion in one-off ascending auction markets can also be exaggerated. Coordinated effects are harder with more firms, or less similar firms (see section 3.2), and bidders often seem more imaginative in their attempts to signal than in their understanding of others’ signals—as usual, something is much more obvious after it has been explained.^{59, 60} Even with ascending

⁵⁵ And so also mean that simply being in the one-off market is as good as a ‘long-term commitment’, in terms of the checklist of section 3.2.

⁵⁶ At a more formal level, Grimm, Riedel and Wolfstetter (2002) argue that the rules of ascending auctions turn the outcomes of one-shot oligopolistic games that we call ‘collusive’ into non-cooperative Nash equilibria of repeated oligopoly games. Grimm et al demonstrate this point in the context of the 1999 German DCS-1800 auction described in footnote 54.

⁵⁷ For example, if two buyers each bid very high prices for less than half the available quantity, but low prices for half or more, then each buyer receives half the quantity at the low price, and both players would be worse off if either player deviated to bid more aggressively for more than half the quantity.

⁵⁸ Sade, Schnitzlein, and Zender (2004) have found collusion to be no more common in experimental markets that use uniform-price auctions than those that use discriminatory auctions—in fact they find the contrary.

⁵⁹ It is often entertaining to hear after an auction what bidders thought they were communicating. Though I’m not sure I fully believe the southern European bidding team who explained that its bid in a major auction had an obvious interpretation from the Bible, the dumbfounded and horrified reactions of the

auctions, it is much harder to build up mutual understanding in a one-off market than in a regularly repeated one. Finally, as we discuss in section 6.1, even minor modifications to an ascending auction's rules can often reduce the risk of collusion.

Market division

Bidding processes may also facilitate collusive market division by turning a one-shot game for a whole market into a long series of individual customer-specific contests.⁶¹ Especially when all bids are observable, this may make it much easier to segment the market, eg allocating customers geographically, though firms may, to some extent, be able to achieve similar segmentation in an 'ordinary' market through pricediscrimination.

How many bidders are enough?

It is often asked, 'How many bidders are enough to make a market competitive?' The answer is no clearer than in an 'ordinary' market, but experience suggests that (contrary to the simple theory of 'bidding markets'—see section 2.1) one more bidder than the number of prizes is *not* enough in an ascending auction, even in a one-off auction in which bidders can win at most one prize each (so there is no question of colluding to divide the prizes). For example, in the year 2000, Netherlands' 3G (ascending) auction in which six bidders competed for five licenses, the auction finished early raising less than one-third the revenue expected, after what many interpreted as predatory behaviour that eliminated a bidder (see section 5.2 and Klemperer (2002b, 2003a)). Similarly the Italian 3G (ascending) auction held just three months later, also with six bidders for five licenses, collapsed almost as soon as it had begun amid allegations of collusion and with a proportionately similar loss of government revenue (see Klemperer (2002b)).^{62 63}

5. Common values

Auctions and bidding processes are often used precisely because different participants have different, and poor, information—auctions are famously good at efficiently aggregating and using dispersed information, while with perfect information using posted prices is more straightforward. But if competitors have information or opinions about the value of winning a contract or prize that would be useful to other competitors, this creates 'common values'. In particular, a bidder wins the prize only when it has very optimistic information about its value (indeed in symmetric equilibrium it wins the prize only when it has

northern European consultants who had spent considerable effort trying to decode the bid at the time were a treat to behold. Culture matters.

⁶⁰ Another problem is when there is more than one bidder who thinks it is, or should be, the leader coordinating the others. See Klemperer (2002d, 2003a).

⁶¹ The theoretical literature on collusion in repeated auctions (Blume and Heidhues (mimeo, 2002), Aoyagi (2003), Skrzypacz and Hopenhayn (2004), McAfee and McMillan (1992)) shows how schemes such as bid-rotation (in which firms take turns to submit the winning bid) can achieve collusive outcomes in the absence of side transfers between bidders.

⁶² The lost revenue was similar per head of population. The sets of bidders were different in the two auctions, and there is no suggestion that there was any important connection between these auctions (though Klemperer (2002b) argues that bidders did learn how to 'play the game' better through the course of the European 3G auctions more generally).

⁶³ On a personal note, it has sometimes been put to me that the investment bankers who advised on the UK's 3G auction (which I, together with Ken Binmore, designed) had no useful role. But I believe they performed (at least) a very valuable marketing job in persuading 13 bidders to compete for the UK's five licences. Though some of the bidders seemed unlikely winners even at the time, 13 bidders were enough that neither predation nor collusion was a realistic strategy. (See Binmore and Klemperer (2002).)

the highest signal)—this is the ‘winner’s curse’. Failure to take into account the bad news about others’ signals that comes with any victory would lead to the winner paying more, on average, than the prize is worth. So bidders adjust their bids downwards (in either sealed-bid or ascending auctions) to allow for the winner’s curse.

It is sometimes argued that ‘winner’s curse’ issues reduce competition problems. However, while they may perhaps mitigate the problems of collusion (this is unclear—see below), they certainly do not negate them. Indeed, overall, the existence of common values is probably an argument for *stronger* rather than weaker competition policy.

Furthermore, in many cases it is hard to distinguish whether or not an auction or market is common or private values—that is, from a given bidder’s perspective does other bidders’ private information relate to others’ valuations, or also to this bidder’s actual valuation?⁶⁴ Moreover, even if the situation is truly common values, do bidders bid as if others’ information matters to them?, or do they bid as if there were private values? If the latter, then any common value effects are even less important.

5.1 *Common values and collusion*

It is well understood that the more competitors a bidder faces, the greater is the winner’s curse, (ie the worse is the news from winning) and so the more the bidder must adjust his bid to account for the curse. So if a subset of bidders colludes it faces a lesser curse from winning and therefore, it is argued, it may bid more aggressively and raise bid-taker surplus. So, it is contended, bid-takers *gain* from bidders’ collusion! But although bids are adjusted less for the winner’s curse, this effect is offset both by the reduced winner’s curse, and by the standard loss-of-competition effects; *ceteris paribus* (absent winner’s curse effects), bidders with fewer competitors bid less aggressively, and even if they bid equally aggressively, the winning bid among fewer bidders is on average less aggressive. While the details of functional forms are crucial, the simplest examples suggest mergers with common values are as anticompetitive as mergers with private values:⁶⁵

First, consider the ‘maximum game’ introduced by Bulow and Klemperer (2002) in which each bidder, i , initially receives a signal, t_i , and the actual common-value, v , of the single prize is the maximum of these signals, ie $v = \max\{t_i\}$.⁶⁶ In the symmetric equilibrium of an ascending auction, each bidder

⁶⁴ It is often difficult to distinguish private values from common values even based on ex-post bidding data. See, for example, Laffont and Vuong (1996), and Pinkse and Tan (2005). However, there are some econometric tests, see, eg Armantier (2002), Athey and Haile (2002), Haile, Hong, and Shum (2004), Hendricks, Pinkse, and Porter (2003) and Paarsch (1992) (see also Bulow and Klemperer (2002) for some relevant theory), and some empirical literature distinguishes the different contexts. For example, Hendricks, Pinkse, and Porter provide evidence that oil and gas leases (where rivals have private information about yields) are mostly common value assets. Construction contracts (where rivals have private information about costs) are also typically thought to be largely common values. Purchases for resale may also have large common-value components.

⁶⁵ Hendricks, Porter, and Tan (2003) show that joint-bidding consortia are less likely to be formed in common-values contests, since bidders who think they have good information may prefer to bid non-cooperatively than to share their possible gains with less-informed rivals. A positive interpretation of this result is that any consortium is likely to reflect strong efficiency benefits. A negative interpretation is that it may have been formed for its entry-detering effects (see below and section 5.2—Hendricks et al ignore the effects of joint-bidding on further entry). A neutral interpretation is that if we do observe a consortium, the auction is more likely to be private values than common values.

⁶⁶ This model, or an approximation to it, may be appropriate when bidding for mineral rights, if a positive signal ‘finding gold’ makes all other prospecting results irrelevant. Harstad and Bordley (1996) and

drops out at his own signal. After any mergers, a merged entity behaves as if it had a signal equal to the maximum of all its signals. Clearly revenue is unaltered unless the bidders with the two highest signals happened to merge in which case revenue falls to equal the highest signal not held by the winner. Note that the results are *identical* to those of a pure privatevalue model in which each bidder's actual value is t_i , and a merged entity's actual value is the maximum of the values held by its constituents.⁶⁷

A second example is provided by the 'wallet game' introduced by Bulow and Klemperer (1997) and Klemperer (1998), in which the actual common value of the single prize is the sum of all the signals, ie $v = \sum t$. Here too, it is very easy to show that mergers that result in two firms each holding half the signals reduce bid-taker surplus,⁶⁸ and Mares and Shor (2004) extend this to show that any sequence of mergers that results in a symmetric industry structure reduces bid-taker surplus.⁶⁹ These results hold for both ascending and sealed-bid auctions.⁷⁰ Analysing mergers that yield asymmetric industry structures is much harder, but those results that are available suggest that here too mergers reduce bid-taker surplus with common values, just as with private values.⁷¹

Of course, all these results contrast with those of Bulow and Klemperer (2002) who show that reducing the number of bidders by simply excluding some of them always raises bid-taker surplus in the 'maximum' game, and often does so in the 'wallet' game. The crucial difference is that Bulow and Klemperer assume excluding bidders also excludes their private information from being used in the bidding, whereas a consortium (joint) bidder retains and uses all the information of the constituent bidders. In common-value auctions, the bidders' rents reflect the expected difference in information between the winner and the runner up, so if reducing participation excludes particularly valuable private information it can reduce the difference between bidders' information and so increase bid-taker surplus. By contrast, joint bidding hurts the bid-taker if it increases the differences in private information available to different

Parlour and Rajan (2005) present more complex models with very similar properties to the 'maximum game'.

⁶⁷ These results extend to sealed-bid auctions for mergers that result in a symmetric industry structure (when bidders are riskneutral and their information signals are independent), by an elementary application of the Revenue Equivalence Theorem.

⁶⁸ In the symmetric equilibrium, the last bidder to drop out quits at what the actual value would be, if the actual winner's signal were in fact tied with his own. Thus, writing $t(i)$ for the actual i th highest signal, before any mergers the winner's profit is $t(1) - t(2)$ and expected auction revenue is $\int_0^1 t(1) - t(2) f(t(1), t(2)) dt$. Post-mergers, each firm's private information is represented by the sum of its signals and each firm again bids up to what the actual value would be if its opponent were tied with it, so the winning firm's profit is the difference between the sum of its signals and the sum of its opponent's signals. Then, conditional on $t(1)$ and $t(2)$ being held by separate merged firms, let the sums of all the other signals held by these two merged firms be S_1 and S_2 , respectively, so expected seller revenue is $\int_0^1 \int_0^1 (t(1) + S_1) - (t(2) + S_2) f(t(1), t(2)) dt(1) dt(2)$. Of course, conditional on $t(1)$ and $t(2)$ being held by the same firm, the expected difference between the winning firm's information and the losing firm's information is even higher, so expected seller revenue is even lower.

⁶⁹ Mares and Shor assume nm bidders, each of which owns a single signal, merge to create n firms, each of which owns m signals.

⁷⁰ The extension to sealed-bid auctions is an elementary application of the Revenue Equivalence Theorem; we assume bidders are risk-neutral, that their information signals are independent, and that they play the symmetric equilibrium in an ascending auction.

⁷¹ For sealed-bid auctions, see Klemperer (forthcoming b). For ascending auctions, a general analysis is hard because there is a multiplicity of equilibria, and is hard to pick it among them after a merger that leaves bidders asymmetric. However, Pagnozzi (2004a) argues that the result that mergers are anti-competitive generalizes to asymmetric cases by analyzing the game as the limit of an 'almost common-value model'.

bidders by giving different merged bidders access to more different signals. Indeed the most profitable strategy for an uninformed bid-taker is to exclude all bidders and sell to a completely uninformed bidder who will be willing to bid the full expected value of the prize; a very unprofitable strategy is to allow all the informed bidders to combine, even if you can make them a take-it-or-leave-it offer. Nonetheless, it is not surprising that Bulow and Klemperer's (2002) work (and empirical support for it in, eg Hong and Shum (2002)) has been misinterpreted as suggesting a possible merit of joint bidding in common-value auctions.⁷²

Other previous papers also seem to have been misinterpreted as suggesting common values mean joint bidding is less damaging than usual:

Hoffman et al's (1991) and Hendricks and Porter's (1992) empirical work emphasizes that joint-bidding in common-value oil-industry auctions allows informed bidders more access to capital, so bid-takers could gain. But with private values or in 'ordinary' (non-auction) markets, also, a joint venture can be pro-competitive if it relaxes capital constraints, and Hendricks and Porter's evidence suggests joint bidding may also increase bidder rents, just as in ordinary markets, for the usual reduction of competition reasons (Hendricks and Porter, 1992 p 511).

In a similar vein, de Brock and Smith (1983) present a theoretical example in which joint bidding rarely reduces the bid-taker's surplus very much, and for some parameterizations actually increases it. But in their example there are (social) efficiency gains from mergers, because bidders' improved information means oil tracts are developed more efficiently. So, again, this is nothing new. This is very similar to the standard argument that an R&D joint venture that pools information efficiently can both be socially beneficial and can benefit consumers (or benefit bidders in a private-values auction). Indeed in de Brock and Smith's example, mergers *always* increase bidders' expected profits and, just as in 'ordinary' markets, the anticompetitive effect of increased market power can only be outweighed by the efficiency effects if the industry is sufficiently unconcentrated. (In their examples the bid-taker is always left worse off unless at least ten(!) bidders remain after the merger.)

Perhaps there are greater information-pooling and/or capital-constraint-relaxing benefits of mergers in common-value auctions than in private-value auctions or 'ordinary' markets, because common-value issues are driven by poor and different information and so also firms may face greater risks. On the other hand, in a common-value auction it is a matter of social indifference who wins,⁷³ whereas in ordinary markets mergers that transfer more output to lower cost firms (as is usually the case) are socially beneficial. So, on balance, efficiency benefits of mergers may be more likely in 'ordinary' markets.⁷⁴

Some other arguments also suggest joint bidding may be more deleterious in common-value than in private-value auctions: if participants underestimate the common-value effects, or otherwise fail to

⁷² Further confusion has resulted from an influential paper by Krishna and Morgan (1997) which made valuable contributions to the study of common-value auctions, but also contended that joint bidding could benefit bid-takers in wallet-games. Unfortunately that part of their paper was flawed, and joint bidding cannot benefit bid-takers in Krishna and Morgan's model, as Mares and Shor (2004) demonstrated. Furthermore, Levin (2004) showed that in multi-unit auctions it is even more likely that joint bidding hurts the bid-taker.

⁷³ Of course, this also means that if we care about social welfare rather than about bid-taker's or consumers' welfare, we should not care about mergers in pure common-value auctions.

⁷⁴ In winner-take-all, sealed-bid, private-value auctions, efficiency can be increased or decreased by mergers. See section 4.2.

compensate sufficiently for them, they will lose more from the winner's curse the more bidders there are, so in practice common-value effects may exacerbate (and certainly not reduce) the costliness to bid-takers of collusion or mergers. Furthermore, the strategy of incumbents merging to strengthen themselves and prevent the entry of further rivals may be particularly effective in common-value contexts (see next sub-section).⁷⁵

Mares and Shor's (2004) experiments provide further evidence that joint bidding hurts bid-takers in common-value auctions.

Finally, and *crucially*, and far more significant than the issue of joint bidding when some competition remains, is the issue of joint bidding or collusion among *all* bidders. A very real danger is that (just as in private-value contests) the more joint bidding is permitted, the easier it is for industry-wide collusion to develop.

In sum, while these issues are still not well understood, the current evidence is that joint bidding is unlikely to be much more benign in common-value auctions than in private-value auctions or in 'ordinary' markets.

5.2 *Common values and predation*

With 'almost common values', that is, in common-value cases in which one bidder is slightly stronger than the other(s), the disadvantages of weaker bidders in ascending auctions that we discussed in section 4.3 are exacerbated by the winner's curse effects.

The reason is that winning against a bidder whose value of winning is greater than yours is even worse news than usual about the opponent's valuation of the prize; so you must bid extra cautiously. And because he knows you are being extra cautious, beating you is not very bad news for him about your valuation; so he need not worry much about the winner's curse and can bid more aggressively than if you and he were symmetrically placed. So the effect is self reinforcing—because the weak bidder faces a very severe winner's curse and is bidding extra cautiously, the advantaged bidder faces very little winner's curse and is bidding extra aggressively. This substantially reduces bid-taker surplus even if entry to the auction is unaffected. Moreover, since the weaker bidder's potential profits from bidding are so low, it may also be discouraged from even entering, further hurting the bid-taker.

Thus antitrust policy must be more careful than usual to protect against actions that magnify weaker bidders' disadvantages in ascending auctions. Such actions may include mergers. For example, prior to the Netherlands 3G auction in 2000 of five licences (which, for good technological and antitrust reasons, were indivisible and had each to be won by a different firm), there were four strong incumbent 2G operators and one weaker incumbent 2G operator (Ben). There were also a number of potential entrants, of whom Deutsche Telekom (DT) was particularly strong since it was both financially unconstrained and had potential synergies with its substantial operations in neighbouring Germany. Since even the weak incumbent had some advantages, based on past sunk investments in technology, base stations, customer loyalty and brand-name recognition, there might have been a competitive auction if Ben and DT had bid independently. But after Ben merged with DT it seemed very clear who the five winners would be, and

⁷⁵

Of course, it also follows that a merger that combines two weak bidders, and thereby reduces the difference between the amount of private information available to the resulting (merged) bidder and the amount of private information available to a stronger bidder, could be particularly desirable in preventing the entry-deterring and predatory possibilities discussed in the next sub-section. This parallels the result that in a 'normal market', a merger may create a more effective competitor to an otherwise-dominant firm.

only one of the remaining potential entrants bothered to bid.⁷⁶ Furthermore, that remaining entrant only bid weakly, and gave up altogether after being discouraged by further actions that some argued were predatory and deserved government investigation. The result was a disaster for the bid-taker (the Netherlands' government) which earned less than one-third of the revenue that a well-managed process could have yielded.

The Netherlands' ascending auction design would have made it unattractive to potential entrants even absent the special common-value considerations. But the common-value issues seem to have exacerbated this problem, and they also greatly increased the disadvantages faced by the one new entrant who did bid.⁷⁷ (See Klemperer (2002b, 2003a) for further details.)

Although the most obvious advantage one bidder might have over another is a higher valuation for the prize, other possible advantages include a commitment to maintain a reputation for aggressive bidding (Bikhchandani (1988)), or a small ownership stake, or 'toehold', in the prize being competed for (which provides an incentive to push the price up further than otherwise—see Bulow, Huang, and Klemperer (1999)). Klemperer (1998) gives details and examples.⁷⁸

The UK Monopolies and Mergers Commission (MMC) took this last issue very seriously when it blocked BSkyB (the leading UK satellite television company) from acquiring Manchester United (then Europe's leading football club) in 1999.⁷⁹ The concern was that Manchester United received 7 per cent of the Premiership's television revenues which were sold as a bundle in an ascending auction. Acquiring this 7 per cent 'toehold' in the prize would have made BSkyB most likely to win the auction, and ownership of the football television rights would have reinforced BSkyB's market power in the pay-television market.⁸⁰

One argument against the MMC's decision was that if bidders behaved as if the auction was private values, the auction would have been much less affected because the logic given at the beginning of the subsection only fully applies if participants understand it and believe it. With private values, or if bidders behave as if there are private values, a small advantage of the right kind may still deter entry, but otherwise may not much affect the auction, by contrast with the common-values case, in which not only is entry even more likely to be deterred, but a small advantage creates a much less competitive auction. However, the MMC took the view that while bidder behaviour might not be as extreme as in the theoretical models, the common-values aspect would make BSkyB's rivals at least somewhat more cautious.⁸¹ Sadly, the prominence given to my papers, Klemperer (1998), and Bulow, Huang, and Klemperer (1999), in the

⁷⁶ In addition to Deutsche Telekom, Hutchison had also been considered a strong potential entrant, but it also entered a partnership with an incumbent (KPN). Other potential entrants were also co-opted into joint-ventures with incumbents, or dropped out altogether.

⁷⁷ The common-value issues were sufficiently important and well-understood that they were discussed in the press in advance of the Netherlands' auction. Although this auction might have been uncompetitive even without common values, the anti-trust concern we describe below (caused by the proposed BSkyB-Manchester United merger) would probably not have been an issue at all, absent common values.

⁷⁸ Levin and Kagel (2005) show that the effects can be smaller, though still important, when there are more than two bidders.

⁷⁹ See MMC (MMC) (1999). Prior to 2003, the MMC (the predecessor body to the Competition Commission) could only make recommendations, so this decision was technically a recommendation, but it was accepted by the government.

⁸⁰ Though the theories discussed in the MMC's decision appealed to my papers Klemperer (1998), Bulow, Huang, and Klemperer (1999), I did not discuss the case with the MMC or with any interested party before the decision (which was prior to my appointment as a Member of the Competition Commission).

⁸¹ See MMC (1999, para 2.116).

debate, probably made it more likely that bidders would behave according to the theory. Similarly, other advantaged firms have made a point of emphasizing the common-values theory—and their own belief in it. For example, Pacific Telephone paid an auction theorist⁸² to give seminars explaining the ‘winner’s curse’ at industry gatherings prior to a US mobile phone license auction in which it was the advantaged incumbent.⁸³

Another argument against the MMC’s decision was that the television rights did not need to be sold using an ascending auction, and ‘toehold’ problems are unlikely to be significant in, for example, a sealed-bid auction: we will address this argument in the next section.⁸⁴

6. Bid-taker power

An important feature of auctions and bidding processes is that the bid-taker often has far more control over the competitive process than an ordinary consumer does. Skilful use of the bid-taker’s monopsonistic power to design and run the contest can mitigate the competition problems.

However, there are also many constraints and limitations on bid-takers’ power. Although good auction design may be able to overcome these problems in principle, regulators must be careful not to take too rosy a view of what bid-takers can realistically achieve in practice. Indeed, where bidders can lobby against or otherwise subvert the rules and/or the bid-taker cannot precommit his future behaviour, the bid-taker’s ‘power’ can actually work against him and aggravate the competitive problems.

6.1 *Tailoring the rules*

6.1.1 *Sealed-bid auctions*

It will be apparent from the previous discussion that many problems of entry deterrence, predation, and collusion can be avoided by choosing sealed-bid rather than ascending auction rules. Sealed-bid auctions may also be more profitable for bid-takers even absent these problems, especially when bidders’ risk-aversion is important, as is likely in a large ‘winner-take-all’ ‘bet-your-company’ contest (ie when conditions (1) and (2) of an ideal ‘bidding market’ are satisfied). See, especially, sections 4.3 to 4.5 and 5.2 above, and Klemperer (1999a, 2002a) for more details.

6.1.2 *Anglo-Dutch auctions*

Although a sealed-bid auction has many advantages, it is often socially less efficient than an ascending auction (see section 4.2). A solution to the dilemma of choosing between the ascending (often called ‘English’) and sealed-bid (or ‘Dutch’) forms is to combine the two in a hybrid, the ‘Anglo-Dutch’,

⁸² Not me!

⁸³ Conversely, one major oil company is said to have deliberately cultivated a reputation for not believing in economic theory.

⁸⁴ An alternative view was that antitrust policy did not go far enough: after BSKyB was prohibited from taking over Manchester United it very quickly took small minority stakes in all of Manchester United, Manchester City, Chelsea, Leeds, and Sunderland, thus to some degree recreating the ‘toehold’ stake in football television revenues that had caused concern, while evading the MMC’s scrutiny because the stakes were too small to qualify as mergers. (In principle the Office of Fair Trading could have taken action, but this might have been hard.) Perhaps since BSKyB already had a very strong position, it should have been prohibited from developing a toehold, but it would have helped ‘level the playing field’, and so been good for competition, if any of BSKyB’s rivals had developed a toehold. In fact, NTL dropped a bid to acquire Newcastle but took minority stakes in Aston Villa, Leeds, Middlesbrough and Newcastle.

which often captures the best features of both, and was first described and proposed in Klemperer (1998). Assuming, for simplicity, a single object is to be auctioned, the auctioneer begins by running an ascending auction in which price is raised continuously until all but two bidders have dropped out. These two bidders are then each required to make a final sealed-bid offer that is not lower than the current asking price, and the winner pays his bid.⁸⁵

Among its other advantages, the Anglo-Dutch auction encourages entry and discourages collusion (just like a sealed bid auction) but is more likely to sell to the highest valuer than a pure sealed-bid auction, both because it directly reduces the numbers allowed into the sealed-bid stage and also because the two finalists can learn something about each other's and the remaining bidders' perceptions of the object's value from behaviour during the ascending stage. See Klemperer (1998, 2002a) for a fuller discussion of the Anglo-Dutch auction's advantages.

It was first developed for practical use in the design of the UK 3G auction where it was proposed to use it to encourage entry in the event only four licences were available for sale, since the UK industry had exactly four strong incumbent operators. There is evidence that it might have been successful in this, but in the event a fifth license became available for sale so it was no longer appropriate to use it (see Binmore and Klemperer (2002)). However, formal Anglo-Dutch procedures have subsequently been used very successfully in auctions of electricity (see eg Woo et al (2004)) and real estate (Moreland (2004)).⁸⁶

6.1.3 *Fine-Tuning ascending auctions*

An alternative approach is to try to make the ascending auction more robust. For example, requiring bids to be 'round' numbers, prespecifying the exact increments, and making bids anonymous, make it harder to use bids to signal other buyers.⁸⁷ Aggregating lots into larger packages makes it harder for bidders to 'divide the spoils', and keeping secret the number of bidders remaining also makes collusion harder (Cramton and Schwartz, 2000; Salant, 2000). But these measures do not eliminate the risks of collusion, and do very little to mitigate the discouraging effect of ascending auctions on entry. Moreover, bidders can often adapt their behaviour to overcome such minor 'fixes' faster than bid-takers can develop new fixes (see also section 6.2).

6.1.4 *Other new procedures*

There has recently been enormous interest in designing new auction procedures, though there is a paucity of theory about how effective many of them are—especially the multi-unit ones.⁸⁸ Of particular note for resolving anti-trust concerns is Ausubel's (2004) popularization of a modification of the multi-unit ascending auction that creates a dynamic version of the Vickrey auction and so eliminates classical 'unilateral effects', that is, it eliminates bidders' incentives to scale back their demands (or supplies) in

⁸⁵ Many houses are sold using a similar, but less formal, process. Similarly, in WR Hambrecht's OpenBook auctions for corporate bonds, the early bidding is public and ascending but higher bidders are given an advantage in a final sealed-bid stage (although in this case all bidders are permitted to enter the final stage). The process also has some similarity to auctions on eBay which are ascending price, but with a fixed ending time so that many bidders often bid only in the last few seconds in essentially sealed-bid style.

⁸⁶ I am aware of the formal Anglo-Dutch auction having been recently used in Florida, Texas and the Netherlands. I would be eager to hear about other practical applications.

⁸⁷ See Salmon (2004) for discussion of some of these ideas.

⁸⁸ Milgrom (2004) is an excellent introduction to the state of the art in multi-unit auctions.

order to end the auction quickly at an uncompetitive price.⁸⁹ However, this auction can reduce bid-taker surplus so may not fit most regulators' objectives.⁹⁰ Furthermore, its relative complexity both makes it difficult to explain, and means that bidding may be affected less in practice than in theory (some experiments suggest this). Perhaps for these reasons, I am not aware of it having been applied in practice. In practical auction design, simplicity is crucial, and it is much easier to 'sell' designs that are similar to well-known institutions. (For example, the adoption of the Anglo-Dutch auction for practical use has been helped by describing it as a formalization of the informal process that is traditionally used to sell many houses.⁹¹)

6.1.5 *Secrecy*

An important aspect of sealed-bid auction rules is whether or not bids are secret. Just as in 'ordinary' markets, keeping bids secret makes it harder for bidders to coordinate their activities and makes defection from a collusive agreement harder to observe and therefore more attractive. So secrecy fights collusion between bidders. Unfortunately secrecy may also facilitate collusion between the bid-taker and one or more bidders,⁹² and the fear of this may also sometimes discourage entry.

Allowing each bidder to submit multiple sealed bids over a period of time can help frustrate collusion by making it harder for bidders to monitor each other, and keeping the number and identities of bidders secret can also make an auction more competitive (especially if bidders are risk averse) and encourage entry.⁹³

6.1.6 *Reserve prices*

A very powerful use of the bid-taker's monopoly (or monopsony) position is in setting a reserve price. Of course, it must be credible that the bid-taker will stick to the announced reserve (see section 6.2).

6.1.7 *Discrimination*

Discriminating between bidders by setting different reserve prices, or by giving bidding credits to particular bidders or particular classes of bidders, corresponds exactly to price discrimination in ordinary

⁸⁹ Similar unilateral effects, in which bidders reduce demands (or supplies) to make the auction price(s) less competitive for their remaining demands (or supplies), also arise in other multi-unit auctions (or sequential single-unit auctions).

⁹⁰ There are also other difficulties: for example, high valuers are often required to pay less than low-valuers (which seems odd to policy makers), and it creates difficult-to-guard-against opportunities for collusion, so it is probably only useful in carefully controlled environments.

⁹¹ See also footnote 85 above. By contrast, the attempt to implement a slightly novel design in Hong Kong was a disaster—see next subsection and Klemperer (2003a).

⁹² A very simple form of collusion is for the bid-taker to tell a bidder what its competitors have bid. This may be prevented by having all bids publicly opened.

⁹³ For example, when Denmark ran the last of the 2000 to 2001 European 3G auctions, the government was rightly concerned whether it could attract any new entrant given that the number of licences equalled the number of incumbents—see our discussion of the Netherlands' auction in section 5.2 (and since also the telecom market had by then gone so sour). They followed all the strategies in this ('secrecy') sub-subsection, and ran a highly successful auction. See Klemperer (2002b, 2003a). McAfee and McMillan (1987, 1988) argue that the Canadian utility company Ontario Hydro benefited from keeping the number of bidders secret in auctions it ran.

markets in forcing stronger bidders to bid more aggressively (see Bulow and Roberts (1989)). It can also encourage the entry of weaker bidders into the auction.⁹⁴

Sometimes it is possible to pay bidders to enter an auction; for example, firms' bidpreparation costs can be reimbursed,⁹⁵ or 'white knights' can be offered options to enter a takeover battle against an advantaged bidder.

Where awarding a contract means evaluating multiple criteria, for example, price and quality, it may be possible to induce more competitive bidding by precommitting to underweight or ignore one criterion. An illustration of this is that part of the power of a buying group (eg a hospital) may be that the average preference of their members (eg doctors and nurses) is closer to the average of different brands than is the preference of an individual member. Central procurement from a single vendor may therefore achieve a better price (Farrell and Klemperer, 2000).

6.1.8 *Bundling and packaging*

Another reason why procuring from a single vendor may be desirable is that it takes advantage of bidder's risk aversion. By making a contract larger, it may be possible to turn it into a 'must-win' for one or more bidders, who will then bid more competitively.⁹⁶ Bundling can also prevent both unilateral and coordinated effects (see, for example, sections 3.2-3.3 and 4.4-4.5), by making it impossible for bidders to 'divide the pie' among themselves. On the other hand, committing to divide a prize among multiple winners can sometimes attract entry of weaker bidders, and may also induce more competitive bidding by reducing winner's curses.⁹⁷

Bundling and packaging can often reduce inefficiency when complementary goods or contracts are auctioned—in the absence of bundling, some bidders may end up stuck with objects that are worth very little to them because they failed to win complementary objects (the so-called 'exposure' problem), while other bidders may fail to bid at all (or quit an ascending auction early) in fear of this.

On the other hand, bundling can also increase inefficiency while raising bid-taker surplus, in exactly the same way that bundling products, or offering non-linear pricing and quantity discounts, can raise an 'ordinary' monopolist's profits at the same time as lowering social surplus. The antitrust issues parallel issues of monopoly bundling and exclusion in 'ordinary' markets.

Bundling and packaging is especially critical when an auction creates a new market (as, for example, the 3G spectrum auctions created the 3G mobile phone markets). Allowing the industry structure to be

⁹⁴ Ayres and Cramton (1996) estimate that offering 40 per cent bidding credits to 'designated bidders' (ie the bid-taker agreed to refund 40 per cent of winning bids by firms controlled by women, minorities, etc), together with favourable terms for payment by installment, actually raised the Federal Government's revenue (by \$45 million, or about 12 per cent) in the 1994 sale of regional narrowband PCS spectrum.

⁹⁵ Similarly, the United Kingdom Inland Revenue (ie tax collecting authority) recently paid bidders to undertake exploratory studies about how a large IT project might be designed and managed, as a way of reducing these bidders' information disadvantages relative to the better-informed incumbent who had won the previous contract.

⁹⁶ One way to make a contract larger is to aggregate several auctions that would otherwise take place at different times.

⁹⁷ See sections 4.3 and 5.2, Gilbert and Klemperer (2000), and Bulow and Klemperer (2002). Using such 'split-award' auctions is just a form of offering 'second prizes' and, when it would be efficient and/or would ex-post maximize bid-taker surplus to have a single winner, can be seen as a form of discriminating in favour of weaker bidders.

determined in the auction (eg by selling many small blocks of spectrum, but allowing each firm to win multiple blocks) has the advantage that the outcome depends on bidders' private information, but the disadvantage that bidders' objectives are not the social objectives. So it may be better to determine the industry structure in advance (eg by fixing the number and sizes of licences for sale, and allowing firms to win at most one each). The choice between these approaches is a topic of active research (see, eg Hoppe, Jehiel and Moldovanu (forthcoming)), but it is not yet easy to make many general statements.

6.1.9 *Controlling resale*

Resale can render both discrimination and bundling ineffective, so in the simplest models with a fixed number of bidders who know their own current and future values, a bid-taker wants to prevent resale—exactly as a price-discriminating monopolist in an 'ordinary' market needs to prevent resale. However, the possibility of resale can also give arbitrageurs an incentive to participate in the auction (which increases its competitiveness),⁹⁸ and re-sale also allows bidders to respond to new information about their valuations of the assets.⁹⁹ So the effects on an auction of the knowledge that re-sale will subsequently be permitted are complex. A natural instinct is that it is likely to be broadly efficient (even though it will not always maximise bid-taker surplus) to permit the re-sale of assets such as licences in the same way, and subject to similar rules, as mergers of firms. However, more research is needed to confirm or refute this.

6.1.10 *Antitrust rules*

Finally, as must by now be clear, where bid-takers have the power (for example, when they are governments), it is important for them to ensure normal antitrust rules apply (see section 7).

6.2 *Constraints on bid-taker power*

Although in theory bid-takers have many instruments available to them, they also face important constraints including governmental or supragovernmental legislation or procedures, internal-organizational issues, bidders' countervailing tactics, and the difficulty of committing their own future behaviour. Bid-takers that are government agencies are often especially severely constrained.

Most obviously, a prohibition on resale may be hard to enforce, so strategies involving discriminating between bidders and/or bundling may be ineffective.¹⁰⁰

Moreover, State Aid (and other) legislation generally prevents European governments from explicitly discriminating between bidders (eg using targeted bidding credits), and while similar ends can often be achieved using technically neutral rules, (eg placing more weight on criteria which favour the preferred bidder(s)) this is usually less efficient. For example, in the UK 3G auction we were advised that bidding credits to encourage entry were not permissible. However, choosing auction rules that favoured entry,

⁹⁸ Pagnozzi (2004b) models how the bargaining in the aftermarket is itself affected by the outcome of the auction, and how the possibility of entering the resale market can both induce bidders to drop out of an auction early and give arbitrageurs a strong incentive to participate.

⁹⁹ But resale does not resolve all inefficiencies, even when firms' private objectives are the social objectives (Cai (2000), Myerson and Satterthwaite (1983), Cramton, Gibbons and Klemperer (1987)).

¹⁰⁰ For example, on one occasion when the US government offered bidding credits to firms controlled by women (ie the government agreed to refund a percentage of winning bids by such firms), a female executive resigned her position at a large established firm to form a new company to bid in the auction and re-sell the rights to her original employer with—it is said—the resale terms settled in advance of her departure and a promise that she could return to her original job if her new company failed to win the auction. Such strategies obviously vitiate the point of bidding credits.

specifically an Anglo-Dutch auction, was possible. So was dividing the available spectrum into a large enough number of licences that one would have to be won by an entrant—in other words, running a ‘split award’ auction (in fact broader competition policy reasons dictated this choice anyway, once it became clear it was technically feasible).^{101 102}

UK Government legislation imposed other constraints on the 3G auction design that could only have been removed by parliamentary legislation—an option that was not favoured by Ministers for whom parliamentary time is a scarce resource; fortunately further legislation turned out to be unnecessary in this case. (See Binmore and Klemperer (2002).)¹⁰³

Political constraints are much broader than purely legal ones. For example, when the UK Competition Commission ruled on the proposed merger of private prison operators Falck and Wackenhut,¹⁰⁴ an important issue was whether the UK Prison Service could realistically use its monopsony power to eliminate competitive problems—for example, the political imperatives of privatization limited the scope to threaten public provision as an alternative to private procurement.

Internal-organizational issues can importantly affect behaviour in both the public and the private sector, since decision-makers’ incentives are rarely perfectly aligned with their organization’s. For example, managers may be much more interested in obtaining short-term cost savings than in avoiding ‘lock-in’ problems developing on follow-on contracts after they have moved on from their current jobs—it is very hard to structure incentives to overcome this problem. Decentralised decision-making also creates severe problems. The drug-purchasing decisions made by UK hospitals, for example, effectively determine many ‘follow-on’ drug purchases in the community—which are paid for by different parts of the National Health Service (NHS). It seems naïve to argue that because the NHS could in principle centralise its drug procurement, the competition authorities should not be concerned about the kind of predatory behaviour alleged in the NAPP case:¹⁰⁵ effective competition policy must sometimes take the larger organizational structure of bid-takers as given—just as it must often accept the current industrial structure.

Another constraint on bid-takers is that auction designs (especially government ones) are often susceptible to lobbying. In this context the bid-taker’s ability to set and amend the rules can be a liability. I have described elsewhere how the Hong Kong 3G auction designers found their auction publicly vilified as the ‘dark auction’ and were forced to make a superficially small change to the rules that vitiated the point of the design and had disastrous consequences (Klemperer (2003a)). Industry lobbying also seems to have

¹⁰¹ State Aid rules create broader constraints. For example when I advised the UK on the design of the world’s first auction of greenhouse gas emissions, the EU Commission insisted on rules that made a minimum number of winners sufficiently likely, and negotiating State Aid clearance was an important issue. (See Klemperer et al (forthcoming).) Nevertheless, the overall effect of State Aid legislation is probably to promote competition.

¹⁰² A Netherlands auction worth hundreds of millions of Euros famously fell foul of the EU and was—it is said—hurriedly redesigned on a Friday afternoon, with laughable results (see van Damme (1999)).

¹⁰³ The Freedom of Information Act is a very recent piece of UK Government legislation that weakens bid-takers’ power, by making it hard or impossible to keep auction outcomes secret (see section 6.1).

¹⁰⁴ See UK Competition Commission (2002).

¹⁰⁵ NAPP Pharmaceutical Holdings Ltd was able to preclude entry into the hospital market for sustained release morphine products. Sales to hospitals led to ‘follow on’ community sales where NAPP’s prices were more than ten times higher. See Farrell and Klemperer (forthcoming). In principle the problems could probably have been resolved if purchases for hospitals and the community were made simultaneously by a single organization.

been effective in damaging the Netherlands 3G sales process—it is clear that the Netherlands' Government's choice of auction design was a very poor one for it, but a very profitable one for the incumbent operators (see section 5.2).¹⁰⁶

The UK design team had a happier experience when proposing two alternative similar designs meant that lobbyists for the incumbent operators (who hated both designs) concentrated much of their energy on the choice between them. Perhaps as a result, and even though (it is rumoured) they spent considerably more money in a few weeks lobbying against the designs than the UK Government spent on economic advice, modelling, and testing, over the whole two-and-a-half year process, our proposal that (either) one of the designs would be used survived their onslaught. (We graciously acceded to the lobbyists' choice between the two designs—as we anticipated, they preferred the same design that we did.) It was unsurprising that the incumbents spent so much money on lobbying, since a design that was different from either of the two we proposed could easily have saved them £15 billion.

Bidders are powerful in other ways too. For example, they may be able to subvert an auction if the bid-taker cannot commit to keeping information about bids secret. For example, a concern about the proposed BSkyB/Manchester United combination discussed above (section 5.2) was that the risk of information leaking through Manchester United to BSkyB would leave the Premier League (of which Manchester United is one member) unable to negotiate effectively with broadcasters.

Even bigger problems can arise if bidders refuse to accept the outcome of an auction, and the bid-taker cannot precommit to sticking to it (perhaps because shareholders, or more senior managers, or political masters cannot be precommitted, or because of legal constraints). As discussed above (section 4.1) this turns a so-called 'sealed-bid' auction into an ascending auction.¹⁰⁷ Thus, for example, although as we discussed in section 5.2 the Premier League could in principle have alleviated any 'toehold' problems by using a sealed-bid auction, the MMC took the view that the Premier League would be unable to stop the sales process degenerating into an ascending auction if that were in BSkyB's interest. This would be especially true after a BSkyB/Manchester United combination, since Manchester United could then help undermine the bidding process,¹⁰⁸ but the MMC noted that even on previous occasions, when no such combination existed, 'Although the sale of Premier League rights ... had the appearance of a sealed-bid auction, the reality was rather different'.¹⁰⁹

¹⁰⁶ The industry also lobbied effectively against a better (ie earlier) timing for the auction, which might have made the flawed design less vulnerable. (The first European auction was always likely to attract the most potential entrants—see Klemperer (2002b, 2003a)—and the Netherlands' industry lobbying helped ensure that the UK won the race to be first by a clear margin.)

¹⁰⁷ This has often been a problem in the sale of companies—including of Glaxo (see section 4.3) and RJR-Nabisco (see footnote 38).

¹⁰⁸ The MMC wrote 'if it looked as if [BSkyB's] bid ... was not going to be successful ... Manchester United could come to the meeting of the Premier League at which final rights bids from broadcasters were due to be considered armed with authority from BSkyB to make an improved bid on BSkyB's behalf. Even if the introduction of an improved bid at the meeting were against the Premier League's bidding rules, we see no practical way in which it could be prevented. We think that it would not be too difficult to [at least force] the rights auction to go to another round ... by converting a sealed bid auction into an ascending price one it would gain an additional advantage from the toehold effect' (MMC (1999, paras 2.129-2.130)).

¹⁰⁹ MMC (1999, para 2.115).

7. Other antitrust issues

7.1 *Efficiencies in mergers*

In ‘ordinary’ markets mergers often generate efficiencies through the transfer of more of the industry’s output to a lower-cost firm, even if the merger does not reduce the component businesses’ costs. In a ‘winner-take-all’ market efficiencies, if any, are of a different kind; a merger increases efficiency only if it increases the chance of the most efficient bidder winning. So, for example, in a private-values ascending auction there are no social efficiencies from merging, and in other kinds of auctions any merger that makes a previously-symmetric industry asymmetric usually reduces efficiency.^{110 111}

7.2 *Merger simulation*

Just as there is now a significant literature on simulation of the unilateral effects of mergers in ‘ordinary’ markets, so there is a subliteration on simulating unilateral effects when prices are set in auctions (looking at how the static Nash equilibrium of a market is altered by a merger), see Werden and Froeb (forthcoming).

7.3 *Detecting collusion*

On the one hand detecting collusion in auctions is potentially problematic, because of the low quality of information that is often available—often, the reason an auction rather than a more traditional posted-price process is used is precisely because bidders have poor information, and bidders have significant private information, about costs and valuations, perhaps for an idiosyncratic transaction. On the other hand, there is often extremely good data about all bids and, especially when many similar contracts are auctioned, it is possible to test whether suspected colluders behave similarly to assumed-competitive firms and, more generally, whether firm behaviour better fits a competitive or collusive model.¹¹² The literature

¹¹⁰ In theory symmetric models usually have efficient outcomes. In practice, outcomes are not always efficient, and a merger that created a sufficiently strong firm might improve efficiency.

¹¹¹ Of course, a merger can still create efficiencies if it lowers the merged firm’s costs below the minimum of either merging party’s costs—for example, if it turns two small firms, who could not realistically compete independently for a contract, into a single operator with the scale to compete for the contract—but this point applies equally to ‘ordinary’ markets.

¹¹² The data is often better for sealed-bid auctions (since losing bids are often available) than for ascending auctions (where only the final loser’s drop-out price is generally known), but on the other hand the relationship between bids and valuations or costs is much simpler in an ascending auction.

For example, Porter and Zona (1993) and Bajari and Ye (2003) examine data sets of first-price sealed-bid procurement auctions for highway construction contracts and for highway maintenance projects, respectively, while Porter and Zona (1999), Lanzillotti (1996), Scott (2000) and Pesendorfer (2000) all look at such auctions for school milk; Baldwin, Marshall and Richard (1997) and Banerji and Meenakshi (2004) look at ascending auctions of timber and wheat, respectively. One issue is that a clever-enough collusive mechanism could, in principle, mimic what would be the competitive outcome with different costs or valuations. Another issue is that the tests in these papers may be sensitive to misspecification of, eg costs, and we have already noted that although there may be good data about bids, other data about auctions is often poor. In practice, however, these studies seem to have some success in identifying collusion; some of their results are corroborated by independent information about whether collusion was present.

on the econometrics of detecting collusion in auction markets is ably summarised in Harrington (forthcoming).¹¹³

7.4 *Enforcement*

A main theme of this paper (and of Klemperer (2002a)) is that the key antitrust challenge is simply to recognize that the particular method of price-formation in auctions and bidding processes does not affect the fundamental principles of antitrust. Historically anti-trust agencies have largely failed to grasp this. Bidders have openly taken actions in auctions that would never have been regarded as acceptable in 'ordinary' markets.

For example, regulators did not pursue the apparent use of bids in some of the early US mobile-phone licence auctions to signal to rivals in the manner illustrated in section 4.4. (One problem is persuading courts that observed bidding is necessarily anti-competitive signaling; usually some competitive story can be concocted.)

Similarly, statements that would be classed as predatory in 'ordinary' markets passed unchallenged, and the ARCO Vice-President who originally encouraged his staff to coin the evocative term, the 'winner's curse', and discuss it at industry gatherings and so persuade competitors to bid less aggressively, actually described his strategy as 'legalized collusion'.¹¹⁴ Collusion in takeover battles for companies is legal in the USA. However, the US Department of Justice did successfully pursue a case of using bids to signal in a more recent spectrum auction,¹¹⁵ and the US competition authorities are arguably more sophisticated in their treatment of bidding markets than sometimes seems to be the case elsewhere in the world.

European antitrust has been even more feeble than in the USA. Regulators have tolerated a range of explicit collusive and predatory statements about auctions that would surely be unacceptable if made about a 'normal' economic market,¹¹⁶ and accepted joint-bidding agreements that are, in effect, open

¹¹³ See also Porter (2004). Harrington also analyses broader implications of collusion that apply to 'ordinary' as well as auction markets.

¹¹⁴ See American Association of Petroleum Geologists (2004), describing the process leading Atlantic Richfield Company staff to the publication of Capen, Clapp, and Campbell (1971). Of course, the line between legitimate dissemination of research results and other efficiency-enhancing information sharing on the one hand, and illegitimate behaviour on the other, is a hard one to draw. But Klemperer (2002a) suggests Pacific Telephone should perhaps have been regarded as having crossed that line with their remark prior to the main US 1995 mobile phone license auction that 'if somebody takes California away from us, they'll never make any money'—this seems to correspond to threatening that 'if anyone tries to compete with us, we'll cut the price until they lose money'. Likewise, Pacific Telephone's hiring of an auction theorist to explain the winner's curse to competitors might correspond to hiring an industrial economist to explain the theory of the difficulties of entering new markets to potential entrants.

¹¹⁵ The case resulted in consent decrees against Mercury PCS II, L.L.C., Omnipoint Corporation, and 21st Century Bidding Corp. See *US v. Mercury PCS II, L.L.C.* (1998).

¹¹⁶ Klemperer (2002a) cites many examples: for example, before the Austrian third-generation spectrum auction Telekom Austria, the largest incumbent and presumably the strongest among the six bidders, said it 'would be satisfied with just two of the 12 blocks of frequency on offer' and 'if the [five other bidders] behaved similarly it should be possible to get the frequencies on sensible terms', but 'it would bid for a third block if one of its rivals did' (Reuters, 31/10/2000). It seems inconceivable that a dominant firm in a 'normal' market would be allowed to make the equivalent offer and threat that it 'would be satisfied with a market share of just (one-sixth)' and 'if the other five firms also stick to (one-sixth) of the market each, it should be possible to sell at high prices', but 'it would compete aggressively for a larger share, if any of its rivals aimed for more than (1/6)'.

collusion.^{117, 118} It may be that the antitrust climate for auctions has toughened a little: T-Mobile was willing to explicitly confirm the way its rival and it had used bids as signals to coordinate a rapid end to a German spectrum auction in 1999, but the same firm (and its competitors) refused to confirm officially that they were signalling to rivals when apparently similar behaviour was observed in the German 3G spectrum auction a year later.¹¹⁹ However, European regulators have shown little appetite for pursuing such matters,¹²⁰ and often persist in treating auction markets more laxly than ‘ordinary’ economic markets. The European Commission’s treatment of some recent bidding-market cases suggests some improvement in the level of its analysis. But Europe still has a long way to go in its handling of auctions and bidding processes.

8. Conclusion

Discussions of ‘bidding markets’ often confuse details of the price formation process (whether or not there is an auction or bidding system) with deeper structural features of the market. While these structural features are often associated with auction processes, they need not be. Furthermore, while these structural features would—if they obtained—lead to very optimistic conclusions about the welfare consequences of the markets, this is nothing new. And if—as is common—they do not apply, similar competition problems arise in auction markets as in ‘ordinary’ economic markets, and for similar reasons. Moreover, even where behaviour in auctions is a little different, or more extreme, than in an ‘ordinary market’—in particular, in some ‘ascending auction’ cases—these differences can usually be understood in terms of the standard principles of antitrust.

In short, the term ‘bidding market’ as it is widely used in antitrust seems unhelpful or misleading. Auctions and bidding processes do have special features, including their special price-formation processes, common-values behaviour, and bid-taker power. However, the significance of some of these features has been greatly overemphasized, while others imply a need for stricter rather than more lenient antitrust policy.

Similarly, during the German third-generation spectrum auction, MobilCom told a newspaper that ‘should [Debitel] fail to secure a license [it could] become a ‘virtual network operator’ using MobilCom’s network while saving on the cost of the license’ (Benoît, 2000 p.28). This translates roughly to a firm in a ‘normal’ market saying it ‘would supply a rival should it choose to exit the market’, but MobilCom’s remarks went unpunished.

Glaxo let it be known that it ‘would almost certainly top a rival bid’ (Wighton 1995b) in the takeover battle discussed in section 4.3, which would roughly translate to an incumbent firm in a ‘normal’ economic market saying it ‘would almost certainly undercut any new entrant’s price’.

¹¹⁷ The 2000 to 2001 European 3G auctions provide numerous illustrations. See Klemperer (2002b).

¹¹⁸ One issue is that bidders are buyers rather than sellers in many auctions, and the European Commission guidelines on cooperation agreements (European Commission, 2001) are much more tolerant of cooperation among buyers than of cooperation among sellers. This is another respect in which US antitrust seems to differ from European antitrust.

¹¹⁹ The co-ordination in the 1999 German auction is described in footnote 54. On the occasion of the later 3G auction, the Financial Times reported: ‘One operator has privately admitted to altering the last digit of its bid in a semi-serious attempt to signal to other participants that it was willing to accept [fewer lots to end the auction]’ (Roberts and Ward, 2000, p.21), but the firms were not willing to confirm this. See Klemperer (2003a, 2002d) for more discussion of these two auctions.

¹²⁰ This kind of signalling behaviour could perhaps be challenged as an abuse of ‘joint dominance’ under EC and UK law.

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SUMMARY OF DISCUSSION

The Chairman of Working Party Number 2, Alberto Heimler, chaired the roundtable due to the unavoidable absence of the Chairman of the Committee. The Chairman noted that a total of 17 contributions, including three from observers and one from BIAC (the Business and Industry Advisory Committee), had been received for this roundtable. There is also a Secretariat background paper.

The Chairman introduced the main speaker, Professor Paul Klemperer. The Chairman noted that Prof. Klemperer had distributed one of his papers on bidding markets and would make a presentation to start off the roundtable. Prof. Klemperer has contributed quite extensively to the development of the economic theory of auctions. He is a professor at Oxford University and an advisor to the UK Competition Commission. He also has quite broad practical experience in the organisation of auctions, having been involved in the setting up of the United Kingdom's UMTS auction as well as many others.

The roundtable was organised into two main themes. The first was aimed at answering the question of whether the analysis for merger control is different in bidding markets than in other types of markets. The second focused on auctions themselves, that is, on how to change auction rules to make them more competitive and on the enforcement of rules against restrictive agreements, particularly cartels, in auctions.

The Chairman gave the floor to Prof. Klemperer for his presentation.

1. Merger analysis in bidding markets

Prof. Klemperer explained that he had written the circulated paper ("Bidding Markets," *Occasional Paper No. 1*, U.K. Competition Commission, 2005, and at www.paul.klemperer.org) because arguments of the following form are quite often heard: "Because a particular market is a bidding market, market power is impossible." This he labels the "consultants' fallacy." If that argument does not work, a second argument is sometimes made: "Well, even if there is market power, it's not bad in a bidding market." This he labels the "academics' fallacy." If that argument does not work, the next argument may be: "Well, even if it were bad, you don't need regulatory intervention because it's a bidding market." This he labels the "regulators' fallacy." He has seen all of these arguments made in submissions. Taken individually these arguments are not necessarily always wrong; there is some truth in all of them but he thinks that they are greatly exaggerated. He thinks the truth of the matter is they can be true in some economics models, but in the world in which we live they are rather rarely true. His presentation will address what some people seem to mean by bidding markets and then discuss in turn these three fallacies.

So what is a bidding market? The European Commission is said to have defined the term bidding market as one in which tenders take place infrequently, the value of each individual contract is significant, and contracts are typically awarded to a single successful bidder. Definitions of "bidding markets" typically include the following concepts:

- "winner takes all," so each supplier either wins all or none of the order. There is therefore no smooth trade-off between the price offered and the quantity sold.
- "lumpy competition," that is, each contest is large relative to a supplier's total sales in a period.

- “every contest is a new contest”. In other words, there is no “lock-in in” by which the outcome of one contest importantly determines another.
- The sometimes-added fourth concept is that entry of new suppliers into the market is easy.
- Finally of course a bidding market is one that involves a bidding process.

A typical bidding market would be something like a competition for a defence contract for a weapons system. It may not satisfy quite all these assumptions, but that is a kind of thing that is said to be a bidding market by contrast, for example, ordinary retail competition between supermarkets which would not be a bidding market.

The implications of that definition are as follows. The first three parts of the definition—winner-takes-all, lumpy competition, every contest is a new contest—is pretty much equivalent to what economists call “Bertrand price-setting competition” either for a single unit or indeed for a whole market. If you were then to add the fourth bit of the definition—easy entry—in that case it is what economists will call a “contestable market.” And in this context one sees why people say things like, “Market power is impossible,” because indeed if you do have Bertrand competition, then two identical firms is quite enough to ensure competitive outcome and indeed in contestable markets, one firm is enough.

Reviewing markets that involve a bidding process, we can ask ourselves whether they have these four characteristics. None of the 3G auctions were “winner takes all;” there were usually multiple licences with multiple winners. The market for consulting services involves repeated competition, contract after contract after contract, so it is really a much smoother process which Prof. Klemperer would not call “lumpy competition.” The contest to run the United Kingdom’s national lottery is allocated every five or seven years. It is indeed “winner takes all.” It is a monopoly and therefore very lumpy—just a single contract every five or seven years. But Prof. Klemperer would not characterise it as having either easy entry or that every contest began afresh. There are very large incumbency advantages; once you have learnt how to run a lottery and have developed your reputation, these give you a major advantage over anybody else who competes against you. In the actual contests, eight bidders participated the very first time a national lottery was started. For the second franchise period, there was just two bidders and surprisingly enough the same winner. How many bidders will there be in the third franchise period? The Government has got very worried about that.

Some bidding processes satisfy none of these assumptions, an electricity pool for example. In an electricity pool there can be multiple winners. It is not lumpy competition because there is another market every half an hour. And not every contract begins afresh; past history matters because the firms have learnt about each other. To produce electricity you need to build a new generator and you cannot just quickly and easily start up a new generator of substantial volume. Applying standard guidelines, an electricity market could satisfy essentially all of the conditions for market characteristics that could give rise to competitive problems. So it is no surprise that the electricity markets—despite using bidding processes—are the ones where you have seen accusations around the world of unilateral effects and coordinated effects.

All these bidding processes yield predation, dominance, unilateral effects and coordinated effects for all the usual reasons. The basic problem that Prof. Klemperer sees is that people define bidding markets in the way set out above, and then go on to assume that bidding processes have the same nice properties. They conflate the idea of a bidding process with a notion of a bidding market. So he thinks the term bidding market has now become thoroughly unhelpful and misleading. It is much more useful to use the terms “Bertrand markets” or “contestable markets,” which are perfectly fine economic concepts.

The next part of Prof. Klemperer's presentation was about bidding processes. He argued that a bidding process does not involve fundamentally new economics, but just basic, standard economics. Nevertheless, if one looks at fine details there are some aspects to bidding processes that exacerbate competition problems rather than reduce them.

One example of an auction that went wrong was an auction for spectrum in the United States. There were many different lots, and this was an ascending auction—in which bidders make bids that everybody can see—that did not end until all the bidding on all the lots ends. This example involves only three of the lots in three towns. The bidding started in two of the towns, Marshalltown and Waterloo. In both of them, it looked like one firm was interested and nobody else really competed seriously. In the third town, Rochester, there was a very fierce battle between McLeod and US West with the two firms overbidding each other, one after the other, bidding the price up. So that was the initial bidding: fierce competition in Rochester, not much happening in Marshalltown and Waterloo. What happened next? There was yet another bid from US West in Rochester and for the first time US West bid in Waterloo. Rather curiously, also for the first time, the bid was not a round number of thousands of dollars. This one ended in 378 dollars. Why suddenly bidding in Waterloo and why such a strange bid? The 378 was really signalling that this bid had nothing to do with Waterloo; this was a bid about what was happening in Rochester – which was *lot number* 378. This bid was saying: “If you keep fighting in Rochester, McLeod, then we'll make your life very unpleasant in other places.” The beauty of this signal is that McLeod paid for it because McLeod had to come back with a higher bid in Waterloo. McLeod came back as expected in Waterloo, but seemed to ignore the signal and came back once more in Rochester. So now US West made a bid in Marshalltown for the first time, and that bid too ended in 378. In other words, “We can make life very unpleasant for you in many different places”, and this time McLeod got the message and never bid again in Rochester.

Prof. Klemperer thinks it is a beautiful example of how a bidding process can help firms signal, how it can support collusion or coordinated behaviour, in part because one can target a punishment on a firm to get the other firm to do what you want it to do. So even though one firm cannot directly talk to another firm, the auction rules here gave the firm a language, a language that seems to be just rich enough to tell your competitors what you want them to do, but not so rich that it is confusing. Return to the example of supermarkets; supermarkets sell thousands of different products; they differentiate in many different ways. It is actually quite a hard environment of firms to cooperate in. You might try to signal there, but it would actually be very hard to explain what you are signalling and why. In the spectrum auction example, there is just enough language for absolutely clear signalling.

Apply a standard guideline for coordinate effects to such a market. First, “Can firms reach a common understanding?” It is very clear how you would divide things up here: Some firms win some markets and others win other markets which have been neatly divided up in packages by the government. “Can you check whether or not a firm is following the implicit collusive agreement?” Very easy; they either stop bidding on a town or they do not. “Can you credibly deter deviations?” Well, the spectrum example showed how that can be done and the same can be done to prevent further entry. Is there a better market to collude in? So much for the fallacy that market power is impossible in a market involving a bidding process!

Next is the academic's fallacy, “market power does not matter when a bidding process is involved.” None make such a stark and simple statement as that, but several have argued that in the case of so-called “common value mergers,” merging bidders actually will end up competing more aggressively and a merger will benefit the bidders. While this is not the right forum to go into the details of the argument, it is largely false; there is an effect but there are countervailing effects in the other direction. The statement is not right except in special cases which are not very plausible; in general we would expect such a merger to be bad for the bidder for the usual kinds of reasons. Furthermore, common value mergers can discourage

entry into auctions and reinforce dominance and predation. We have seen that in some spectrum auctions. So market power is usually bad in this context.

Finally, the regulator's fallacy, "That even when market power is bad we do not need regulation." The argument is that the buyer has power in setting the bidding process that generates the price. They buyer, therefore, can choose the auction form to encourage entry, or he can build in special protections against collusion, or make other clever design choices. But in practice there are real constraints on a bid taker's power to do this.

- There are legal constraints. E.g., rules about state aid say that you cannot discriminate in a straightforward way between bidders in the European Union. (One might want to discriminate between bidders in order to encourage entry, for example.)
- There may be political constraints.
- There are organisational constraints. In any organisation there will be principal-agent problems in both public and private sector organisations. For example, the person who is running the bidding process today may design the bidding in a way that is ideal in terms of the short-run effects but may overlook lock-in effects that leave the institution in a very weak position in the future. Maybe, as regulators, one should take organisational structures as given, in the same way as one understands that market structures are given, and accept limitations on organisations.
- It may be impossible, for political or organisational reasons, to commit to a particular design. There may be lobbying pressure. In his book (*Auctions: Theory and Practice*, *Princeton University Press*) Prof. Klemperer writes about the Hong Kong spectrum auction where the designers came up with what in theory was a beautifully clever design, but it was also not robust to lobbying. It was very easy to make political arguments that it should be changed in what looked like a very simple tweak, but which vitiated the design. Another potential problem is that it may be difficult to commit to one's own future behaviour. It's quite common to say, Let's take best and final bids now, we will run a sealed-bid auction and the winner is the winner and that will be the end of it. The trouble is that, when you take best and final bids, you have a winner but one of the loser comes back to you and says that he would pay a bit more. How are you going to respond to that? At this point it is in your interest to accept the higher bid. The problem is that if you do so, people will think you are going to accept future bids later on. Then you do not really have a best and final bid auction; it is an ascending auction. This is a very real problem in practice.

The fundamental point is that there may be constraints on the kind of auction you can really run. Competition regulators must be careful not to over-emphasize what buyers can do in the way of getting around a competition problem by running a different kind of auction. This can certainly sometimes be a fallacy.

In closing his presentation, Prof. Klemperer reiterated that fundamentally the term bidding market is unhelpful and misleading. Regarding auctions and bidding processes, there are three common fallacies:

- the consultant fallacy: Market power is impossible,
- the academic's fallacy: Even if there were market power, it would not be bad.
- the regulator's fallacy: Even if there were bad market power, regulators need not worry about it "because market-participants can correct it themselves".

All of them are wrong.

The chairman, after thanking Prof. Klemperer, turned to the written contribution to the roundtable. He commented first on the South African contribution. The Competition Tribunal's decision in a merger between Murray & Roberts and Cementation Co. mentions, in particular, the following characteristics of the market in which the merger took place: (1) competition on the basis of price, (2) unusually sophisticated clients, (3) confidential bids and award, (4) winner-takes-all, (5) each contract constituting a large part of a bidder's work, and (6) easy entry. The chairman noted that the contribution states *inter alia* that mainstream market analysis is relevant for mergers in bidding markets. The chairman asked how to reconcile this statement with the decision in the above-mentioned merger to allow a merger that left only two competitors in the market.

The delegate from South Africa said that the Murray & Roberts and Cementation Co merger decision (Case No.: 02/LM/Jan04) would not change if Prof. Klemperer's book had been published before the Tribunal's decision. He further said that the decision was based on conventional criteria for analysing mergers. The merger took place between two firms supplying the shaft sinking and raise drilling sub-markets within a broader relevant market for the provision of mining infrastructure. The sort of criteria that were examined included barriers to entry, supply side substitution, countervailing power, and the likelihood of post-merger cooperation or predation. The most important criteria in this case were supply side substitution and countervailing power. In this particular instance, the buyers, the mining houses, had until fairly recently themselves undertaken the work of shaft sinking and raise drilling. They were perfectly capable of doing so again, and in fact the largest mining house had more of the capital equipment necessary to undertake raise drilling than all of the bidders put together. So the possibility of their entering in the face of the exercise of market power was absolutely manifest. Also from their days of doing this work themselves, they had retained the kind of teams who were capable and sufficiently sophisticated not only of issuing a tender with great technical knowledge but also of detecting collusion. So the merger was approved on conventional merger criteria, in particular the countervailing power of the customer and the evidence that they were players who already possessed the assets necessary to compete immediately for the market should they have so wished to do so.

The delegate thought that, although the merger is characterised in the decision as a 3-to-2 merger, in fact it was not. In this case, the acquiring company had no existing market share at all; it was just a regular and credible bidder. But several others might have been included as well and it is a particular easy market in which to form consortia.

Another merger case involved companies that bid on concessions from the National Roads Agency to run toll roads. That market had all the features of a contestable Bertrand market. But there was some evidence—which is also important in merger analysis—that suggested that there was some collusion in bidding: Some bids had been very close to each other, there were very few bidders and they had been declining in number. The National Roads Agency opposed the merger for this reason. When the Tribunal looked at the evidence of collusion, it seemed obvious to them that the bids were specified so narrowly and specifically that there was very little room to manoeuvre on price, so one would expect the prices to be pretty close to each other. There were so few bidders because margins were so low that few companies were interested in bidding. So if market power was being exercised, in this instance it was market power exercised by the buyers rather than the sellers.

The Chairman turned next to the United Kingdom's contribution, which he quoted part: "the economic analysis of markets characterized by bidding processes....should not be seen as requiring a whole new paradigm". But he noted that the contribution does say that there is a need for some different forms of analysis. He asked the delegate from the United Kingdom, What are the classical tools of analysis which are not so useful to examine mergers in bidding markets? How does one adapt the conventional paradigm to assess mergers in markets characterised by bidding processes? In particular there is a quote from the UK report that says that "in principle a quantitative assessment of the unilateral effects of the loss

of a bidder on pricing can be made, but recent Competition Commission decisions to block mergers have not been based on such an assessment.” What are then the alternatives, the chairman asked, and why were they chosen?

The Delegate from the United Kingdom began by noting that he agreed with Prof. Klemperer’s characterisation of the problem in his presentation.

Regarding practical techniques in markets characterised by bidding processes, he first addressed the question of what is not so useful. As, e.g., the contribution from New Zealand, has highlighted, market definition by use of the SSNIP test (“small but significant and non-transitory increase in price” test) can sometimes be difficult in markets characterised by bidding processes because the price is different potentially for each contract. While the delegate thought this was a problem, it was not necessarily more so than in any other market in which prices are set individually for each contract. In these circumstances, sometimes it is useful to focus on the supply side.

As many contributions, such as the one from the European Commission, have said, market shares may not be very informative. In recent merger cases the competition authority has tried to identify circumstances in which market shares will be informative about market power. For example, incumbency advantages were examined in the Carl Zeiss/Bio-Rad microscope case. If incumbents have an advantage, so if a firm has sold a microscope to a particular customer in the past it is more likely to sell one to him in the future, then a larger market share in principle can create market power in the normal way.

Regarding what is useful, the delegate did not think it useful to modify existing tools, but rather to pick appropriate tools from a normal regulator’s “tool box.” In the United Kingdom, there were four merger cases over the last three or four years that the delegate thought exhibited Bertrand style competition. Two of these cases involved differentiated products and two involved undifferentiated products but with significant capacity constraints. In both of the differentiated products cases—the microscope case and one involving incubators for premature babies—the key was assessment of the closeness of competition between the merging parties. Many contributions address this, and they note that sometimes the bidding processes themselves can be very informative about this. An example is the Oracle/Peoplesoft case that both the United States and European Commission contributions address. Bidding in these circumstances can create an opportunity for some analysis about the closeness of competition. But the delegate urged that one should not lose sight of the fact that other techniques for assessing the closeness of two differentiated products are still very relevant, whether that is assessment of product characteristics, the use of surveys or other instruments to gauge the opinions of customers or in some occasion the natural pricing experiments, what happens if one product suddenly disappears from the market for temporary reasons, where the customers turn to, that is, diversion ratio analysis. So in differentiated product cases, the delegate opined that the analysis revolves about identifying the closeness of competition; sometimes the bidding data will be helpful, sometimes it will not be.

The two cases involving undifferentiated products involved the production of glass bottles and the bottling of soft drinks. The competition authority examined capacity constraints in great detail, including the various costs of different degrees of capacity expansion going from the short term to the longer term. Effectively, the competition authority estimated a supply curve. It found in the soft drinks bottling case that the supply curve was sufficiently flat that it had no concerns that the fringe firms would be able to expand and defeat any attempt at exercising any uncoordinated or unilateral market power.

The delegate closed his answer by noting that he thought that the note by the Secretariat was absolutely excellent, but he especially appreciated the accuracy and relevance of a quote from Waehrer and Perry 2003: “Auction markets also provide an opportunity for implausible defences.”

The Chairman noted that the delegate from the United Kingdom confirmed that the economic analysis is the same in markets using a bidding process as in “regular” markets because the issues that are of interest are the same irrespective of the way competition operates.

The Chairman next turned to the New Zealand contribution. This contribution addresses the difficulty of applying the hypothetical monopolist test (or “SSNIP test”) for market definition in markets where bidding processes are used, and also the issue of how well market shares indicate competitiveness. The New Zealand contribution discusses the Sonic/New Zealand Diagnostic Group merger of pathology business. In this case, the Commission seems to have worked around these difficulties by looking directly at how the merger would modify the competitive constraints imposed by the various bidders, and the potential for competing bidders to constrain the merged entity in future bidding rounds without resorting to complex quantitative analysis. He noted that the merger was prohibited. The chairman asked the delegate from New Zealand to describe the merger and the methods used to analyze it.

The delegate from New Zealand described the Sonic/New Zealand Diagnostic Group merger. It involved the two largest pathology businesses in the country. The remaining participants in this market were niche players in individual regions in the country. The parties applied for a merger in six of the eleven District Health Board regions in New Zealand and they intended to compete head to head in the remaining regions. At the same time as this application was received, the District Health Boards in New Zealand were moving towards single provider contracts for the provision of all pathology services. Under this system, winning providers secured exclusive rights to provide services to a region for the duration of the contract period. For the purposes of the application and the analysis, the competition authority assumed that this would be the preferred method of contracting in the future. Consequently competition would therefore be *for* the market rather than *in* the market as that had been to date; hence the Commission considered that its market definition needed to recognise the changed nature of competition.

Regarding the application of the SSNIP test for market definition, the problem is that there is no obvious price on which to add the SSNIP since competition occurs simultaneously rather than through sequential moves. Even if the hypothetical monopolist in a region were assumed to add 5 to 10% to its full cost, it is difficult to predict whether a provider elsewhere would bid. While players may have been able glean some information about competitors’ costs and prices from experiences with tenders in other regions or from previous contracting rounds, such information would be of limited use. There are significant regional variations in terms of demographics, testing needs, relationships with the regions’ health board and other factors. Also bidding occurred infrequently, every 3 to 10 years, so market conditions were likely to evolve significantly in the intervening period. Another factor that confounded the application of the SSNIP test was the change in the contracting model. Both the change from multiple suppliers to a single supplier selected via an auction process and the change from regulated prices to unregulated prices represented fundamental shifts in the competitive landscape. Thus, applying a SSNIP test to historic prices would not be sensible. Notwithstanding these difficulties, the notion of substitutability which underlies the SSNIP test was useful in defining the relevant market. Several non-price factors helped to identify the extent of substitutability on both the demand and supply side. These included, among other factors, distinct product characteristics and uses, unique production facilities or processes, distinct purchasers, specialisation of sellers and the views of industry participants. In this particular case, the Commission relied more on these non-price factors to come to a view on the scope of the relevant market.

Regarding the predictive value of market shares, current shares can and did provide a misleading view of the existing competition in these markets, particularly where they have a winner-takes-all element. By definition, in such markets the incumbent firm has a 100% market share so there are no rival firms in the market. However there may be several potential competitors ready to enter at the next bidding opportunity. The focus of the analysis really was on the competitive constraint from such potential entrants on the incumbent merged entity. The Commission modified its standard analysis of existing competition and

potential competition and instead analysed the nature of competition by identifying the likely potential bidders, that is, previous providers to the region, new domestic bidders and also potential overseas entrants.

The Commission qualitatively assessed the likely barriers to entry faced by each future potential bidder which included access to technical labour and capital, the incumbents' operational scale and scope, knowledge of the region, reputation and previously established relationships. The Commission considered the likelihood, extent and timeliness for potential entry in the next bidding round by evaluating the identified barriers with respect to each potential entrant. Consultation with industry participants was useful. The Commission found that most potential entrants would find these barriers insurmountable. However, given that Sonic and NZDG are the largest, best resourced and most experienced providers of pathology services in New Zealand, they would be likely to overcome these barriers readily.

Therefore it was likely that, absent the merger, NZDG and Sonic would exert a strong competitive constraint on one another. The proposed merger would eliminate this constraint.

The Commission examined the extent of countervailing power by the District Health Boards either through switching to an alternative provider or by re-establishing in-house provision. But the likely high barriers to entry and risk and costs associated with self-provision—the Health Boards had clearly signalled in the past that they would not re-enter this market—the Commission found that the countervailing power to be insufficient to discipline the merged entity. One difficulty in this case was that three of the District Health Boards had invited the merging parties to put in a joint bid.

Finally, the Commission also was not satisfied that the proposal would not enhance the likelihood of coordinated behaviour occurring both in these markets but also the other regional markets in NZ. Taken together, these factors meant that the Commission could not be satisfied that the proposed merger would not be likely to lead to a substantial lessening of competition. As a consequence the Commission declined to clear the merger.

The Chairman next turned to the Czech Republic. This contribution contains a description of a merger of two construction companies, Metrostav and Subterra. One major difficulty was in the analysis related to market definition. Construction is a very broad term; some companies are specialized and others are capable of performing a wide range of work. The chairman asked the Czech delegate to describe the analysis used to assess this merger. The contribution contains the statement that, "This decision was confirmed by win/loss analysis of merging parties in tenders last year;" the delegate was asked to expand on the remark.

The delegate from the Czech Republic noted that, in the referenced case, the definition of a relevant market was very important and not easy. There are ten large companies in the construction business in the Czech Republic. They are not specialised but have complex portfolios of technologies. This is one reason for the relevant market definition. Only three of the companies had specialised in underground work; only three would bid for tenders for tunnels or building metros or for building new mines. The merger involved two of these three companies. The competition authority found that both companies' turnover from this special type of work for was not higher than 10% of their total turnovers, and that this special type of work represents only 1 or 2 % of the construction market. This is why the relevant product market was defined as the market for building construction and structural engineering.

Regarding the win/loss analysis, the outcomes of tenders were used to calculate market shares. These were found to be stable, so previous years' results could form a basis for calculating market power.

Regarding the assessment of the impact of the merger, the competition office found that the Public Procurement Act and the existence of comparably efficient competitors on the market would prevent the creation of a dominant company. So the merger was approved.

The Chairman turned next to the United States. He noted that the contribution thoroughly discusses the quantitative approaches to identifying competitive constraints when there is bidding market or bidding process involved. He found the analysis similar to that presented by the United Kingdom delegate. The chairman asked the delegate to confirm whether the analysis involves a two-step process—first, do the merging parties actually compete and second, how can one estimate the size of the price effect, if any—and to discuss the possible limitations on the use of these methods. He also asked what confidence can be attached to the use of such quantitative instruments if there is indeed a high incidence of collusion.

One delegate from the United States addressed the question of how robust the techniques were to possible collusion. He thought that the question of collusion raises general issues about empirical analysis in antitrust that goes beyond bidding markets. Much of the empirical work done for analyzing mergers, in particular simulation, assumes that firms are behaving non-cooperatively. Certainly that should raise questions about the application of some of the more counter-intuitive theoretical results that Prof. Klemperer pointed out.

As for specific empirical techniques, the delegate thought that the possible presence of collusion presented a problem for some but not for all of them. It is a problem for the structural modelling of competitive effects. But it seemed to the delegate it is less of a problem for the simpler techniques that are sometimes used. One such technique is to look at the relationship between prices that are bid and the number of bidders. If there is bidding to supply, one might find, for example, that lower prices are bid on average when there are four bidders than when there are two bidders. As with any so-called reduced form estimation, there are a variety of interpretations. But if collusion is going on, it might go on for some bids and not for others, and when the collusion breaks up there are a lot of bidders and lower prices. This technique, looking at the relationship of the number of bidders and bids, would perhaps detect collusive effects.

Another delegate from the United States addressed the request to describe some of the techniques and limitations. The delegate noted that the written contribution to the roundtable primarily describes what economists would call “reduced form techniques” in which they attempt to look at the relationship of the price bid to the number of bidders, the identity of bidders and also the characteristics of the bid. Such analysis also looks at how often, say, the two firms that are proposing to merge are bidding against each other and how often in those auctions they are the lowest and second lowest bidders.

The delegate fully agreed with Prof. Klemperer’s statement that similar economic forces operate in markets with bidding as operate in other markets. This means that the types of problems that are likely to arise in the analysis of markets with bidding are by-and-large going to be analogous to the types of problems that arise in the analysis in non-bidding markets. He proceeded to address three such problems.

First, data problems can arise in analyzing auctions. The number of potential bidders, rather than the number of actual bidders, is relevant. But one observes the number of actual bidders, which can differ from the number of potential bidders. Further, the analysis can be affected by what the bidders observe during the bidding—do they know the identity of who is bidding, and when do they learn that?

A second problem is a standard problem that arises in all types of reduced form analysis. To illustrate, assume one is looking at the relationship of price to number of bidders. It is important to distinguish the competitive effect that arises when there is one more bidder from what might be other factors that are inducing one more bidder to participate. A simple example would be the case when there are many

suppliers who can bid on easy, low cost projects, but only two can bid on complicated, high cost projects. The analyst will then observe a high price when there are two bidders and very low prices when there are many bidders. It would be wrong to attribute the entire price drop to competition because there are really two effects: One is that costs are lower and the second is that competition is stronger. One has to try to distinguish those two effects.

A third slightly more subtle issue, which also arises in non-bidding contexts, is what is called “repositioning.” If suppliers offer differentiated products, then the post-merger entity may choose to reposition and offer products with different characteristics from those that were offered pre-merger. This would be a change in competition due to the merger in addition to raising price.

In summary, the analogous problems that arise in markets with non-bidding processes arise also in a context when bidding is involved, but an analyst might have to deal with it slightly differently because of the specifics of bidding.

Prof. Klemperer reiterated a point made by the delegate from the United States, that it is the number of potential bidders that is important in the analysis. In practice, bid-takers may pre-select a short list, or there may be different sub-markets and who gets invited to bid is very different for the different sub-markets. Simple theory can often obscure these elements of the analysis of complex processes.

The delegate from the United States noted that the idea of potential bidders could be rephrased in non-bidding terminology as, in a particular case, entry being so easy that there are many potential bidders. Even if only three people actually bid, for example, if one is removed then in a sense another person sits in his chair.

The Chairman, returning to the example involving bidding to perform simple and complex projects, asked whether the problem of distinguishing the effect of more bidders from the effect of different complexity of project could not be resolved at the market definition stage.

The delegate from the United States replied that it depended on what is observable. If the analyst can observe the characteristics, then he should take them into account. The difficult problem arises when the determinants of why someone is bidding is observable to the bidder, but not observable to the analyst. There may be characteristics of a project, of which the analyst is simply unaware, that trigger more people bidding rather than fewer people bidding. Whenever one performs this sort of econometric analysis, one wants to ensure that one is controlling for the fact that something that cannot be observed may be going on in the process that is determining the number of bidders; one cannot just assume that there is a random variable that has been exogenously moved. Sometimes there are natural experiments, and these can be useful. As an example of a “natural experiment” the delegate referred to a hypothetical instance where a bid-taker arbitrarily excludes a bidder in advance.

The chairman asked whether the problem of hidden characteristics was common in bidding processes or whether, by contrast, characteristics of products could usually be dealt with at the market definition stage.

One delegate from the United States replied that whenever one is performing any analysis of price as a result of the number of firms or market concentration, the problem of possible hidden characteristics is present. Therefore, one should always check that the problem is not so serious as to undo the analysis.

An alternative to reduced-form analysis—the type that has just been discussed—is a structural analysis. The idea is to uncover the underlying cost structure of the firms that are bidding. This is at the forefront econometric methods right now, and it has not yet been used in antitrust case.

Another delegate from the United States replied that it would be very hard to do econometric analysis when the bidding in itself is very complex. He did not think that the competition authority would necessarily try to solve the problem through market definition. He referred to the Commentaries on the Horizontal Merger Guidelines just issued by the Department of Justice and Federal Trade Commission, in which one of the main themes is that the competition authorities try to perform an integrated analysis; they do not start with market definition and then go to effects. The delegate thought that, in a complicated bidding situation, the evidence that would tend to be most important would be evidence on whether or not the companies view each other as important competitors in a particular bidding situation.

The Chairman turned to the contribution from the European Commission. That reviews five merger cases that might be considered as bidding market or bidding process cases, and concludes with a number of lessons learnt. First, like others, it concludes that bidding markets do not fundamentally alter the nature of the competitive analysis. But the European Commission considers that market shares in bidding markets provide some indication of market power. He asked the delegate from the European Commission to explain how it applies this principle.

The delegate from the European Commission noted that probably the most salient consensus that emerges from the various papers is that bidding markets do not require a new paradigm; they do not materially or fundamentally alter the nature of the competitive analysis. In the same way, they do not fundamentally change the way that market shares are correlated in some way with market power. The delegate thought that, whether one is examining bidding markets or not, an analyst still needs to go through the relevant factors such as product differentiation, capacity constraints, barriers to entry and all the rest.

The delegate from the European Commission thought that markets that Prof. Klemperer characterises as ideal bidding markets are those where, in many cases, market shares do not help you. But in many markets where purchases are made through bidding processes, and GE/Instrumentarium is a good example, products are differentiated. High market shares and high increments of market shares raise a question with regard to whether the market share is a random outcome. Secondly, where there are high market shares and high increments, this may indicate that the merging parties produce relatively close substitutes, that is, that they exert an important competitive constraint on each other. In other words, there may be an important subset of customers for whom the merging parties' products represent a second choice and there you would have a competitive effect.

The GE/Instrumentarium case involved highly differentiated products. While the merger concerned a whole range of product markets, the market discussed in the European Commission's paper was for a certain type of patient monitors that are purchased by hospitals. That case was interesting in terms of structural indicators, qualitative analysis and also the kind of frequency analysis that is referred to in the United States' contribution. Instrumentarium was the leading competitor in this market, with below 40% market share. GE had market share in the single digits. GE, Instrumentarium, Siemens and Philips all appeared to be credible bidders in the sense that they produced comparable products that were good substitutes. GE had a low nominal market share because they had just lost an alliance partner and they had traditionally occupied slightly different market segments. But overall they were a very powerful competitor across the whole range of medical products and they had distribution networks across Europe. So the Commission believed they had to be considered as a credible competitor.

The EC has to issue a clearance decision or a prohibition decision on a merger; it cannot simply not challenge a merger. The EC conducted an analysis very similar to the reduced-form analysis to which the delegate from the United States referred earlier. This analysis indicated that discounts were significantly higher whenever GE and Instrumentarium were bidding against each other in a given bidding contest. A challenge in the analysis was to take account of the product characteristics. These had the single largest

effect on price but are not always easy for an outsider to track. In this borderline case, reduce-form regression analysis provided important and probably decisive evidence in the case.

Siemens VA Tech is a second merger described in the European Commission's contribution. The product market was hydropower equipment. The products that were tendered in a given auction could range from single turbine blades to almost a complete hydropower plant. Thus, the value of these auctions ranged from a thousand to millions of euros. It can be challenging to control for all these factors that have a strong effect on price in order to learn about the factor you are interested in, that is, the simultaneous presence of the merging parties in that case. This can make these kinds of analysis costly not only for the competition authority but also for the merging parties and for third parties who have to supply the necessary data.

Returning to the collusion point raised earlier by other speakers, the delegate from the European Commission thought collusion would be particularly important in precisely those markets that were characterised as "ideal bidding markets." Those are the markets which, based on unilateral conduct, one would expect to be very competitive. But these are exactly the kinds of markets where you will find those cartels operating. That is something that is quite difficult to analyse in a merger context, especially if you believe that pre-merger there is no collusion but you are wondering whether, having discarded unilateral effects, maybe the merger will enable companies to collude, be it tacitly or explicitly. Obviously these are markets with a very small number of competitors where the profits from colluding are extremely high. That is probably an area where competition authorities' analytical tools are not as developed as one would like and where more research could be done in the future.

The Chairman asked the delegate from the European Commission whether supply side substitutability was substantially lower in a public procurement type situation than in other tendering situations. He noted that in many non-procurement type situations, bidders could offer products that are not exactly what the potential purchaser has requested. He contrasted this with a public procurement situation in which, while there may be supply side substitutability *ex ante*, once the request for bids is issued, it is very specific. In such a situation, how can the competitive constraints faced by each company be analyzed?

The delegate from the European Commission replied that in precisely such a setting a relatively simple frequency type of analysis can be quite informative. This is because exactly when product specifications are determined in great detail and bidding is costly, people would not participate in a tender if they have no chance from the outset to win. The delegate believes that, in such a setting, one can learn a lot from the identity of bidders that participate in the same tenders. That is a simple analysis that can almost always be implemented.

The chairman then turned to the contribution from BIAC, the Business and Industry Advisory Committee. He noted the final sentence of the BIAC contribution: "A reliance on standardised analytical tools which may be sufficient in a majority of merger cases often are inadequate in markets involving biddings or auctions." And he noted the discussion on the Oracle/Peoplesoft merger. The chairman asked BIAC to react to the discussion so far, and to explain what BIAC thought would have been the correct analytical tools to use in the analysis of the above-mentioned merger.

The representative from BIAC noted that bidding processes frequently involve business-to-business tenders. Thus, BIAC recognises that mergers between companies that have historically bid one against another have consequences for businesses on both sides of the equation.

Bid markets present a lot of interesting circumstances including the ability to obtain competitive information in a granular form that often is not observed in other types of merger analysis. The BIAC

representative emphasised that one cannot stop the analysis after you construct the proper economic model. Rather, you have to ensure that the proper factual analysis is conducted as well.

The BIAC representative offered an example in which market share presumptions were not applicable. A merger was proposed between two companies that bid to supply axle shafts for pick-up trucks. The market structure was relatively simple in that there were three major purchasers in the United States, the big three auto makers. Six companies could have effectively bid in this market; they had sufficient capacity to take the entire bid, which is how the tenders were delivered. The two merging companies had won two of the three bidding competitions for the big three, so their combined market shares would be about 70%. They were also the lowest cost suppliers because their capacity utilization was very high. They had been the number 1 and number 2 bidders against one another in the past two bid competitions in which they competed. Under some structural models, such a situation would cause one to presume anti-competitive effects. But because they had each won a competition, neither had sufficient capacity to make a major bid in the market for the next 7 to 10 years. In order to bid, they would have had to construct new facilities that would have made them, in effect, the two least effective bidders in future competitions. Hence, they could not constrain other bidders. This is one simple example of an instance in which market share presumptions would have come up with exactly the wrong conclusion as to whether a merger should or should not be approved. In fact, the merger was reviewed by the Federal Trade Commission and was cleared in the first phase.

The BIAC representative next commented on the Oracle/Peoplesoft merger. He saw this as a good example of a situation in which factual analysis was really necessary to complement the economic model. The reliability of the outcome of the analysis depends upon the accurate assessment of critical assumptions. One such critical assumption was that “customer evaluations are common knowledge.” But, in situations involving differentiated products, to make this assumption can often be a quantum leap. The products relevant to the analysis have hundreds of features and it was very difficult for bidders to determine which features were important to customers as compared to the features offered by their competitors. This information was very valuable to the purchaser and therefore closely guarded. So, the BIAC representative argued, there was no reliable or at least objective way to make that determination. Thus, one of the assumptions on which the model relied, that customer evaluations were common knowledge, was not a reliable assumption.

The second critical assumption was that the discount approval forms were an actual measure of the competition in the market place between the parties. (Oracle required salespersons to state in the customer discount approval forms who they believe their competitor was.) But Oracle surveyed customers after competitions were concluded to learn who their actual competitor had been. That survey revealed that, in fact, Oracle was correct in less than half the cases as to who their actual competitor was, and with respect to Peoplesoft they were even less accurate in measuring who their actual competitor was. So this was another assumption that, argued the BIAC representative, was not supported by a factual analysis.

The BIAC representative said that an appropriate economic model for analyzing the merger would have to properly account for the inability of Oracle to discern who they were competing against and how the customers valued the alternatives. He said that such a model would have to predict whether Oracle would have an increased ability of actually predicting those two elements because those were the two critical elements on which Oracle based their decision about how much discount to offer the customers.

He closed his comments by observing that many of the most difficult questions that arise in mergers between parties involved in a bidding process cannot be answered entirely by the economic models that try to quantify the extent of harm that comes from the merger. They require careful factual analysis and those two concepts—economic models and factual analysis—have to be married very closely together in order to get accurate results. Further, he emphasised that historical market shares may not reflect the future

competitive vitality; as with any merger analysis, the value of historical information is only relevant to the extent that it can be applied to future market transactions.

2. The design of auctions and tenders

The Chairman noted that the roundtable would now focus on the second major topic, the design of auctions and tenders. He asked Prof. Klemperer to provide an overview.

Prof. Klemperer said that bidding processes are not different from the rest of economics. So in designing a bidding process one should worry about the same things as one usually worries about, in other words, coordinated effects, dominance, predation, etc. For example, can entry be made easier? One may want to subsidise entry, so for example make payments for proposals in an architectural competition. Or, in order to encourage weaker bidders to participate, one may want to give them bidding credits or low-cost financing. Of course, the bid taker is generally giving away money with these practices. Alternatively, making resale easier can encourage entry.

Information provision can promote competition. This could either be public information provision, giving everybody the same information, or providing information to specific bidders. For example, a bid taker such as a hospital may have a standard supplier for, say, a computer system, and the hospital wishes to create a second potential source. Then it may give a competitor a scoping contract to investigate what the next system might be as a way of giving the competitor some information to let them compete better with the current incumbent.

A bid taker may also want to have actual second sources. In some contexts there could be multiple winners. Or the bid taker may ask for so-called non competitive bids. These are ways of getting additional suppliers in, but they may actually be ways of reducing competition for a given number of firms. In some settings they will be desirable and in some others they will be less desirable.

Coordinated effects can be dealt with by, among other things, making division harder. Infrequent repetition of the auction makes it harder for people to figure out how to divide the pie, and possibly the bid taker can make it hard to predict the size of different auctions. Monitoring adherence to coordination can be made more difficult by having a random choice of winner or by making it hard to predict exactly how the winner will be chosen by having multidimensional criteria. Creating a lack of transparency may, on the other hand, encourage corruption or collusion between the bid taker and some bidders. The advisability of decreasing transparency will depend on the setting. Fairly obviously, signals and threats need to be outlawed.

In addition to the usual concerns, some concerns arise from the fact that a bidding process is a “new market.” One should worry about the effect of that new market on other markets and the effect of other markets on the new market. For example, one of the concerns in the design of the United Kingdom’s 3G auction was the interaction of that auction with other European auctions. There was an advantage to going first in terms of the way bidders responded to the process. If auctions will occur a second time, such as for the United Kingdom’s national lottery mentioned earlier, one should worry about the fact that what you do today will affect the re-contracting stage. Furthermore, in some cases you will be directly creating a market. For example, the 3G auctions created the market structure for the UMTS market.

Bidding processes are special in that they have formal rules and these create additional issues. First, the designer has to worry about fine detail, about loopholes that bidders will be trying to find in order to game the situation. The second issue is how the rules will be enforced. Will the rules be enforced and do people believe they will be enforced? If a rule is not credible then it is not meaningful and one is better off not having it. But in some contexts it may be better to deliberately stay vague in order to protect against the

problem of loopholes. Mistakes will be made so the bid taker probably does often want to retain the ultimate ability to change the rules if absolutely necessary. How to balance credibility with the ultimate ability to change rules is a challenge.

Enforcement issues differ according to environment and regime. For example in some environments a sealed bid auction will be problematic because in a sealed bid auction there is more scope for collusion between an auctioneer and bidders than there is in an ascending auction.

To conclude, there is no check list for how we should design an auction. Auction design is not one size fits all, you have to design tailored auction to fit the situation. There are tradeoffs, e.g., a sealed bid auction may favour entry but it makes collusion between the bid taker and the bidders more problematic. So you really must look at the specifics of the situation.

The Chairman asked whether there was experience with providing inducement to entry in public procurement.

Prof. Klemperer replied that the UMTS auctions were good examples of that. The designers of the United Kingdom's auction were initially asked to design an auction to allocate four licences and there were four incumbents. At that point, the designers worried a great deal about entry and proposed a design that had special features to encourage entry, the so-called "Anglo-Dutch design." Subsequently the technology changed and the designers were told they could allocate five licences. This guaranteed that an entrant would win so it guaranteed that entrants would participate in the bidding. The designers felt they could get many entrants even with a standard ascending design, so they could retain the efficiency of the standard ascending design and still get entry. Later, in the Netherlands auction, there were exactly the same number of licenses and incumbents. The speaker thought they made a mistake of going with the ascending design which deterred entry. Yet later, the Danes found themselves in a similar sort of situation. Prof. Klemperer thought they did very well to choose the sealed bid design. They were successful in getting entry where otherwise they may not have had it. So these were examples of different countries with different situations and different "right answers."

The chairman began the discussion on the first subtopic, that of collusion between procurement officers and bidders. He asked the delegate from Japan to discuss a new law, effective in 2003, aimed at procurement officials orchestrating bid-rigging. He asked whether the law had been effective, and noted that the sanctions seem to be quite limited.

The delegate from Japan explained that, recent years, there were some instances of bid-rigging which were initiated by officers in procurement agencies or in which these officers were involved. In these cases it was possible for the JFTC (Japanese Fair Trade Commission) to take legal measures against collusive bidders based on the competition law. However, it was not possible to take any legal actions against the procurement officers under the antitrust law. The new law, the act concerning the elimination and prevention of involvement in bid-rigging, aimed at solving this problem. Since the law entered into force in January 2003, it has been applied in three cases. In these cases, the JFTC demanded the presidents of the procuring institutions to take measures to eliminate such involvement. Amendments to the law are being considered. For example, an amendment that has already been proposed to the Diet by the majority party, and that is still being discussed in the Diet, would impose criminal punishment on procurement officers who are involved in bid-rigging.

The Chairman turned next to Indonesia. He referred to their written contribution which mentions a memorandum of understanding signed between the Competition Authority and the Anti Corruption Commission to handle tender cases which involve government officials. He asked why the memorandum of understanding was seen as necessary and what has been its result.

The delegate from Indonesia said that Article 22 of the Indonesian competition law addresses collusion in tenders, whether there is one bidder or more. Collusion could be conducted through horizontal cooperation among the bidders or business players, but it can also be arranged vertically with procurement officers or be a combination of horizontal and vertical arrangements. The competition authority has produced a guideline on the subject. In the Indonesian context, the vertical arrangement often occurs in combination with collusion among bidders. But the competition law of Indonesia does not give a mandate for competition agencies to penalise or punish government officers. In that regard, the competition authority needs to cooperate with the Anti-Corruption Commission that does have a mandate to enforce the criminal law against public officers. That is the reason the competition authority arranged the referenced memorandum of understanding. As a result, many findings of the competition authority that relate to procurement officers could be passed on to the Anti-Corruption Commission. An example of this cooperation concerned the procurement of necessities for general elections. The competition authority handled only one small case—indelible election ink—among several procurements by the general election committee. But that opened the door for the Anti-Corruption Commission to look at the procurement of other election necessities. This very big case was handled together by the competition and the anti-corruption agencies.

The Chairman proceeded to the next subtopic, the role the competition authority can play in the definition of tender specifications. He noted that according to the competition law in Romania, the Competition Council may, at the request of various bodies, state its point of view on aspects of competition policy. In 2006 it was asked its opinion regarding a public procurement procedure for the award of a public supply contract for toner for ink jets. The chairman asked the delegate from Romania to explain how they were able to expand competition in such an auction and whether indeed the way they changed the auction made a difference.

The delegate from Romania said that, in the mentioned case, re-manufactured or compatible products could not participate in the auction. Because equipment manufacturers did not require the use of original consumables, re-manufactured or compatible consumables could be used. In addition, there were cases where compatible products were accepted but only if they were certified as compatible by the original equipment manufacturer. This was unlikely to be forthcoming when the OEM also competed. Hence, the competition authority considered the exclusion of remanufactured or compatible consumables, and the certification requirement to be restrictive of competition. These restrictions were removed.

Further, the competition authority participated in the public debate on the modernisation of the public procurement legislation. As a result, the new law on public procurement states that equivalent products should be accepted in tenders and that tender requirements should not include unnecessary technical specifications such as the brand name.

The Chairman then turned to the Korean contribution to the roundtable. He noted that in Korea, as in Italy, there has been a move towards centralised public tendering. Unusually, in Korea the service can conduct tenders on behalf of private companies for a fee. The centralised tendering uses electronic bidding, which has increased bidder participation and, by eliminating the need to be present, has also reduced the contact between bidders and procurement officers as a way to reduce corruption. The Korean contribution also states that the Korean Fair Trade Commission (KFTC) is using data generated by this procurement service electronic system to screen for bid-rigging. He asked how effective the procurement service system and the screening programme have been, and whether the screening programme has aided in gathering evidence for convictions.

The delegate from Korea replied that the centralised procurement service has worked well.

Over 90% of public tenders are now conducted through this system. Since companies can have easy access to bidding information and participate in bidding process with ease the number of participants has dramatically increased thereby greatly facilitating competition.

It is too early to assess the screening system; the system was launched only at the beginning of 2006. But to date the KFTC is investigating several auctions identified by the system to be at high risks of collusion and a couple of cartels have actually been detected.

Regarding whether the KFTC has found it easier to gather the evidence needed for conviction, detecting a violation is one thing and proving it is another. Even if the system detects some kind of potential illegal activity, that does not mean that the follow-up investigation will be successful. The main purposes of the screening system are to allocate limited law enforcement resources more effectively and to send a strong message to potential violators telling them that the KFTC is watching.

The basic logic underlying the detection system is primarily based on the presumption that there are certain events or outcomes that are highly unlikely if there is no collusion among participating bidders.

The Chairman then proceeded to the next subtopic, that of auction design and competition. He recalled the reporting of widespread horizontal agreements in public procurement in Switzerland, but noted also that the contribution from the competition authority refers to some measures that were promoted to increase competition in public procurement markets. Many of these provisions refer to inducement to entry. He asked whether such provisions had been implemented and whether participation actually did increase.

The delegate from Switzerland replied that the Swiss federal act on public procurement, which has implications for auctions, was revised in 2004. The main objective of the revision, as in the old law, was the introduction of more competition. But the old law reflected a lack of awareness of antitrust and regulation issues such as collusive practices or tendencies toward the capture of public procurement entities. The governmental institution responsible for the revision invited the Swiss Competition Commission into the main Revision Committee. The Competition Commission made a contribution in 2005. This contribution is summarized in the roundtable paper. The following issues were important: collusive practices, buyer power, transparency and transaction costs, regulatory capture and barriers to entry and exit. The public consultation on the revision of the federal act on public procurement will be held in 2007. Hence the Competition Commission cannot yet assess the real impact of its contribution or recommendations. However, this was the first time in Switzerland that a checklist for identifying collusive practices in bidding processes has been published. The Swiss Competition Commission is very optimistic that its contribution and recommendations will be considered in the revision process and will contribute to increasing competition in bidding processes in Switzerland.

The Chairman turned next to the Hungarian contribution. This contained two examples where the faulty design of an auction limited competition. He asked the Hungarian delegation to provide details on what were made in the auction process to improve competition and what the role of the competition authority was.

The delegate from Hungary responded first with respect to the case of the auction for cross-border electricity transmission capacities. There was a system of yearly auctions and monthly auctions held in parallel. The problem was that there no secondary market for capacity bought in the yearly auctions: A buyer of capacity rights could not resell them if it turned out that they could not use them. But it was very easy to renounce the capacity without any cost. Any capacity that was available after the yearly auctions could be and was sold in the monthly auctions. Hence, too much capacity was shifted from the yearly auctions to the monthly auctions which made planning difficult for the market participants. This

discouraged entry. The remedy was to make it possible to resell the yearly rights and thereby establish a secondary market. The Hungarian Competition Authority observed and criticised the situation, but the energy regulator took the decisions.

The delegate from Hungary responded next in reference to motorway construction auctions. The original problem was very strict pre-selection criteria which limited the number of bidders. For example, a newly designed motorway had four sections; four companies bid; it was easy to allocate the various parts of the work among themselves. The big change was to loosen the pre-selection criteria to make them more technologically neutral, which enabled more companies to participate. Other changes were made as well, so that at the end of the day prices were some 40% cheaper than before the changes. Again the competition authority was not directly involved in this redesign process. But earlier it had imposed a record fine in a cartel case regarding the previous motorway construction tender. It also had other cases in those years involving road construction and construction industry. These had raised public awareness. But the point of the redesign was lower prices, not necessarily to reduce cartelisation.

The Chairman next addressed the Dutch delegate. He noted that the Dutch competition authority had experience in providing advice on the design and monitoring of auctions. In particular the Dutch competition authority was involved in the Dutch UMTS auction. He asked what the authority learned from this experience, for example with respect to the importance of auction rules to ensure competitiveness and ensure that there are enough participants in the bidding process.

The delegate from the Netherlands responded that the NMa (Dutch Competition Authority) has no formal role in designing auctions. It did give advice in the UMTS auction but was not directly involved in the design itself. The NMa was also involved in a case that followed the auction. The design gave rise to some suspicion of collusion between two bidders. The details are available in the literature. The NMa did investigate but could not find conclusive evidence of collusion. In the end, the way the NMa has been involved in this specific auction is a bit unsatisfying.

The Chairman next turned to the Mexican contribution. It describes a case involving spectrum auction and the interaction between competition authorities and regulators. One part of the contribution illustrates some specific features of the Mexican procurement procedure, the possibility of split award and the announcement of reference prices. In particular, a split award occurs when bidders submit bids that are in the interval of $\pm 2.5\%$; when the difference between the price of bidders is above 5% then it is allocated to the highest bidder otherwise it is split by all participants. The **Chairman** observed that 5% is quite a large percentage, particularly in where the share of input is quite high; there profits are usually around 10%. If the project being tendered is well-identified, 5% is a huge amount and annulling the outcome of the auction may be quite dangerous for competition.

The delegate from Mexico responded that he agreed that 5% is large and the whole rule is probably not too intelligent, but it is in the Mexican procurement law. It is not the only rule of this kind in that law. The Mexican competition authority's experience in bidding markets has been largely shaped by government procurement.

The delegate noted that the split award feature would probably still lead to collusion even if the threshold were not 5%. One tends to see almost identical prices in auctions. This follows from the rule that if prices differ by less than 5%, the award will be split among the two. This is a natural mechanism for collusion, but the lawmakers did not see it that way.

A second notable feature is the reference price. While the principle is that a bid taker tries to get a discount from that price, it also serves as a beautiful crystallisation point for collusion. This effect is seen

in Mexico and as a result the competition authority tries to talk the government agencies out of using a reference price, with varying success.

The third notable feature is a prohibition in the Mexican procurement law of below-cost bids. The competition law in Mexico has a similar feature but the prohibition is subject to rule of reason and a recoupment requirement. There are no such restrictions in the procurement law. This rather defeats the purpose of holding tenders in the first place because it probably drives the most competitive bidders out of the contest. At a minimum, it hampers the use of an auction as a price-finding mechanism.

Further, in Mexico it is very common to scatter auctions across time and across regions. This goes against one of the principles that Prof. Klemperer mentioned in the beginning, of trying to make auctions as lumpy as possible. The competition authority addresses this both through enforcement cases and through opinions to government agencies.

In response to a question from the Chairman, the delegate from Mexico said that the reference pricing is not mandatory, but risk-averse bureaucrats prefer to use it in order to avoid the idea that they are not following the proper process. The competition authority comments focus on how reference pricing does not necessarily serve the state.

The Chairman next addressed the delegate from Germany. He noted that the German contribution states that in some cases the obligation to have an auction can be an effective remedy in antitrust enforcement. In the Bundeskartellamt practice, this has been used both with respect to dominance abuse and merger. The chairman referred to one case involving waste disposal. There, a first auction did not lead to higher competition—there was only one bidder—but after a change in the auction design, the second auction had a significantly larger number of bidders and very good price results. The chairman asked how this auction was changed.

The delegate from Germany noted that the case was important not only in terms of learning about auction design but also in terms of the size of the tender. The total volume of the tender was 1.2 billion euros. The auction involved waste collection and sorting in about 500 local areas in Germany for a three year period. In the first tender, only one bid was submitted in 40 or 50% of the areas. Often that bidder was a subcontractor that had provided the service to the Green Dot company in the previous years. There was a suspicion that this pattern could be the outcome of some sort of collusion, for example one competitor being offered a subcontract if he did not submit an independent bid. But the second reason for this outcome was that the tender bundled waste collection and waste sorting. It was easier to enter the waste collecting activity since waste sorting a more significant investment.

The DSD company annulled the first auction and conducted a second one. Pursuant to a Bundeskartellamt request, they changed two important features. First, they auctioned collecting and sorting services separately. This improved the bidding conditions for small and medium sized enterprises. Second, they forbade joint-bidding, bidding consortia and less formal sub-contract consortia. To give a sense of scale, there was a turnover of more than EUR 50 million among the waste disposal companies. The changes resulted in considerably more bids in the various areas, on average four in each lot, and considerably lower prices. The prices were 25% lower than in the first auction. German customers saved 250 million euros.

The Bundeskartellamt conducted a dawn raid against 120 waste disposal companies throughout Germany. But it received no leniency applicant despite advertising inviting any cartel member to apply. The Bundeskartellamt did perform some econometric studies that suggested that in those lots where only one company bid there must have been a kind of agreement or collusion. There is a pending court case, but it is quite a difficult case.

The Chairman introduced the final subtopic of the roundtable, joint bidding. Joint bidding occurs when independent companies come together to submit a joint bid. Many countries favour and promote joint-bidding. Joint bidding is competition-enhancing if it allows firms that are not able to supply complementary products to join with other companies to jointly supply those complementary products. But when competing companies bid jointly, this usually reduces competition.

Some jurisdictions allow joint bidding by companies in the same market when it is costly to make a bid or the contract would require a certain size. Joint bidding is a way to enable smaller companies that would otherwise be excluded to participate in larger bids. But it is not clear that small companies working together would really have the organisational structure to perform the work a large company can. If they do not, then it is not clear why joint bidding should be allowed as it increases the risk of collusion in other tenders.

The Chairman then addressed the delegate from Turkey. He noted that the Turkish contribution discussed a sealed-bid auction to supply milk to schools. The tender involved a quantity of milk that exceeded the capacity of any single Turkish producer, rendering joint bidding necessary. The joint bidding seems to have affected competition in many regions. He asked the delegate from Turkey to describe the case.

The delegate from Turkey replied that the tender was for the supply of 80 million packages of milk to primary schools. Such an amount exceeded the capacity of any milk producer in Turkey. Eight milk producers who participated in the tender established four separate joint-ventures. The tender specifications allowed milk producers to be party to different joint-ventures to supply milk in different territories. The main point of the case is that the auction design gave bidders the opportunity to exchange information and coordinate their offers.

When all the joint ventures were considered together, each producer supplied an equal quantity of milk, although this was not evident from examining the joint ventures individually. In addition, there was evidence indicating that the amount of milk that was to be provided by each producer for certain territories was fixed in advance of the tender. The Turkish competition authority concluded that this outcome could not be reached without coordination and information sharing among the companies that took part in the tender. However the milk producers claimed that the outcome of the tender was influenced by guidance of the relevant ministry and therefore it was out of their control. Moreover, the participants argued that the tender specifications permitted the participants to form joint-ventures with different undertakings for different territories which enabled the participants to learn the price for the region in which the tender was related. The competition authority, taking into account the mitigating factors, the role and influence of the Ministry, imposed minimum fines on the relevant undertakings.

The Chairman, after having asked for and receiving no further comments, summarized the roundtable.

Regarding merger analysis, it was clear from the discussion that the existence of a bidding process does not bring a significant change to the normal analysis of a merger. In a merger analysis, it is always important to understand the type of constraints that the merging parties have. There are many ways to measure those constraints; quantitative analysis and surveys were mentioned in the discussion. But especially where there is competition *ex-ante* with respect to product design, where procuring the product will later be subject to a bidding process, the competitive constraints would be very difficult to ascertain through simple quantitative analysis. If that sort of competition exists—and it probably does, especially in sophisticated products—then data analysis becomes extremely difficult to do. Having said that, most of the instruments competition authorities have in merger analysis are quite robust and they seem to provide good results.

As for auction design, it is important to ensure that there is enough entry and that competition is not reduced through poor design. There is no checklist since each situation is different. From the perspective of an antitrust authority, this is not very reassuring, because if an authority comments on auction design and public procurement, not having a checklist increases the difficulty because then one must go into the details of the specific situation and of the specific bidding process. This is made more difficult by the need to perform the analysis *ex ante*. The example from Germany made it quite clear how important auction design is.

The Chairman postulated a fourth fallacy to add to Prof. Klemperer's list, the "antitrust authority fallacy." Many times, especially for public utilities, antitrust authorities tend to think that auction is the solution to competition problems. But this is not always the case, and such a solution must be carefully designed to be effective.

The delegate from the United Kingdom wished to draw the Committee's attention to a discussion paper or report that has been commissioned by the Office of Fair Trading which is designed as a guide for case officers when dealing with markets characterised by bidding processes. It discusses the different techniques that can be used. The OFT hopes to publish it by the end of 2006.

The Chairman closed the roundtable by thanking Prof. Klemperer, all the delegations and BIAC for their participation.

RÉSUMÉ DE LA DISCUSSION

Le président du groupe de travail n° 2, Alberto Heimler, préside la table ronde du fait de l'absence inévitable du président du Comité. Il note que 17 contributions, dont trois émanant d'observateurs et une du BIAC (Comité consultatif économique et industriel auprès de l'OCDE), ont été reçues pour cette table ronde. Il faut y ajouter une note de synthèse du Secrétariat.

Le président présente l'orateur principal, le professeur Paul Klemperer. Il souligne que le professeur Klemperer a distribué l'un de ses écrits sur les marchés d'enchères et débutera la table ronde par un commentaire de ce texte. Le professeur Klemperer a activement contribué à l'élaboration de la théorie économique des enchères. Enseignant à l'Université d'Oxford et conseiller de la Commission de la concurrence du Royaume-Uni, il possède également une grande expérience pratique de l'organisation des enchères, ayant participé à la mise en place des enchères UMTS au Royaume-Uni et de beaucoup d'autres.

La table ronde s'articule autour de deux principaux thèmes. Le premier est de savoir si l'analyse du contrôle des fusions est différente sur les marchés d'enchères et sur les autres types de marchés. Le deuxième porte sur les enchères proprement dites : comment modifier les règles des enchères pour les rendre plus concurrentielles et comment appliquer les règles contre les accords restrictifs, notamment les ententes, dans le contexte des enchères.

Le président donne la parole au professeur Klemperer.

1. Analyse des fusions sur les marchés d'enchères

Le professeur Klemperer explique qu'il a rédigé le document diffusé (« Bidding Markets, » *Occasional Paper No. 1*, Commission de la concurrence du Royaume-Uni, 2005 et sur www.paul.klemperer.org) parce qu'on entend souvent des arguments du type : « Le pouvoir de marché est impossible puisqu'il s'agit d'un marché d'enchères ». Il qualifie cette assertion « d'erreur du consultant ». Si cet argument ne se vérifie pas, un deuxième argument est parfois avancé : « Même s'il existe un pouvoir de marché, il n'a pas d'effet négatif sur un marché d'enchères. » Il estime que cet argument est « l'erreur de l'universitaire ». Si, à son tour, cet argument est contredit par les faits, un troisième argument est formulé : « Même si l'effet est négatif, l'intervention des autorités réglementaires n'est pas nécessaire puisqu'il s'agit d'un marché d'enchères. » Il y voit « l'erreur de l'autorité réglementaire ». Tous ces arguments ont été développés dans les contributions. Pris individuellement, ils ne sont pas toujours faux ; ils comportent une certaine dose de vérité, mais le professeur Klemperer les juge très exagérés. Selon lui, ils peuvent être vrais dans certains modèles économiques, mais ils le sont rarement dans le monde réel. Il examinera dans sa présentation ce qu'entendent certains spécialistes par « marché d'enchères » et s'attachera ensuite à corriger ces trois erreurs.

Qu'est-ce qu'un marché d'enchères ? La Commission européenne en donnerait la définition suivante : marché sur lequel les appels d'offres ne sont pas fréquents, la valeur de chaque contrat est très importante et les contrats sont généralement attribués à un seul soumissionnaire. Les définitions des « marchés d'enchères » font généralement intervenir les concepts suivants :

- « L'attributaire remporte l'ensemble du marché », c'est-à-dire que chaque fournisseur remporte la totalité du marché ou rien du tout. Il n'y a donc pas d'arbitrage simple entre le prix proposé et la quantité vendue.
- La concurrence se fait par gros « blocs », c'est-à-dire que chaque adjudication porte sur une part importante des ventes du fournisseur au cours d'une certaine période.
- « Chaque compétition est une nouvelle compétition ». En d'autres termes, il n'existe aucun « verrouillage » par lequel le résultat d'une adjudication passée influencerait la probabilité de remporter les enchères actuelles.
- Le quatrième concept parfois ajouté est que les barrières à l'entrée sur le marché sont faibles pour les nouveaux fournisseurs.
- Enfin, un marché d'enchères implique bien évidemment un processus d'enchères.

Une adjudication pour un contrat de fourniture d'un système d'armes dans le secteur de la défense serait un exemple type de marché d'enchères. Bien qu'il puisse ne pas satisfaire à tous ces critères, il constitue assurément un marché d'enchères comparé à la concurrence ordinaire entre des supermarchés dans le secteur de la distribution par exemple.

Les conséquences de cette définition sont les suivantes. Les trois premiers éléments de la définition — l'attributaire remporte l'ensemble du marché, concurrence par gros blocs et chaque compétition est une nouvelle compétition — évoquent ce que les économistes appellent une « concurrence à la Bertrand pour la fixation des prix », soit pour un lot individuel, soit pour l'ensemble d'un marché. Si l'on ajoute le quatrième élément de la définition — les faibles barrières à l'entrée —, on obtient en l'espèce ce que les économistes appellent un « marché contestable ». Dans ce contexte, on comprend pourquoi certains prétendent que « le pouvoir de marché est impossible », parce qu'en effet dans une situation de concurrence à la Bertrand, deux entreprises identiques suffisent pour garantir un résultat concurrentiel, tandis que la présence d'une seule entreprise suffit sur les marchés contestables.

Si l'on examine les marchés qui impliquent un processus d'enchères, on peut se demander s'ils réunissent ces quatre caractéristiques. Aucune des enchères 3G ne répondait au critère « l'attributaire remporte l'ensemble du marché » ; plusieurs licences étaient généralement accordées à plusieurs soumissionnaires. Le marché des services de conseil implique des adjudications répétées, contrat après contrat, ce qui en fait un processus beaucoup plus régulier que le professeur Klemperer ne qualifierait pas de « concurrence par gros blocs ». L'adjudication pour l'exploitation de la loterie nationale au Royaume-Uni est organisée tous les cinq ou sept ans. C'est effectivement un processus par lequel l'attributaire remporte l'ensemble du marché. C'est un monopole avec un fonctionnement par « blocs » — un seul marché attribué tous les cinq ou sept ans. Mais le professeur Klemperer ne dirait pas que les barrières à l'entrée sur le marché sont faibles ou que chaque adjudication est entièrement nouvelle. L'exploitant en place bénéficie d'avantages considérables ; si vous avez appris à exploiter une loterie et que votre réputation est solide, vous détenez un avantage certain sur les autres concurrents. Huit soumissionnaires ont participé à l'appel d'offres lors de la création de la loterie nationale. Pour la deuxième période d'adjudication, ils n'étaient plus que deux et le vainqueur a été le même. Combien y aura-t-il de soumissionnaires pour la troisième période ? Le gouvernement nourrit de sérieuses inquiétudes à ce sujet.

Certains processus d'enchères ne satisfont à aucune de ces hypothèses, un groupement de production d'électricité par exemple. Dans un tel groupement, il peut y avoir plusieurs vainqueurs. Ce n'est pas une concurrence par gros blocs parce qu'un nouveau marché est adjugé toutes les demi-heures. Et chaque contrat n'est pas nouveau à chaque fois ; les antécédents comptent parce que les entreprises ont appris à se connaître. La production d'électricité exige de construire un nouveau générateur, et la mise en service d'un

générateur de grande capacité n'est ni rapide, ni aisée. Si l'on applique les critères standard, un marché de l'électricité pourrait réunir pratiquement toutes les conditions susceptibles d'engendrer des problèmes de concurrence. Il n'est donc pas surprenant que les marchés de l'électricité, malgré l'organisation d'enchères, soient critiqués partout dans le monde à cause des effets unilatéraux et coordonnés qu'on peut y observer.

Tous ces processus d'enchères donnent lieu à des pratiques de prédation et de domination et à des effets unilatéraux et coordonnés pour toutes les raisons habituelles. Selon le professeur Klemperer, le problème fondamental tient au fait qu'on définit les marchés d'enchères selon les modalités exposées ci-dessus, et qu'on suppose ensuite que les processus d'enchères réunissent les mêmes caractéristiques positives, confondant ainsi le processus d'adjudication avec la notion de marché d'enchères. Il pense que le terme de marché d'enchères est aujourd'hui trompeur et qu'il vaudrait beaucoup mieux utiliser les termes de « marché à la Bertrand » ou « marché contestable », qui sont des concepts économiques parfaitement recevables.

La partie suivante de la présentation de M. Klemperer porte sur les processus d'enchères. Il considère qu'un tel processus n'implique pas des forces économiques fondamentalement nouvelles, mais des facteurs élémentaires standard. Néanmoins, si l'on examine ce processus plus en détail, on constate que certains aspects exacerbent les problèmes de concurrence au lieu de les atténuer.

Une adjudication pour le spectre hertzien aux États-Unis offre un exemple d'échec. De nombreux lots différents étaient adjugés, et il s'agissait d'enchères ascendantes, dans lesquelles les enchérisseurs soumettent des offres visibles pour tous, qui ne se terminent qu'une fois tous les lots adjugés. Cet exemple concerne seulement trois lots dans trois villes. Les enchères ont commencé dans deux de ces villes, Marshalltown et Waterloo. Il semblait qu'une seule entreprise était intéressée et qu'il n'y avait pas de concurrent sérieux. Dans la troisième ville, Rochester, McLeod et US West se sont livrés une lutte acharnée en surenchérissant tour à tour, faisant monter le prix. Les caractéristiques des enchères initiales étaient donc les suivantes : une rude concurrence à Rochester, et pratiquement aucune à Marshalltown et à Waterloo. Que s'est-il passé ensuite ? US West a soumis une offre supplémentaire à Rochester et, pour la première fois, US West a enchéri à Waterloo. De façon plutôt étonnante, cette première offre n'était pas un chiffre rond en milliers de dollars, puisqu'elle se terminait par 378 dollars. Pourquoi enchérir soudain à Waterloo et pourquoi avec une offre aussi bizarre ? Le chiffre 378 signalait en réalité que cette offre n'avait rien à voir avec Waterloo ; elle concernait l'adjudication en cours à Rochester et désignait le *numéro de lot* 378. Elle signifiait : « Si vous continuez d'enchérir à Rochester, McLeod, nous allons vous mener la vie dure sur d'autres marchés. » Ce signal a coûté cher à McLeod qui a dû soumettre une offre plus élevée à Waterloo. McLeod a continué d'enchérir à Waterloo, comme on s'y attendait, mais a semblé ne pas tenir compte du signal et a surenchéri une nouvelle fois à Rochester. US West a alors fait une offre pour la première fois à Marshalltown, qui se terminait elle aussi par 378. En d'autres termes, « nous pouvons vous mener la vie dure sur beaucoup d'autres marchés » ; cette fois-ci, McLeod a compris le message et n'a pas surenchéri à Rochester.

Le professeur Klemperer y voit un exemple éloquent de la manière dont un processus d'enchères peut permettre aux entreprises d'envoyer des signaux et peut favoriser la collusion ou les actions coordonnées, en partie du fait qu'il est possible de menacer un concurrent de représailles s'il ne fait pas ce qu'on attend de lui. Même si un concurrent ne peut pas parler directement à un autre concurrent, les règles des enchères lui offrent un langage suffisamment élaboré pour signifier à ses concurrents ce qu'il attend d'eux, mais pas suffisamment pour être ambigu. Reprenons l'exemple des supermarchés ; ils vendent des milliers de produits différents ; ils se différencient de bien des manières. C'est un environnement où la coopération entre entreprises est très difficile. Vous pouvez tenter d'envoyer des signaux, mais il serait très difficile d'expliquer ce que vous voulez signaler et pourquoi. Dans l'exemple des enchères pour le spectre hertzien, le langage est juste assez élaboré pour pouvoir adresser des messages parfaitement clairs.

Appliquons une règle standard à un tel marché afin de déceler les effets coordonnés. En premier lieu, « les entreprises peuvent-elle parvenir à une entente ? ». La réponse est claire : certaines entreprises remportent certains marchés et d'autres remportent d'autres marchés qui ont été soigneusement subdivisés en lots par les pouvoirs publics. « Peut-on savoir si une entreprise suit l'accord de collusion implicite ? » C'est très simple ; soit elle arrête d'enchérir sur une ville, soit elle n'arrête pas. « Est-il possible de dissuader de manière crédible les entorses à l'accord ? » L'exemple du spectre hertzien montre comment cela peut se faire et on peut procéder de même pour empêcher les nouveaux entrants. Ce marché ne se prête-il pas tout particulièrement à une collusion ? L'impossible exercice d'un pouvoir de marché sur un marché faisant intervenir un processus d'enchères n'est qu'une illusion !

Vient ensuite l'erreur des universitaires : « L'existence d'un pouvoir de marché est sans importance s'il y a processus d'enchères ». Personne n'utilise une formulation aussi simple et aussi catégorique, mais certains prétendent que dans le cas des « fusions à valeurs communes », les enchérisseurs qui fusionnent se livrent en fin de compte à une concurrence plus agressive et la fusion sera profitable aux acheteurs. Bien que l'analyse détaillée de cet argument n'entre pas dans le cadre de ce débat, il est faux pour l'essentiel ; il y a certes un effet de cette nature, mais des effets contraires s'exercent également. Cette assertion n'est vraie que dans certains cas spéciaux qui ne sont pas très plausibles ; en général, on peut penser qu'une telle fusion serait préjudiciable à l'acheteur pour les raisons habituelles. En outre, les fusions à valeurs communes peuvent dissuader la participation aux enchères et renforcer la position dominante et la prédation. C'est ce que nous avons vu dans certaines enchères pour le spectre hertzien. Donc, dans ce contexte, le pouvoir de marché est généralement négatif.

L'orateur examine enfin l'erreur des autorités réglementaires, à savoir que « même si le pouvoir de marché a un effet négatif, il est inutile de réglementer ». L'idée est que l'acheteur a le pouvoir de concevoir le processus d'enchères qui fixe le prix. Il peut donc choisir la forme d'enchères susceptible de favoriser l'entrée de concurrents, ou mettre en place des protections spéciales contre la collusion, ou procéder à d'autres choix intelligents sur l'organisation des enchères. Mais, dans la pratique, cette marge de manœuvre se heurte à des contraintes bien réelles.

- Il existe des contraintes juridiques, notamment les règles sur les aides d'État qui interdisent la discrimination directe entre soumissionnaires dans l'Union européenne (cette discrimination peut avoir pour objectif d'encourager l'entrée, par exemple).
- Il peut y avoir des contraintes politiques.
- Il existe des contraintes organisationnelles. Dans n'importe quelle organisation, qu'elle soit publique ou privée, il y aura des problèmes de relation mandant/mandataire. Par exemple, le concepteur des enchères peut mettre au point une procédure idéale quant aux effets à court terme, mais négliger les effets de verrouillage qui affaibliront à l'avenir la position de l'organisme concerné. En tant qu'autorité réglementaire, peut-être faut-il accepter les structures d'organisation telles qu'elles sont, comme pour les structures de marché, et accepter les restrictions imposées aux organisations.
- Il peut être impossible, pour des raisons politiques ou organisationnelles, de s'engager sur une conception en particulier. Des groupes d'intérêt peuvent exercer des pressions. Dans son ouvrage (*Auctions: Theory and Practice*, Princeton University Press), le professeur Klemperer évoque les enchères pour le spectre hertzien à Hongkong, dont la conception brillante en théorie n'a pas résisté aux pressions. Il s'est avéré très facile de formuler des arguments politiques en faveur de changements apparemment très simples, mais qui ont eu pour effet d'altérer la conception initiale. Une autre difficulté potentielle tient à la difficulté de s'engager sur son propre comportement futur. Il est aisé de dire : organisons des enchères sous pli scellé, nous retiendrons la meilleure offre finale, le vainqueur sera désigné et voilà tout. Le problème est qu'avec le système de la meilleure offre finale, on obtient effectivement un vainqueur, mais l'un des

perdants vient vous voir pour formuler une offre un peu plus élevée. Quelle attitude adopter dans ce cas ? Il est dans votre intérêt d'accepter l'offre plus élevée. Mais si vous le faites, les concurrents penseront que vous êtes disposé à accepter d'autres offres à l'avenir. Dès lors, il ne s'agit plus d'enchères avec attribution à la meilleure offre finale, mais d'enchères ascendantes. C'est un problème bien réel dans la pratique.

L'essentiel à retenir, c'est que des contraintes peuvent limiter le type d'enchères qu'il est possible d'organiser. Les autorités de la concurrence doivent veiller à ne pas surestimer ce que les acheteurs peuvent faire pour remédier à un problème de concurrence en organisant un autre type d'enchères. C'est parfois une illusion.

Pour conclure, le professeur Klemperer répète que, fondamentalement, le terme de marché d'enchères n'apporte rien et est trompeur. S'agissant des enchères et des processus correspondants, trois erreurs sont fréquentes :

- L'erreur du consultant : le pouvoir de marché est impossible,
- L'erreur de l'universitaire : même si un pouvoir de marché s'exerce, il n'a pas de conséquence négative.
- L'erreur de l'autorité réglementaire : même si un pouvoir de marché négatif s'exerce, les autorités réglementaires n'ont pas à s'en soucier « puisque les participants au marché peuvent y remédier d'eux-mêmes ».

Toutes ces idées sont fausses.

Le président remercie le professeur Klemperer et en vient aux contributions écrites à la table ronde. Il commente en premier lieu celle de l'Afrique du Sud. La décision du Tribunal de la concurrence dans une fusion entre Murray & Roberts et Cementation Co. cite, notamment, les caractéristiques suivantes du marché où avait lieu la fusion : (1) la concurrence sur la base des prix, (2) des clients particulièrement sophistiqués, (3) la confidentialité des offres et des attributions, (4) l'attributaire remporte l'ensemble du marché, (5) chaque contrat porte sur une partie importante des ventes d'un soumissionnaire, et (6) faibles barrières à l'entrée. Le président fait remarquer que cette contribution fait valoir entre autres que l'analyse du marché classique est pertinente pour les fusions sur les marchés d'enchères. Il s'interroge sur la manière de concilier cette affirmation avec la décision, dans l'affaire de fusion susmentionnée, d'autoriser une fusion qui se solde par la présence de deux concurrents seulement sur le marché.

Le délégué d'Afrique du Sud explique que la décision dans l'affaire de fusion entre Murray & Roberts et Cementation Co (affaire n° 02/LM/Jan04) aurait été identique si l'ouvrage du professeur Klemperer avait été publié avant la décision du Tribunal. Il ajoute que cette décision se fonde sur les critères classiques d'analyse des fusions. La fusion concernait deux entreprises qui approvisionnent les créneaux du fonçage de puits et du forage montant sur le marché plus large des infrastructures d'extraction. Les critères examinés incluaient les barrières à l'entrée, la substitution au niveau de l'offre, le pouvoir compensateur et la probabilité de coopération ou de prédation après la fusion. Les principaux critères en l'espèce étaient la substitution au niveau de l'offre et le pouvoir compensateur. Dans cette affaire, les acheteurs, les sociétés minières, se chargeaient jusqu'alors du fonçage de puits et du forage montant. Elles étaient parfaitement capables de continuer de le faire, et la plus grande d'entre elles possédait plus d'équipements de forage que tous les enchérisseurs cumulés. Aussi était-il évident qu'elles avaient les moyens de contrer un éventuel pouvoir de marché. Par ailleurs, leur expérience passée leur avait permis de conserver des équipes suffisamment compétentes non seulement pour soumettre une offre très élaborée au plan technique, mais aussi pour déceler les collusions. La fusion a donc été approuvée selon les critères

classiques, notamment le pouvoir compensateur du client et le fait qu'il s'agissait d'entreprises possédant déjà les actifs nécessaires pour concourir immédiatement pour le marché si elles le souhaitaient.

Le délégué estime que, même si la décision qualifie cette fusion de fusion « de trois à deux », ce n'en est pas une en réalité. Dans cette affaire, l'entreprise acquéreuse ne détenait aucune part de marché ; c'était seulement un soumissionnaire normal et crédible. Mais plusieurs autres enchérisseurs auraient pu être inclus, et c'est un marché où la constitution de consortiums est particulièrement aisée.

Une autre affaire de fusion concernait des entreprises qui soumissionnaient pour des concessions attribuées par la National Roads Agency en vue d'exploiter des routes à péage. Ce marché réunissait toutes les caractéristiques d'un marché contestable à la Bertrand. Cependant, certains éléments — qui ont leur importance dans une analyse de fusion — suggéraient l'existence d'une collusion des soumissionnaires : certaines offres étaient très proches, les enchérisseurs étaient très peu nombreux et leur nombre avait diminué. La National Roads Agency s'est donc opposée à la fusion. Lorsque le Tribunal a examiné les indices de collusion, il lui a semblé évident que les offres étaient si précises et si proches que la marge de manœuvre en termes de prix était très faible ; rien d'étonnant, dans ces conditions, à ce que les prix soient si proches les uns des autres. Le très petit nombre de soumissionnaires s'expliquait par des marges si faibles que rares étaient les entreprises intéressées par ce marché. Si pouvoir de marché il y avait, il était le fait des acheteurs, et non des vendeurs.

Le président passe alors à la contribution du Royaume-Uni, dont il cite un passage : « l'analyse économique des marchés d'enchères... ne doit pas être considérée comme exigeant un paradigme radicalement nouveau ». Il ajoute néanmoins que cette contribution souligne la nécessité de formes d'analyses différentes. Il demande au délégué du Royaume-Uni quels sont les outils classiques d'analyse qui ne se prêtent pas à l'examen des fusions sur les marchés d'enchères. Comment adapter le paradigme classique afin d'évaluer les fusions sur ces marchés ? Une phrase en particulier du rapport du Royaume-Uni indique que « en principe, on peut procéder à une évaluation quantitative des effets unilatéraux sur les prix que peut avoir la perte d'un soumissionnaire, mais les décisions récentes de la Commission de la concurrence de blocage de fusions ne sont pas basées sur une telle évaluation ». Quelles sont les solutions de remplacement, demande le président, et pourquoi ont-elles été retenues ?

Le délégué du Royaume-Uni indique en premier lieu qu'il est d'accord avec la vision du problème exposée par le professeur Klemperer.

S'agissant des techniques pratiques sur les marchés d'enchères, il examine tout d'abord la question de savoir pourquoi l'ancien modèle n'est plus entièrement pertinent. Comme le souligne notamment la contribution de la Nouvelle-Zélande, il peut être parfois difficile de définir le marché en appliquant le critère de l'augmentation du prix faible, mais significative et non temporaire sur les marchés caractérisés par des mécanismes d'enchères, parce que le prix est potentiellement différent pour chaque contrat. Le délégué estime qu'il s'agit là d'un problème, mais pas forcément plus que sur n'importe quel autre marché où les prix sont fixés individuellement pour chaque contrat. Dans ces circonstances, il est parfois utile de se concentrer sur l'offre.

Comme l'indiquent de nombreuses contributions, notamment celle de la Commission européenne, les parts de marché ne sont pas nécessairement très évocatrices. Dans des dossiers récents de fusion, l'autorité de la concurrence a tenté d'identifier les circonstances dans lesquelles les parts de marché sont révélatrices du pouvoir de marché. Par exemple, les avantages revenant à l'exploitant en place ont été examinés dans l'affaire des microscopes Carl Zeiss/Bio-Rad. Si les exploitants en place détiennent un avantage, c'est-à-dire si une entreprise qui a vendu un microscope à un client donné dans le passé a plus de chances de faire de même à l'avenir, alors une part de marché plus importante peut en principe générer un pouvoir de marché selon le mécanisme habituel.

S'agissant des instruments utiles, le délégué ne juge pas opportun de modifier les outils existants, mais préconise plutôt de choisir des outils adéquats dans la « trousse à outils » habituelle de l'autorité réglementaire. Au Royaume-Uni, quatre affaires de fusion au cours des trois ou quatre dernières années présentaient, selon le délégué, les caractéristiques d'une concurrence à la Bertrand. Deux d'entre elles concernaient des produits différenciés et les deux autres des produits non différenciés, mais avec des contraintes de capacité importantes. Dans les deux cas de produits différenciés — l'affaire des microscopes et celle des couveuses pour prématurés —, la solution a consisté à évaluer la proximité de la concurrence entre les parties qui fusionnent. De nombreuses contributions s'y intéressent et constatent que, parfois, le processus d'enchères peut être très révélateur à ce sujet. L'affaire Oracle/Peoplesoft, citée à la fois par les États-Unis et par la Commission européenne, en est un exemple. Dans ces circonstances, les enchères peuvent ouvrir des possibilités d'analyse de la proximité de la concurrence. Néanmoins, le délégué enjoint de ne pas perdre de vue le fait que d'autres techniques d'évaluation de la proximité de deux produits différenciés restent tout à fait adéquates, à savoir l'examen des caractéristiques des produits, l'utilisation d'enquêtes ou d'autres instruments de mesure de l'opinion des clients, ou parfois les expériences de prix naturels, ce qu'il advient si un produit disparaît soudainement du marché pour des raisons temporaires et à qui s'adresse le consommateur, c'est-à-dire l'analyse du ratio de diversion. Dans les affaires de produits différenciés, le délégué estime que l'analyse consiste à déterminer la proximité de la concurrence ; les données d'enchères sont parfois utiles à cet égard, et parfois elles ne le sont pas.

Les deux affaires portant sur des produits non différenciés concernaient la production de bouteilles en verre et l'embouteillage de boissons non alcoolisées. L'autorité de la concurrence a examiné en détail les contraintes de capacité, notamment les différents coûts liés à différents degrés d'expansion des capacités, du court terme au long terme. Dans les faits, elle a évalué une courbe d'offre. Elle a constaté que, dans l'affaire de l'embouteillage de boissons non alcoolisées, la courbe d'offre était suffisamment plate, garantissant aux entreprises de la frange concurrentielle la possibilité de se développer et de faire échec à toute tentative d'exercice d'un pouvoir de marché non coordonné ou unilatéral.

Le délégué conclut sa réponse en ajoutant que, selon lui, la note du Secrétariat est excellente, et qu'il a tout particulièrement apprécié la justesse et la pertinence d'une citation de Waehrer et Perry 2003 : « Les marchés d'enchères suscitent également des arguments en défense qui ne sont pas plausibles ».

Le président observe que le délégué du Royaume-Uni a confirmé le fait que l'analyse économique sur les marchés d'enchères et sur les marchés « ordinaires » est la même, parce que les enjeux sont identiques, quel que soit le mode opératoire de la concurrence.

Le président s'intéresse alors à la contribution de la Nouvelle-Zélande. Cette contribution porte sur la difficulté d'appliquer le test du monopoleur hypothétique (ou test SSNIP) pour la définition du marché sur les marchés qui font intervenir des enchères, ainsi que sur le degré auquel les parts de marché sont révélatrices de la compétitivité. La contribution de la Nouvelle-Zélande examine la fusion Sonic/New Zealand Diagnostic Group dans le secteur de la pathologie. Dans cette affaire, l'autorité de la concurrence semble avoir contourné ces difficultés en analysant directement en quoi la fusion modifierait les contraintes concurrentielles imposées par les différents soumissionnaires et la possibilité pour les concurrents d'exercer une influence sur l'entité fusionnée lors des tours d'enchères futurs, sans recourir à une analyse quantitative complexe. Il constate que la fusion a été interdite. Il demande au délégué de la Nouvelle-Zélande de présenter la fusion et les méthodes employées pour l'analyser.

Le délégué de la Nouvelle-Zélande présente alors la fusion Sonic/New Zealand Diagnostic Group, les deux plus grandes entreprises du pays dans le secteur de la pathologie. Les autres participants à ce marché occupaient des créneaux spécialisés dans différentes régions du pays. Les deux parties demandaient à fusionner dans six des onze régions gérées par les conseils de santé de district du pays et entendaient se livrer directement concurrence dans les autres régions. Au moment même où cette demande a été reçue, les

conseils de santé de district s'orientaient vers la conclusion de contrats avec un prestataire unique pour l'ensemble des services de pathologie. Dans ce système, les prestataires retenus bénéficiaient de droits exclusifs de desservir une région pendant toute la durée du contrat. Pour l'examen de la demande et l'analyse de la fusion, l'autorité de la concurrence a supposé que ce serait la méthode contractuelle privilégiée à l'avenir. Par conséquent, la concurrence s'exerçait *pour* obtenir le marché plutôt que *sur* le marché, comme c'était le cas jusqu'alors ; elle a donc jugé que sa définition du marché devait prendre en compte la nouvelle nature de la concurrence.

S'agissant de l'application du test SSNIP à la définition du marché, le problème est qu'il n'existe aucun prix évident auquel ajouter le prix SSNIP dans la mesure où la concurrence s'exerce simultanément et non de façon séquentielle. Même si l'on suppose que le monopoleur hypothétique dans une région ajoute 5 % à 10 % au coût total d'un prestataire, il est difficile de déterminer si un prestataire situé dans une autre région soumissionnerait. Même si les concurrents peuvent réunir des informations sur les coûts et les prix de leurs rivaux grâce à l'expérience d'appels d'offres dans d'autres régions ou de contrats antérieurs, l'utilité de ces informations serait limitée. Il existe des différences considérables au plan des caractéristiques démographiques, des besoins d'examens, des relations avec le conseil de santé des régions et d'autres facteurs. De même, les adjudications étant peu fréquentes, tous les 3 à 10 ans, les conditions du marché peuvent énormément changer au cours de la période. Le nouveau modèle contractuel était un autre facteur qui entravait l'application du test SSNIP. Le passage de plusieurs fournisseurs à un seul sélectionné par une procédure d'enchères et le passage de prix réglementés à des prix libres modifiaient radicalement le paysage concurrentiel. L'application d'un test SSNIP aux prix historiques ne serait donc pas rationnelle. Malgré ces difficultés, la notion de possibilité de substitution qui sous-tend le test SSNIP a été utile pour définir le marché pertinent. Plusieurs facteurs non liés aux prix ont permis de déterminer les possibilités de substitution au niveau de l'offre et de la demande. Ces facteurs comprenaient notamment les caractéristiques et les utilisations distinctes des produits, les infrastructures ou les procédés de production uniques, les acheteurs spécifiques, la spécialisation des vendeurs et le point de vue des participants du secteur. Dans ce cas particulier, l'autorité de la concurrence s'est fondée davantage sur ces facteurs hors prix pour évaluer la portée du marché pertinent.

Concernant la valeur prédictive des parts de marché, les parts actuelles donnent une vision trompeuse de la concurrence régnant sur ces marchés, notamment lorsque l'attributaire remporte l'ensemble du marché. Par définition, l'exploitant en place contrôle 100 % de ces marchés et n'a pas de rivaux. Il peut toutefois y avoir plusieurs concurrents potentiels prêts à s'implanter lors de la prochaine adjudication. L'analyse s'est donc concentrée sur les contraintes concurrentielles que font peser ces nouveaux entrants potentiels sur l'entité fusionnée en place. L'autorité de la concurrence a modifié son analyse standard de la concurrence existante et de la concurrence potentielle et a tenté de déterminer la nature de la concurrence en identifiant les soumissionnaires potentiels probables, c'est-à-dire d'anciens prestataires dans la région, de nouveaux soumissionnaires nationaux ainsi que de nouveaux entrants venant de l'étranger.

La Commission a procédé à une évaluation qualitative des obstacles probables à l'entrée que rencontrerait chaque soumissionnaire potentiel futur, y compris l'accès au personnel technique et au capital, l'échelle opérationnelle et l'assise des exploitants en place, la connaissance de la région, la réputation et les relations établies. Elle a examiné la probabilité, l'importance et l'opportunité d'une entrée potentielle lors du prochain tour d'enchères en évaluant les barrières détectées dans le cas de chaque entrant potentiel. Les consultations des participants du secteur ont été utiles. La Commission a conclu que la plupart des entrants potentiels jugeraient ces barrières insurmontables. Toutefois, sachant que Sonic et NZDG sont les prestataires de services de pathologie les plus importants, les plus expérimentés et les mieux dotés en ressources en Nouvelle-Zélande, ils devraient pouvoir surmonter aisément ces obstacles.

Il était donc probable que, en l'absence de fusion, NZDG et Sonic auraient exercé une forte pression concurrentielle l'un sur l'autre. La fusion proposée supprimerait cette pression.

La Commission a examiné le pouvoir compensateur des conseils de santé de district, qui pouvaient se tourner vers un autre fournisseur ou reprendre la prestation des services en interne. Mais face aux barrières à l'entrée probablement élevées, aux risques et aux coûts associés à la prestation interne — les conseils de santé avaient clairement indiqué par le passé qu'ils ne reviendraient pas sur ce marché —, la Commission a jugé que le pouvoir compensateur était insuffisant pour discipliner l'entité fusionnée. L'une des difficultés dans cette affaire tenait au fait que trois des conseils de santé avaient invité les parties à la fusion à soumettre une offre conjointe.

Enfin, la Commission craignait également que ce projet n'augmente le risque d'actions coordonnées à la fois sur ces marchés et sur les autres marchés régionaux de la Nouvelle-Zélande. Cumulés, tous ces facteurs ont conduit la Commission à craindre que la fusion envisagée n'entraîne un affaiblissement notable de la concurrence. C'est pourquoi elle n'a pas autorisé la fusion.

Le président se tourne alors vers la République tchèque. Sa contribution décrit une fusion entre deux entreprises de construction, Metrostav et Subterra. L'analyse relative à la définition du marché était l'une des principales difficultés. Construction est un terme très large ; certaines entreprises sont spécialisées et d'autres sont capables d'accomplir un large éventail de travaux. Le président demande au délégué tchèque de présenter l'analyse employée pour évaluer cette fusion. La contribution indique que « cette décision a été validée par une analyse gain/perte des parties à la fusion lors des appels d'offres organisés l'année précédente » ; un éclaircissement est demandé au délégué sur ce point.

Le délégué de la République tchèque fait observer que, dans cette affaire, la définition du marché pertinent était très importante et malaisée. Le secteur de la construction en République tchèque compte dix grandes entreprises. Elles ne sont pas spécialisées, mais possèdent des portefeuilles technologiques complexes. C'est l'une des raisons qui justifient la définition du marché pertinent. Seules trois entreprises étaient spécialisées dans les travaux souterrains ; trois seulement étaient donc susceptibles de soumissionner pour des marchés de construction de tunnels, de métros ou de mines. La fusion concernait deux de ces entreprises. L'autorité de la concurrence a jugé que le chiffre d'affaires de ces deux entreprises dans cette catégorie d'ouvrages ne dépassaient pas 10 % de leur chiffre d'affaires total, et ce type d'ouvrage représente seulement 1 % à 2 % du marché de la construction. C'est pourquoi le marché des produits pertinent a été défini comme étant le marché de la construction de bâtiments et de l'ingénierie structurelle.

Concernant l'analyse gain/perte, les résultats des appels d'offres ont servi à calculer les parts de marché. Elles se sont révélées stables, de sorte que les résultats des années antérieures pouvaient constituer la base du calcul du pouvoir de marché.

S'agissant de l'évaluation de l'impact de la fusion, l'autorité de la concurrence a jugé que la loi sur les marchés publics et l'existence de concurrents relativement efficaces sur le marché empêcheraient la création d'une entreprise dominante. La fusion a donc été approuvée.

Le président se tourne alors vers les États-Unis. Il observe que leur contribution analyse en détail les approches quantitatives employées pour déterminer les contraintes concurrentielles lorsqu'il existe un marché d'enchères ou une procédure d'adjudication. Il juge l'analyse similaire à celle présentée par le délégué du Royaume-Uni. Le président demande au délégué d'indiquer si l'analyse se fait en deux temps — premièrement, les parties à la fusion sont-elles effectivement concurrentes, et deuxièmement, comment peut-on estimer l'importance de l'effet de prix éventuel ? —, et l'invite aussi à exposer les limites possibles à l'utilisation de ces méthodes. Il s'interroge également sur le degré auquel on peut s'appuyer sur des instruments quantitatifs de ce type s'il y a effectivement une forte collusion.

Un délégué des États-Unis répond à la question sur la robustesse des techniques face aux risques de collusion. Il estime que la collusion soulève des questions d'ordre général pour l'analyse empirique dans les affaires antitrust qui vont au-delà des marchés d'enchères. Les travaux empiriques réalisés pour l'analyse des fusions, et notamment les simulations, supposent le plus souvent que les entreprises se comportent de façon non coopérative. Cela soulève à l'évidence des interrogations sur l'application de certains résultats théoriques contraires à l'intuition mis en évidence par le professeur Klemperer.

S'agissant des techniques empiriques spécifiques, le délégué estime que la présence possible d'une collusion est problématique pour certaines de ces techniques, mais pas pour toutes. C'est un problème pour la modélisation structurelle des effets sur la concurrence. Néanmoins, le délégué estime que ce l'est moins pour les techniques plus simples parfois utilisées. L'une d'elles consiste à examiner la relation entre les prix offerts et le nombre de soumissionnaires. Si l'appel d'offres porte sur un contrat d'approvisionnement, on peut constater par exemple que les prix offerts sont en moyenne moins élevés avec quatre soumissionnaires qu'avec deux. Comme pour toute estimation dite de forme réduite, les interprétations sont multiples. Mais s'il y a collusion, elle peut concerner certaines offres et pas d'autres, et lorsqu'elle cesse, le nombre de soumissionnaire augmente et les prix baissent. Cette technique d'examen de la relation entre le nombre de soumissionnaires et le montant des offres peut permettre de détecter les effets de collusion.

Un autre délégué des États-Unis décrit certaines techniques et leurs limites. Il fait remarquer que la contribution écrite à la table ronde décrit essentiellement ce que les économistes appellent les « techniques de forme réduite », qui examinent le lien entre l'offre de prix et le nombre de soumissionnaires, l'identité des soumissionnaires et les caractéristiques de l'offre. Cette analyse vise également à déterminer à quelle fréquence, par exemple, les deux entreprises qui envisagent de fusionner enchérissent l'une contre l'autre, et à quelle fréquence chacune d'elles fait l'offre la moins élevée et la seconde offre la moins élevée lors de ces enchères.

Le délégué souscrit entièrement à l'affirmation du professeur Klemperer selon laquelle les marchés d'enchères et les autres marchés sont soumis à des forces économiques analogues. Cela signifie que les types de problèmes qui sont susceptibles de se poser dans l'analyse des marchés d'enchères sont globalement comparables à ceux qu'on rencontre dans l'analyse des marchés sans enchères. Il passe alors en revue trois de ces problèmes.

En premier lieu, des problèmes de données peuvent se poser dans l'analyse des enchères. C'est le nombre d'enchérisseurs potentiels, plutôt que d'enchérisseurs effectifs, qui est pertinent. Et pourtant, on observe le nombre d'enchérisseurs effectifs, qui peut différer de celui des enchérisseurs potentiels. En outre, l'analyse peut être influencée par ce que les soumissionnaires apprennent au cours des enchères : connaissent-ils l'identité des autres enchérisseurs, et quand l'apprennent-ils ?

Un deuxième problème apparaît de façon récurrente dans tous les types d'analyse de forme réduite. Supposons, à titre d'illustration, que l'on observe la relation entre le prix et le nombre d'enchérisseurs. Il est important de faire la distinction entre l'effet concurrentiel résultant de la présence d'un enchérisseur supplémentaire et l'existence possible d'autres facteurs qui incitent un enchérisseur supplémentaire à participer. Un exemple simple serait le cas où il y a de nombreux fournisseurs capables de soumissionner pour des projets simples et à faibles coûts, mais où deux seulement sont en mesure de soumissionner pour des projets complexes et à coûts élevés. L'analyste constatera alors un prix élevé lorsqu'il y a deux enchérisseurs et des prix très faibles lorsqu'il y a de nombreux enchérisseurs. Il serait erroné d'attribuer la totalité de la baisse du prix à la concurrence, car deux effets entrent en jeu : le premier est que les prix sont plus faibles et le second que la concurrence est plus forte. Il faut s'efforcer de différencier ces deux effets.

Un troisième problème un peu plus subtil qui survient également sur les marchés sans enchères, celui du « repositionnement ». Si les fournisseurs proposent des produits différenciés, l'entité issue de la fusion peut choisir de se repositionner et d'offrir des produits ayant des caractéristiques différentes de celles d'avant la fusion. Cela entraînerait un changement de la situation concurrentielle sous l'effet de la fusion, parallèlement à l'augmentation des prix.

En résumé, les marchés d'enchères connaissent des problèmes similaires aux marchés sans enchères, mais l'analyste peut être amené à les traiter sous un angle légèrement différent du fait des caractéristiques spécifiques des enchères.

Le professeur Klemperer réitère une remarque formulée par le délégué des États-Unis, à savoir que c'est le nombre d'enchérisseurs potentiels qui compte dans l'analyse. Dans la pratique, les acheteurs peuvent présélectionner quelques enchérisseurs, ou bien il peut y avoir plusieurs sous-marchés et les fournisseurs invités à soumissionner sont très différents d'un sous-marché à l'autre. L'application simple de la théorie risque souvent d'occulter ces éléments de l'analyse de processus complexes.

Le délégué des États-Unis fait remarquer que l'idée des enchérisseurs potentiels pourrait être reformulée en des termes sans lien avec les marchés d'enchères, par exemple, les barrières à l'entrée sont si faibles qu'il y a de nombreux enchérisseurs potentiels. Même s'il n'y a que trois enchérisseurs effectifs, si l'un est éliminé, un autre prend sa place.

Le président, reprenant l'exemple des appels d'offres pour des projets simples et pour d'autres complexes, demande si la difficulté de différencier l'effet de la présence de soumissionnaires supplémentaires et l'effet du degré de complexité du projet ne pourrait pas être résolue au stade de la définition du marché.

Le délégué des États-Unis répond que cela dépend de ce qui est observable. Si l'analyste est en mesure d'observer les caractéristiques, il doit alors les prendre en compte. Le problème se pose avec acuité lorsque le soumissionnaire, mais pas l'analyste, peut déterminer les raisons pour lesquelles tel ou tel concurrent soumet une offre. Certaines caractéristiques d'un projet, dont l'analyste n'a tout simplement pas connaissance, peuvent entraîner une augmentation du nombre d'enchérisseurs, et pas une baisse. Lorsqu'on effectue ce type d'analyse économétrique, on veut s'assurer que l'on tient compte du fait qu'un facteur qui échappe à l'observation peut, au cours du processus, conditionner le nombre d'enchérisseurs ; on ne doit pas se contenter de supposer qu'il existe une variable aléatoire qui se manifeste de façon exogène. Il existe parfois des expériences naturelles qui peuvent être utiles. En guise d'exemple « d'expérience naturelle », le délégué mentionne le cas hypothétique dans lequel un acheteur exclut arbitrairement un enchérisseur à l'avance.

Le président demande si le problème des caractéristiques cachées est habituel dans les processus d'adjudication ou si, au contraire, les caractéristiques des produits peuvent être généralement traitées en phase de définition du marché.

Un délégué des États-Unis répond que lorsqu'on analyse les conséquences du nombre d'entreprises ou de la concentration du marché sur les prix, on se heurte au problème de caractéristiques cachées possibles. C'est pourquoi on doit toujours s'assurer que l'importance du problème n'est pas telle que l'analyse s'en trouve invalidée.

L'analyse structurelle est une alternative à l'analyse de forme réduite qui vient d'être évoquée. L'idée est de mettre à jour la structure de coût sous-jacente des enchérisseurs. Cette analyse est aux premières lignes des méthodes économétriques, mais n'a jamais été employée dans les affaires antitrust.

Un délégué des États-Unis répond qu'il est très difficile de mener une analyse économétrique lorsque les enchères sont très complexes. Il ne pense pas que l'autorité de la concurrence doive nécessairement essayer de résoudre le problème par la définition du marché. Il fait référence aux commentaires sur les directives relatives aux fusions horizontales qui viennent d'être publiées par le ministère de la Justice et la Federal Trade Commission, dont l'un des principaux thèmes concerne les efforts déployés par les autorités de la concurrence pour réaliser une analyse intégrée, en ne commençant pas par la définition du marché pour passer ensuite aux effets. Le délégué pense que, lorsque les enchères sont complexes, les éléments décisifs concernent le fait de savoir si les entreprises se considèrent mutuellement comme des concurrents sérieux dans une situation d'enchères spécifique.

Le président en vient à la contribution de la Commission européenne, qui passe en revue cinq affaires de fusion faisant intervenir des marchés ou des processus d'enchères, et qui présente les enseignements à en tirer. Elle conclut tout d'abord, comme les autres contributions, que les marchés d'enchères ne modifient pas fondamentalement la nature de l'analyse concurrentielle. Néanmoins, la Commission européenne considère que les parts de marché sur les marchés d'enchères donnent une certaine indication du pouvoir de marché. Le président demande au délégué de la Commission européenne d'expliquer comment elle applique ce principe.

Le délégué de la Commission européenne fait remarquer que le principal consensus qui se dégage des différentes contributions est probablement que les marchés d'enchères ne nécessitent pas un nouveau paradigme ; ils ne modifient pas notablement ou fondamentalement la nature de l'analyse concurrentielle. De la même manière, ils n'altèrent pas fondamentalement la manière dont les parts de marché sont corrélées avec le pouvoir de marché. Selon ce délégué, que l'on examine des marchés d'enchères ou d'autres marchés, l'analyste doit toujours étudier les facteurs pertinents tels que la différenciation des produits, les contraintes de capacité, les barrières à l'entrée, etc. ...

Le délégué de la Commission européenne pense que les marchés que le professeur Klemperer qualifie de marchés d'enchères idéaux sont ceux où, très souvent, les parts de marchés ne sont pas révélatrices. Mais sur de nombreux marchés où les achats s'effectuent par le biais d'adjudications, et GE/Instrumentarium en est un bon exemple, les produits sont différenciés. Des parts de marché élevées et de fortes augmentations des parts de marché posent la question de savoir si la part de marché est un résultat aléatoire. Deuxièmement, des parts de marché élevées et une forte augmentation de ces parts peuvent indiquer que les parties à la fusion fabriquent des produits de substitution relativement proches, c'est-à-dire qu'elles exercent une contrainte concurrentielle forte l'une sur l'autre. En d'autres termes, il peut y avoir une catégorie importante de clients pour qui les produits des parties à la fusion constituent un deuxième choix et l'effet concurrentiel se manifestera dans ce créneau.

L'affaire GE/Instrumentarium concernait des produits fortement différenciés. Bien que la fusion ait touché un large éventail de marchés de produits, le marché examiné dans la contribution de la Commission européenne est celui des moniteurs de patient d'un certain type qui sont achetés par les hôpitaux. Cette affaire est intéressante au plan des indicateurs structurels, de l'analyse qualitative et du type d'analyse de fréquence mentionnée dans la contribution des États-Unis. Instrumentarium était le principal acteur sur ce marché, avec un peu moins de 40 % du marché. GE détenait une part de marché inférieure à 10 %. GE, Instrumentarium, Siemens et Philips apparaissaient tous comme des soumissionnaires sérieux au sens où ils fabriquaient des produits comparables qui étaient de bons substituts. GE avait une part de marché nominale faible parce qu'elle venait juste de perdre un partenaire d'alliance et occupait traditionnellement des segments du marché légèrement différents. Mais, dans l'ensemble, GE était un concurrent très sérieux dans toute la gamme des produits médicaux et possédait des réseaux de distribution dans toute l'Europe. La Commission a donc estimé qu'il s'agissait d'un concurrent crédible.

La CE doit rendre une décision d'autorisation ou d'interdiction d'une fusion, et ne peut se borner à ne pas la contester. La CE a réalisé une analyse très similaire à l'analyse de forme réduite à laquelle le délégué des États-Unis a fait référence. Cette analyse a révélé que les remises étaient beaucoup plus élevées lorsque GE et Instrumentarium enchérissaient l'un contre l'autre lors d'une adjudication donnée. Le problème était de tenir compte des caractéristiques du produit. Ces caractéristiques avaient l'effet le plus important sur les prix, mais ne sont pas toujours faciles à déceler pour un observateur extérieur. Dans ce cas limite, l'analyse de régression de forme réduite a fourni des éléments d'information importants et probablement décisifs.

La fusion entre Siemens et VA Tech est la deuxième décrite dans la contribution de la Commission européenne. Le marché concerné était celui des équipements pour centrales hydroélectriques. Les équipements faisant l'objet d'appels d'offres pouvaient aller d'aubes de turbine simples à une centrale hydroélectrique presque complète. La valeur de ces enchères était donc comprise entre mille et plusieurs millions d'euros. Il peut être difficile de prendre en compte tous les facteurs qui influent fortement sur les prix afin de bien cerner celui qui vous intéresse, dans ce cas la présence simultanée des parties à la fusion. Cette difficulté peut rendre cette analyse coûteuse non seulement pour l'autorité de la concurrence, mais aussi pour les parties à la fusion et pour les tiers qui doivent fournir les informations nécessaires.

Revenant à la question de la collusion évoquée par d'autres intervenants, le délégué de la Commission européenne pense que le risque de collusion est particulièrement élevé sur les marchés qualifiés de « marchés d'enchères idéaux ». Ce sont des marchés que, si l'on raisonne en actions unilatérales, sont susceptibles d'être très concurrentiels. Mais c'est précisément sur ce type de marché que les ententes sont les plus fréquentes. C'est un phénomène très difficile à analyser dans le contexte d'une fusion, surtout si l'on pense qu'il n'y avait pas de collusion avant la fusion, mais que l'on craint que, après avoir écarté des effets unilatéraux, la fusion ne permette aux entreprises de s'entendre, de manière tacite ou explicite. À l'évidence, ce sont des marchés comptant un très petit nombre de concurrents où la collusion procure des avantages considérables. C'est probablement un domaine dans lequel les outils d'analyse des autorités de la concurrence ne sont pas suffisamment développés et où des recherches supplémentaires pourraient être menées à l'avenir.

Le président demande au délégué de la Commission européenne si la possibilité de substitution du côté de l'offre est beaucoup plus faible dans une situation de marché public que dans d'autres situations d'adjudication. Il fait observer que pour de nombreux marchés privés, les soumissionnaires peuvent proposer des produits qui ne correspondent pas exactement à ce que l'acheteur potentiel demande. Il oppose cette situation à celle des marchés publics dans laquelle, même si une possibilité de substitution peut exister a priori, une fois l'appel d'offres publié, il est très spécifique. Dans cette situation, comment analyser les contraintes concurrentielles que rencontre chaque entreprise ?

Le délégué de la Commission européenne répond que, dans un tel contexte, une analyse relativement simple de fréquence peut être très révélatrice. En effet, si les spécifications techniques du produit sont définies de façon très précise et si la soumission d'une offre est coûteuse, les candidats s'abstiendront de participer si, dès le départ, ils n'ont aucune chance de l'emporter. Le délégué pense que, dans ce contexte, on peut apprendre beaucoup de l'identité des soumissionnaires qui participent aux mêmes appels d'offres. Il s'agit d'une analyse simple qui peut être réalisée presque systématiquement.

Le président passe alors à la contribution du BIAC, le Comité consultatif économique et industriel auprès de l'OCDE. Il souligne la dernière phrase de la contribution du BIAC : « Des outils d'analyse standardisés qui peuvent être suffisants dans la majorité des cas de fusions sont souvent inadaptés sur les marchés avec adjudications ou enchères. » Il évoque également les discussions sur la fusion Oracle/Peoplesoft et demande au BIAC de réagir aux discussions qui se sont tenues jusqu'alors, et d'expliquer quels sont, à son avis, les outils qu'il aurait fallu employer pour l'analyse de la fusion susmentionnée.

Le représentant du BIAC fait observer que les processus d'adjudication impliquent souvent des appels d'offres entre professionnels. Le BIAC reconnaît donc que les fusions entre entreprises qui ont par le passé enchéri l'une contre l'autre ont des conséquences pour les protagonistes des deux côtés de l'équation.

Les marchés d'enchères présentent de nombreuses caractéristiques intéressantes, notamment la possibilité de réunir des informations sur la concurrence sous une forme granulaire qui ne sont souvent pas accessibles dans d'autres types d'analyse de fusion. Le représentant du BIAC souligne que l'analyse ne doit pas s'arrêter une fois que le modèle économique approprié a été élaboré. Il faut au contraire veiller à ce qu'une analyse factuelle correcte soit également réalisée.

Le représentant du BIAC cite un exemple dans lequel les présomptions de part de marché n'étaient pas applicables. Une fusion était envisagée entre deux entreprises qui vendaient des arbres de roue pour camionnettes pick-up. La structure du marché était relativement simple car il y avait trois grands acheteurs aux États-Unis, les trois principaux constructeurs automobiles. Six entreprises auraient pu soumissionner pour ce marché ; elles possédaient des capacités suffisantes pour remporter la totalité du marché, qui était le mode d'attribution pratiqué. Les deux entreprises parties à la fusion avaient remporté deux des trois adjudications, de sorte que leurs parts de marché combinées atteignaient environ 70 %. C'étaient également les fournisseurs qui enregistraient les coûts les plus faibles grâce à leur taux très élevé d'utilisation des capacités. Elles avaient été les enchérisseurs numéros 1 et 2 lors de deux grandes adjudications auxquelles elles avaient participé. Dans certains modèles structurels, une telle situation laisserait craindre des effets anticoncurrentiels. Mais comme chacune d'elles avait remporté une adjudication, aucune n'avait les capacités suffisantes pour faire une offre importante sur le marché au cours des 7 à 10 années à venir. Pour pouvoir enchérir, elles auraient dû construire de nouvelles infrastructures qui auraient fait d'elles les deux enchérisseurs les moins performants lors d'adjudications futures. Elles n'étaient donc pas en mesure d'exercer une contrainte sur d'autres enchérisseurs. C'est un exemple simple de cas où les présomptions de part de marché auraient abouti à une conclusion erronée sur l'opportunité d'approuver ou non une fusion. La Federal Trade Commission a examiné la fusion et l'a autorisée dès la première phase.

Le représentant du BIAC commente ensuite la fusion Oracle/Peoplesoft. Il y voit un bon exemple de situation où l'analyse factuelle était absolument nécessaire pour compléter le modèle économique. La fiabilité du résultat de l'analyse dépend de l'évaluation correcte des hypothèses critiques. Une telle hypothèse critique était que « l'évaluation du client est pratique courante ». Mais dans les situations impliquant des produits différenciés, poser une telle hypothèse revient souvent à faire un saut dans le vide. Les produits pertinents pour l'analyse possèdent des centaines de caractéristiques et les enchérisseurs avaient grand mal à déterminer celles importantes pour les clients par rapport à celles proposées par leurs concurrents. Ces informations étaient très précieuses pour l'acheteur et donc tenues secrètes. Le représentant du BIAC en conclut qu'il n'existait aucun moyen fiable ou du moins objectif de le déterminer. Par conséquent, l'une des hypothèses sur lesquelles reposait le modèle, à savoir que l'évaluation du client était pratique courante, n'était pas fiable.

La deuxième hypothèse critique était que les formulaires d'autorisation de remise sont un indicateur efficace de la concurrence sur le marché entre les parties (Oracle demandait à ses vendeurs d'indiquer, sur les formulaires d'autorisation de remise au client, qui était selon eux leur concurrent). Mais Oracle a interrogé les clients à l'issue des enchères pour savoir qui était effectivement leur concurrent. Cette enquête a révélé qu'en réalité Oracle avait vu juste dans moins de la moitié des cas sur l'identité du concurrent, et que le taux d'erreur était même plus élevé concernant Peoplesoft. C'est une autre hypothèse qui, selon le représentant du BIAC, n'était pas étayée par l'analyse factuelle.

Le représentant du BIAC estime qu'un modèle économique approprié pour l'analyse de la fusion aurait dû tenir dûment compte de l'incapacité d'Oracle de déterminer l'identité de ses rivaux et la manière

dont les clients évaluaient les alternatives. Selon lui, un tel modèle aurait dû prévoir si Oracle serait mieux à même de prévoir ces deux éléments, car il s'agissait des deux éléments critiques sur lesquels Oracle s'est appuyé pour décider du montant de la remise à offrir aux clients.

Il achève ses commentaires en faisant observer que les modèles économiques qui tentent de quantifier l'importance du préjudice causé par la fusion ne permettent pas de répondre à toutes les questions les plus délicates qui se posent dans le contexte des fusions entre parties impliquées dans un processus d'enchères. Ces questions nécessitent une analyse factuelle minutieuse, et ces deux concepts — les modèles économiques et l'analyse factuelle — doivent être étroitement associés pour obtenir des résultats exacts. Il souligne en outre que les parts de marché historiques ne reflètent pas forcément la vitalité future de la concurrence : comme pour l'analyse des fusions, les informations historiques ne sont valables que si elles peuvent être appliquées aux transactions futures sur le marché.

2. La conception des enchères et des appels d'offres

Le président indique que la table ronde est maintenant consacrée au deuxième thème principal, la conception des enchères et des appels d'offres. Il demande au professeur Klemperer d'en donner un aperçu.

Le professeur Klemperer explique que les processus d'enchères ne sont pas différents du reste de l'économie. Lorsqu'on organise des enchères, il faut se poser les mêmes questions que celles que l'on se pose habituellement, à savoir les effets coordonnés, la domination, la prédation, etc. Par exemple, peut-on faciliter l'entrée sur le marché ? On peut être amené à subventionner l'entrée, par exemple en rémunérant les offres pour l'adjudication d'un marché d'architecture. Ou bien, pour inciter des soumissionnaires plus faibles à participer, on peut leur octroyer des crédits ou des financements à taux réduit. Naturellement, l'acheteur dépense généralement de l'argent avec de telles pratiques. Par ailleurs, faciliter la revente peut encourager l'entrée.

La fourniture d'informations peut promouvoir la concurrence. Il peut s'agir d'informations publiques, les mêmes renseignements étant fournis à tous les protagonistes ou à certains seulement. Par exemple, un acheteur tel qu'un hôpital dispose d'un fournisseur standard pour un système informatique et souhaite s'approvisionner auprès d'une deuxième source potentielle. L'hôpital peut alors signer un contrat avec un concurrent pour qu'il réalise une étude sur le prochain système informatique, de manière à lui communiquer des informations et lui permettre ainsi d'être plus concurrentiel face au fournisseur en place.

Un acheteur peut également vouloir diversifier ses fournisseurs. Dans certains cas, plusieurs candidats pourront remporter l'adjudication. L'acheteur peut aussi demander des offres dites non compétitives. Ce sont là des moyens de trouver des fournisseurs supplémentaires, mais parfois aussi de réduire la concurrence. Ils peuvent être opportuns dans certains cas, et moins dans d'autres.

Faire en sorte qu'il soit plus difficile de se répartir les marchés est un moyen de lutter contre les effets coordonnés. Lorsque les enchères sont répétées à intervalles très espacés, il est plus malaisé pour les soumissionnaires de se partager le gâteau, et l'acheteur peut éventuellement prendre des mesures pour qu'il soit difficile de prévoir l'importance des différentes enchères. Le choix aléatoire du gagnant ou l'adoption de critères multidimensionnels pour qu'il ne soit pas possible de prévoir exactement comment le gagnant sera désigné sont autant de stratégies pour empêcher de repérer les candidats qui ne jouent pas le jeu de la coordination. En revanche, le manque de transparence peut encourager la corruption ou la collusion entre l'acheteur et certains soumissionnaires. L'opportunité de réduire la transparence dépendra du contexte. À l'évidence, les signaux et les menaces doivent être proscrits.

Outre les préoccupations habituelles, le fait qu'un processus d'enchères constitue un « nouveau marché » pose des problèmes supplémentaires. Il faut se soucier de l'effet de ce nouveau marché sur d'autres marchés et inversement. Par exemple, l'un des problèmes rencontrés dans l'organisation de l'enchère 3G au Royaume-Uni était l'interaction de cette enchère avec d'autres enchères européennes. Le fait d'être présent lors des enchères initiales induisait des avantages pour la suite. Si des enchères sont organisées une seconde fois, comme pour la loterie nationale britannique (voir ci-dessus), ce que vous faites aujourd'hui aura des répercussions sur les enchères suivantes. En outre, dans certains cas, vous créez directement un marché. Par exemple, les enchères 3G ont créé les structures du marché UMTS.

Les processus d'enchères sont particuliers en ce sens qu'ils obéissent à des règles formelles, ce qui crée des problèmes supplémentaires. En premier lieu, le concepteur doit se soucier des moindres détails et des failles que les soumissionnaires ne manqueront pas d'exploiter à leur profit. La deuxième question porte sur l'application des règles. Seront-elles effectivement appliquées et les protagonistes le croient-ils ? Si une règle n'est pas crédible, elle n'est pas pertinente et il vaudrait mieux qu'elle n'existe pas. Mais, dans certains contextes, il vaut mieux rester délibérément dans le vague afin de se prémunir contre les risques de faille. Des erreurs seront sûrement commises ; aussi l'acheteur souhaite-il souvent conserver la possibilité ultime de modifier les règles si c'est absolument nécessaire. Concilier crédibilité et capacité ultime de réviser les règles est un véritable défi.

Les problèmes de mise en œuvre varient selon l'environnement et le régime. Par exemple, dans certains environnements, des enchères sous pli scellé seront problématiques parce qu'elles présentent plus de risques de collusion entre l'adjudicateur et les soumissionnaires que des enchères ascendantes.

En conclusion, il n'existe pas de liste de contrôle à appliquer pour la conception d'enchères. Ce n'est pas un processus uniforme, mais un travail sur mesure en fonction de la situation. Des arbitrages doivent être opérés, par exemple des enchères sous pli scellé peuvent favoriser l'entrée, mais accroissent les risques de collusion entre l'acheteur et les soumissionnaires. Il faut donc examiner les caractéristiques spécifiques de la situation.

Le président demande aux participants de faire part de leur expérience pour ce qui est des mesures destinées à favoriser l'entrée sur les marchés publics.

Le professeur Klemperer répond que les enchères UMTS en sont un bon exemple. Les concepteurs de ces enchères au Royaume-Uni devaient à l'origine organiser l'adjudication de quatre licences et il y avait quatre exploitants en place. À ce stade, les concepteurs se sont beaucoup souciés des possibilités d'entrée et ont proposé une formule spécialement étudiée pour favoriser les nouveaux entrants, la « conception anglo-hollandaise ». La technologie a ensuite évolué et il a été possible d'attribuer cinq licences. Cela garantissait qu'un nouvel entrant remporterait une licence, et donc la participation de nouveaux entrants. Les concepteurs ont estimé qu'ils pouvaient attirer de nombreux nouveaux entrants même avec des enchères ascendantes classiques, ce qui leur permettait de coupler l'efficacité d'enchères ascendantes aux avantages de nouvelles entrées. Lors des enchères qui ont eu lieu plus tard aux Pays-Bas, le nombre de licences et d'exploitants en place était exactement le même. Le professeur Klemperer pense que leurs organisateurs ont commis une erreur en optant pour une conception ascendante, ce qui a dissuadé les entrants. Plus tard encore, les Danois se sont retrouvés dans une situation comparable. Le professeur Klemperer estime qu'ils ont eu raison d'opter pour les enchères sous pli scellé. Ils ont réussi à attirer des soumissionnaires, alors que ce n'était pas garanti. Ce sont des exemples de pays confrontés à des situations différentes impliquant des « bonnes réponses » différentes.

Le président entame la discussion sur le premier aspect, celui de la collusion entre les adjudicateurs et les soumissionnaires. Il demande au délégué du Japon de présenter une nouvelle loi, entrée en vigueur

en 2003, visant les adjudicateurs qui orchestrent des soumissions concertées. Il lui demande si la loi est efficace et fait remarquer que les sanctions semblent être très limitées.

Le délégué du Japon explique que, ces dernières années, des responsables d'organismes passant des marchés publics ont été à l'origine de soumissions concertées ou y ont participé. La JFTC (Commission japonaise de la concurrence) a pu, dans ces affaires, agir en justice dans le cadre du droit de la concurrence contre les soumissionnaires qui s'étaient concertés. Néanmoins, elle n'a pas pu le faire à ce titre à l'encontre des agents chargés de la passation des marchés. La nouvelle loi, qui porte sur la prévention et la suppression de la participation à des soumissions concertées, entendait résoudre ce problème. Depuis son entrée en vigueur en janvier 2003, elle a été appliquée dans trois affaires. Chaque fois, la JFTC a demandé aux présidents des organismes de passation de marché de prendre des mesures pour éradiquer cette participation. Des modifications de la loi sont aujourd'hui envisagées. Par exemple, un amendement proposé à la Diète par le parti majoritaire et toujours à l'examen par la Diète vise à infliger des sanctions pénales aux agents impliqués dans des soumissions concertées.

Le président en vient alors à l'Indonésie, dont la contribution écrite évoque un protocole d'accord signé entre l'Autorité de la concurrence et la Commission de lutte contre la corruption afin de traiter les affaires d'adjudication mettant en cause des fonctionnaires. Il demande pourquoi ce protocole d'accord a été jugé nécessaire et quels en sont les effets.

Le délégué indonésien explique que l'article 22 de la loi indonésienne sur la concurrence porte sur la collusion dans les appels d'offres, qu'il y ait un seul soumissionnaire ou plusieurs. La collusion peut s'exercer par coopération horizontale entre les soumissionnaires ou les concurrents, mais également selon un mode vertical avec les agents chargés de la passation des marchés, ou combiner des ententes horizontales et verticales. L'autorité de la concurrence a publié une directive sur cette question. Dans le contexte de l'Indonésie, l'entente verticale est souvent associée à la collusion entre les soumissionnaires. Néanmoins, la loi indonésienne sur la concurrence ne permet pas aux autorités de la concurrence de sanctionner ou de punir les fonctionnaires. À cet égard, l'autorité de la concurrence doit coopérer avec la Commission de lutte contre la corruption qui, elle, est habilitée à appliquer la législation pénale à l'encontre des agents publics. C'est pourquoi l'autorité de la concurrence a mis au point le protocole d'accord mentionné. De nombreuses irrégularités détectées par l'autorité de la concurrence et impliquant des agents chargés de la passation des marchés ont ainsi pu être renvoyées à la Commission de lutte contre la corruption. Un exemple de cette coopération concerne l'achat des produits nécessaires pour les élections générales. L'autorité de la concurrence a traité un seul petit dossier — l'encre indélébile pour le vote — parmi plusieurs marchés gérés par la commission en charge des élections générales. Néanmoins, cela a permis à la Commission de lutte contre la corruption d'examiner les conditions d'achat d'autres produits en cause. Ce très grand dossier a été géré en commun par l'autorité de la concurrence et la Commission de lutte contre la corruption.

Le président passe au sujet suivant, celui du rôle que l'autorité de la concurrence peut jouer dans la définition des spécifications des appels d'offres. Il observe que selon le droit de la concurrence en vigueur en Roumanie, le Conseil de la concurrence peut, sur demande de différents organismes, faire part de son point de vue sur différents aspects de la politique de la concurrence. En 2006, il a été sollicité sur une procédure de passation de marché relative à l'attribution d'un contrat public d'achat de toners pour imprimantes à jet d'encre. Le président demande au délégué de Roumanie d'expliquer comment les autorités ont pu accroître la concurrence dans cette enchère et si les modifications apportées à la procédure ont effectivement été utiles.

Le délégué roumain explique que, dans l'affaire citée, les fabricants de produits recyclés ou compatibles ne pouvaient pas participer aux enchères. Étant donné que les fabricants d'équipements n'exigeaient pas l'emploi de consommables d'origine, des consommables recyclés ou compatibles

pouvaient être utilisés. En outre, des produits compatibles étaient acceptés dans certains cas, à condition d'être certifiés compatibles par le fabricant de l'équipement d'origine. Il y avait peu de chances qu'il le fasse dès lors qu'il était lui-même en compétition. C'est pourquoi l'autorité de la concurrence a considéré que l'exclusion des consommables recyclés ou compatibles et l'exigence de certification étaient des restrictions à la concurrence. Ces restrictions ont été supprimées.

En outre, l'autorité de la concurrence a participé au débat public sur la modernisation de la législation sur les marchés publics. La nouvelle loi sur les marchés publics stipule donc que des produits équivalents doivent être acceptés dans les appels d'offres et que les cahiers des charges ne doivent pas inclure des spécifications techniques qui ne sont pas nécessaires telles que le nom de marque.

Le président commente ensuite la contribution coréenne à la table ronde. Il note qu'en Corée, comme en Italie, on s'oriente vers une passation centralisée des marchés publics. Fait inhabituel, le service concerné peut organiser des appels d'offres pour le compte d'entreprises privées, contre rémunération. L'adjudication centralisée utilise un système d'offres électroniques, qui a permis d'augmenter le nombre des soumissionnaires et, en supprimant la nécessité d'une présence physique, réduit également les contacts entre enchérisseurs et adjudicateurs, ce qui est un moyen de lutter contre la corruption. La contribution coréenne indique également que la Commission coréenne de la concurrence (KFTC) utilise les données réunies par ce système d'adjudication électronique pour détecter les soumissions concertées. Il souhaite savoir si le système d'adjudication et le programme de détection sont efficaces, et si ce dernier a contribué à réunir des éléments probants en vue de condamnations.

Le délégué coréen répond que le service centralisé d'adjudication fonctionne bien.

Plus de 90 % des appels d'offres publics sont aujourd'hui gérés par ce système. Étant donné que les entreprises peuvent avoir aisément accès aux informations relatives aux enchères et participer facilement à l'adjudication, le nombre de participants a fortement augmenté, favorisant ainsi la concurrence.

Il est trop tôt pour évaluer le système de détection puisqu'il a été mis en place début 2006. Mais, à ce jour, la KFTC enquête sur plusieurs enchères que le système a identifiées comme présentant un risque élevé de collusion, et deux ententes ont effectivement été décelées.

S'agissant de la question de savoir si la KFTC a pu réunir plus facilement les preuves nécessaires à une condamnation, détecter une violation est une chose, la prouver en est une autre. Même si le système décèle certaines activités potentiellement illégales, cela ne signifie pas que les enquêtes ultérieures seront couronnées de succès. Les principaux objectifs du système de détection sont d'affecter plus efficacement les moyens limités d'application des lois et d'adresser un message fort aux contrevenants potentiels, pour leur signifier que la KFTC est sur ses gardes.

La logique qui sous-tend le système de détection est essentiellement basée sur l'hypothèse que certains événements ou résultats sont hautement improbables en l'absence de collusion entre les soumissionnaires participants.

Le président passe alors au sujet suivant, celui de la conception des enchères et de la concurrence. Il rappelle que des ententes horizontales à grande échelle sur les marchés publics ont été signalées en Suisse, mais ajoute que la contribution de l'autorité de la concurrence évoque certaines mesures prises pour renforcer la concurrence sur les marchés publics. Ces mesures visent souvent à encourager l'entrée. Il demande si ces dispositions ont été mises en œuvre et si la participation a effectivement augmenté.

Le délégué suisse répond que la loi fédérale sur les marchés publics, qui a une incidence sur les enchères, a été révisée en 2004. Le principal objectif de cette révision, comme dans l'ancienne loi, était de renforcer la concurrence. Néanmoins, l'ancienne loi ne prenait pas suffisamment en compte les problèmes

de concurrence et de réglementation, tels que les pratiques de collusion ou les tendances à la captation des organismes chargés des marchés publics. L'institution publique responsable de la révision a invité la Commission suisse de la concurrence à participer aux travaux de la commission principalement compétente. La Commission a soumis une contribution en 2005, résumée dans le document pour la table ronde. Les questions suivantes sont importantes : pratiques de collusion, pouvoir des acheteurs, transparence et coûts de transaction, captation des autorités réglementaires et barrières à l'entrée et à la sortie. La consultation publique sur la révision de la loi fédérale sur les marchés publics se tiendra en 2007. C'est pourquoi la Commission de la concurrence n'est pas encore en mesure d'évaluer l'impact réel de sa contribution ou de ses recommandations. Toutefois, c'était la première fois en Suisse qu'une liste de contrôle permettant d'identifier les pratiques de collusion dans les processus d'adjudication était publiée. La Commission de la concurrence est convaincue que sa contribution et ses recommandations seront prises en compte lors de la procédure de révision et permettront d'accroître la concurrence dans les processus d'enchères en Suisse.

Le président s'intéresse alors à la contribution hongroise, qui contient deux exemples dans lesquels la mauvaise conception des enchères a restreint la concurrence. Il demande au délégué hongrois d'expliquer en détail les mesures prises lors des enchères afin d'améliorer la concurrence et le rôle qu'a joué à cet égard l'autorité de la concurrence.

Le délégué hongrois répond tout d'abord en citant le cas des enchères organisées pour l'exploitation des infrastructures de transport transfrontalier d'électricité. Des enchères annuelles et des enchères mensuelles étaient organisées en parallèle. Le problème était qu'il n'existait pas de marché secondaire pour les capacités acquises lors des enchères annuelles : un acheteur de droits de capacité ne pouvait pas les revendre s'il s'avérait qu'il n'en avait pas usage. Néanmoins, il était très simple de renoncer aux capacités sans frais. Les capacités restant disponibles après les enchères annuelles pouvaient être vendues lors des enchères mensuelles et l'étaient effectivement. Ainsi, les capacités transférées des enchères annuelles aux enchères mensuelles étaient telles que les participants sur le marché ne pouvaient rien planifier, ce qui dissuadait l'entrée. La solution a consisté à permettre la revente des droits annuels et, ce faisant, à créer un marché secondaire. L'autorité hongroise de la concurrence a observé la situation d'un œil critique, mais c'est l'autorité de régulation de l'énergie qui a pris les décisions.

Le délégué hongrois répond ensuite en se référant aux enchères pour la construction d'autoroutes. Le problème tenait à l'existence de critères de présélection très stricts qui limitaient le nombre de soumissionnaires. Par exemple, une nouvelle autoroute comportait quatre tranches ; quatre entreprises s'étaient portées candidates. Il leur était facile de se répartir les différents tronçons de l'ouvrage. Le principal changement a consisté à assouplir les critères de présélection pour qu'ils soient plus neutres technologiquement parlant, ce qui a permis à davantage d'entreprises de concourir. D'autres changements ont été apportés et se sont traduits en définitive par une baisse des prix de 40 % par rapport à leur niveau antérieur aux modifications. Là encore, l'autorité de la concurrence n'a pas participé directement à ce réaménagement. Néanmoins, elle avait infligé une amende record dans une affaire d'entente lors des enchères précédentes relatives à la construction d'autoroutes. Elle avait également examiné d'autres affaires impliquant des entreprises du secteur du BTP, ce qui avait contribué à sensibiliser le public. Mais l'objectif de cette révision était de faire baisser les prix, et pas nécessairement de lutter contre les ententes.

Le président s'adresse alors au délégué néerlandais. Il fait observer que l'autorité néerlandaise de la concurrence a déjà rendu à plusieurs reprises des avis sur la conception et la surveillance des enchères. Elle a notamment participé aux enchères UMTS aux Pays-Bas. Il lui demande quels sont les enseignements que l'autorité a tirés de cette expérience, notamment en ce qui concerne l'importance des règles d'enchères pour garantir qu'il y a concurrence et que le nombre de participants aux enchères est suffisant.

Le délégué des Pays-Bas répond que la NMa (Autorité néerlandaise de la concurrence) ne joue aucun rôle formel dans la conception des enchères. Elle a effectivement prodigué des conseils dans les enchères UMTS, mais n'a pas participé directement à leur conception. La NMa a également traité une affaire qui a fait suite à des enchères. Leur conception avait éveillé des soupçons de collusion entre deux soumissionnaires. La NMa a mené une enquête, mais n'a pas trouvé de preuves de collusion. En fin de compte, les modalités de participation de la NMa à la conception de ces enchères ont été quelque peu frustrantes.

Le président passe alors à la contribution du Mexique. Elle décrit une affaire concernant des enchères pour l'exploitation du spectre hertzien et les relations entre l'autorité de la concurrence et l'autorité de régulation. Une partie de la contribution illustre certaines caractéristiques spécifiques de la procédure de passation de marchés publics au Mexique, la possibilité d'attribution fractionnée et l'annonce de prix de référence. Une attribution fractionnée est pratiquée lorsque les enchérisseurs soumettent des offres qui se situent dans une fourchette de +/- 2.5 % ; lorsque l'écart entre les offres des soumissionnaires est supérieur à 5 %, le marché est attribué à l'offre la plus élevée ; sinon, il est réparti entre tous les participants. Le président fait observer que 5 % est un pourcentage assez élevé, notamment lorsque la part des intrants est importante ; les bénéfices oscillent généralement alors autour de 10 %. Si le projet sous adjudication est bien identifié, 5 % est un chiffre élevé et annuler le résultat de l'enchère peut être très dangereux pour la concurrence.

Le délégué du Mexique admet que 5 % représente un pourcentage élevé et que cette règle n'est probablement pas très judicieuse, mais explique qu'elle est inscrite dans la législation mexicaine sur les marchés publics, qui comporte d'autres règles de ce genre. L'expérience de l'Autorité mexicaine de la concurrence sur les marchés d'enchères est largement influencée par les marchés publics.

Le délégué indique que la possibilité d'attribution fractionnée serait probablement toujours une invitation à la collusion même si le seuil n'était pas de 5 %. On observe souvent des prix pratiquement identiques dans les enchères. C'est la conséquence de la règle qui stipule que si les prix diffèrent de moins de 5 %, le marché sera divisé entre les deux meilleurs enchérisseurs. C'est un mécanisme naturellement propice à la collusion, mais le législateur ne le voyait pas de cette façon.

Le prix de référence est une deuxième caractéristique remarquable. Le principe est certes que l'acheteur cherche à obtenir une remise sur ce prix, mais il ouvre également la porte à la collusion. Cet effet est manifeste au Mexique, et l'autorité de la concurrence tente de dissuader les organismes publics d'utiliser un prix de référence, avec plus ou moins de succès.

La troisième caractéristique est l'interdiction de soumettre une offre inférieure aux coûts prévue par la législation mexicaine sur les marchés publics. Le droit de la concurrence au Mexique comporte une disposition similaire, mais l'interdiction est soumise à la règle de raison et au critère de récupération des pertes. La législation sur les marchés publics ne comporte pas de telles restrictions. Cela dissuade d'organiser des enchères parce qu'on exclut probablement ainsi les soumissionnaires les plus compétitifs. En tout cas, cela fait obstacle à l'utilisation d'enchères comme mécanisme d'établissement des prix.

En outre, il est très fréquent au Mexique que les enchères soient dispersées dans le temps et dans l'espace. Cela va à l'encontre d'un des principes évoqués par le professeur Klemperer au début de la table ronde, à savoir organiser les enchères autant que possible par gros blocs. L'autorité de la concurrence tente d'y remédier par sa jurisprudence et par ses avis aux organismes publics.

En réponse à une question du président, le délégué du Mexique explique que le prix de référence n'est pas obligatoire, mais que les bureaucrates réfractaires au risque préfèrent l'utiliser pour être sûrs de ne pas

se tromper dans la procédure. Les commentaires de l'autorité de la concurrence expliquent surtout en quoi les prix de référence ne rendent pas forcément service à l'État.

Le président s'adresse ensuite au délégué allemand. Il fait observer que la contribution allemande indique que, dans certains cas, l'obligation d'organiser des enchères peut être une solution efficace pour l'application du droit de la concurrence. L'Office fédéral des cartels y a eu recours dans les affaires d'abus de position dominante et de fusion. Le président fait référence à une affaire d'élimination des déchets. Une première enchère n'avait pas permis de renforcer la concurrence – il n'y avait qu'un seul soumissionnaire –, mais après révision de la conception, la deuxième enchère a réuni beaucoup plus de soumissionnaires et a abouti à des prix très favorables. Le président demande quelles ont été les modifications apportées à la procédure d'enchères.

Le délégué de l'Allemagne souligne que l'affaire était importante non seulement quant aux enseignements à tirer de la conception des enchères, mais également en ce qui concerne la taille du marché. Le volume total du marché était de 1.2 milliard EUR. Les enchères portaient sur la collecte et le tri des déchets dans 500 localités d'Allemagne sur une période de trois ans. Lors du premier appel d'offres, une seule offre a été soumise dans 40 % à 50 % des localités. Le soumissionnaire était souvent une entreprise qui avait été sous-traitante les années précédentes de la société titulaire du label écologique « Point Vert ». D'aucuns soupçonnaient que cette situation était le résultat d'une certaine forme de collusion, par exemple l'attribution d'un contrat de sous-traitance à un concurrent à condition qu'il s'abstienne de soumettre une offre indépendante. Mais la deuxième raison était que l'appel d'offres regroupait la collecte et le tri des déchets. Il était plus facile de s'implanter sur le créneau de la collecte des déchets, car le tri exigeait des investissements plus importants.

La société DSD a annulé la première enchère et en a organisé une seconde. À la demande de l'Office fédéral des cartels, elle a modifié deux caractéristiques importantes. Premièrement, elle a adjugé séparément les services de collecte et de tri, ce qui a amélioré la situation des petites et moyennes entreprises. Deuxièmement, elle a interdit les offres conjointes, les consortiums de soumissionnaires et les consortiums de sous-traitance moins formels. Pour donner un ordre d'idées, les entreprises d'élimination des déchets réalisaient un chiffre d'affaires supérieur à 50 millions EUR. Ces changements ont permis une multiplication des offres dans les différentes zones, quatre en moyenne pour chaque lot, et une baisse considérable des prix. Les prix ont été inférieurs de 25 % à ceux soumis lors de la première enchère. Les clients allemands ont ainsi économisé 250 millions EUR.

L'Office fédéral des cartels a mené une perquisition dans les 120 entreprises d'élimination des déchets dans toute l'Allemagne. Mais il n'a reçu aucune demande de clémence, malgré la publication d'avis invitant les membres d'ententes à se signaler. L'Office a effectué des études économétriques qui suggéraient que lorsqu'un seul concurrent soumissionnait pour un lot, une entente ou une collusion avait probablement eu lieu sous une forme ou sous une autre. Une affaire a été portée devant les tribunaux, mais elle est complexe.

Le président aborde alors le dernier thème de la table ronde, celui des offres conjointes. Il y a offre conjointe lorsque des entreprises indépendantes s'associent pour soumettre une seule et même offre. De nombreux pays soutiennent et encouragent les offres conjointes. Elles renforcent la concurrence à condition de permettre à des entreprises qui ne sont pas en mesure de fournir des produits complémentaires de s'allier à d'autres entreprises afin de fournir en commun ces produits. Mais lorsque des entreprises concurrentes soumettent une offre conjointe, la concurrence s'en trouve généralement réduite.

Certains pays autorisent les offres conjointes d'entreprises sur un même marché lorsqu'il est coûteux de formuler une offre autonome ou lorsque le contrat exige un certain volume. Les offres conjointes permettent aux petites entreprises, qui sinon seraient exclues, de participer à des appels d'offres plus

importants. Mais il n'est pas sûr que des petites entreprises amenées à travailler ensemble aient réellement les structures d'organisation qui leur permettent d'accomplir les tâches d'une grande entreprise. Si elles n'en sont pas capables, on ne voit pas pourquoi autoriser les offres conjointes dans la mesure où elles augmentent les risques de collusion pour d'autres appels d'offres.

Le président se tourne alors vers le délégué de la Turquie. Il indique que la contribution turque examine des enchères sous pli scellé pour la fourniture de lait aux écoles. L'appel d'offres portait sur un volume de lait qui dépassait les capacités d'un seul producteur turc, rendant les offres conjointes nécessaires. Les offres conjointes semblent avoir affecté la concurrence dans de nombreuses régions. Il demande au délégué de Turquie de décrire cette affaire.

Le délégué de la Turquie répond que l'appel d'offres portait sur la fourniture de 80 millions de packs de lait aux écoles primaires. Un tel volume dépassait les capacités de n'importe quel producteur de lait en Turquie. Huit producteurs de lait qui participaient à l'adjudication ont établi quatre coentreprises distinctes. Les spécifications de l'appel d'offres autorisaient les producteurs de lait à s'associer à différentes coentreprises afin de fournir du lait sur différents territoires. La principale caractéristique de cette affaire est que la conception des enchères offrait aux soumissionnaires la possibilité d'échanger des informations et de coordonner leurs offres.

Lorsque toutes les coentreprises étaient examinées ensemble, chaque producteur fournissait une quantité de lait identique, ce qui n'apparaissait pas clairement lors de l'examen séparé des coentreprises. En outre, une série d'éléments montraient que le volume de lait qui devait être fourni par chaque producteur pour certains territoires était fixé avant l'adjudication. L'autorité turque de la concurrence a conclu que ce résultat ne pouvait pas être atteint sans coordination et partage des informations entre les entreprises qui participaient à l'adjudication. Toutefois, les producteurs de lait ont prétendu que le résultat de l'adjudication avait été influencé par les instructions du ministère et qu'ils n'en étaient donc pas responsables. De surcroît, les participants ont allégué que le cahier des charges de l'appel d'offres leur permettait de constituer des coentreprises avec différentes entités pour différents territoires, et ainsi de connaître le prix pour la région sur laquelle portait l'appel d'offres. L'autorité de la concurrence a tenu compte des circonstances atténuantes, du rôle et de l'influence du ministère, et a infligé des amendes minimales aux entreprises concernées.

Le président, après avoir sollicité des commentaires supplémentaires et n'en avoir reçu aucun, résume la table ronde.

S'agissant de l'analyse des fusions, les discussions ont montré clairement que l'existence d'un processus d'enchères ne modifie pas substantiellement le processus habituel d'analyse. Dans l'analyse d'une fusion, il est toujours important de comprendre le type de contraintes qui s'exercent sur les parties à la fusion. Il existe de nombreux moyens de mesurer ces contraintes ; les participants ont mentionné l'analyse quantitative et les enquêtes. Mais lorsqu'il existe une concurrence *ex ante* portant sur la conception du produit ou lorsque l'approvisionnement du produit fera ultérieurement l'objet d'un processus d'enchères, il est très difficile d'appréhender les contraintes concurrentielles par la simple analyse quantitative. Si ce type de concurrence existe — ce qui est probablement le cas, surtout pour les produits sophistiqués —, l'analyse des données devient extrêmement difficile. Ceci dit, la plupart des instruments dont disposent les autorités de la concurrence sont très robustes et semblent donner de bons résultats.

Pour ce qui est de la conception des enchères, il est important de garantir l'existence d'un nombre suffisant d'entrants et de veiller à ce qu'une mauvaise conception ne nuise pas à la concurrence. Il n'existe pas de liste de contrôle, dans la mesure où chaque situation est différente. Du point de vue de l'autorité de la concurrence, ce n'est pas très rassurant, car si une autorité doit commenter la conception d'enchères et

un marché public, ne pas avoir de liste de contrôle est source de difficultés supplémentaires parce qu'elle doit alors analyser en détail la situation spécifique et le processus d'enchères spécifique. Avoir à mener l'analyse *ex ante* complique encore les choses. L'exemple de l'Allemagne montre clairement l'importance de la conception des enchères.

Le président propose d'ajouter une quatrième erreur à la liste dressée par le professeur Klemperer, « l'erreur de l'autorité de la concurrence ». Très souvent, notamment pour les services publics, l'autorité de la concurrence a tendance à penser que les enchères représentent la solution aux problèmes de concurrence. Mais ce n'est pas toujours le cas, et cette solution doit être conçue avec soin pour être efficace.

Le délégué du Royaume-Uni souhaite attirer l'attention du Comité sur un document pour discussion ou rapport rédigé à la demande de l'Office of Fair Trading, qui entend aider les responsables confrontés à des marchés caractérisés par des processus d'enchères. Ce document commente les différentes techniques pouvant être utilisées. L'OFT espère le publier d'ici fin 2006.

Le président clôture la table ronde en remerciant le professeur Klemperer, toutes les délégations et le BIAC de leur participation.