

# The Current Financial Crisis: Causes and Policy Issues

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*This article treats some ideas and issues that are part of ongoing reflection at the OECD. They were first raised in a major research article for the Reserve Bank of Australia conference in July 2008, and benefited from policy discussion in and around that conference. One fundamental cause of the crisis was a change in the business model of banking, mixing credit with equity culture. When this model was combined with complex interactions from incentives emanating from macro policies, changes in regulations, taxation, and corporate governance, the current crisis became the inevitable result. The paper points to the need for far-reaching reform for a more sustainable situation in the future.*

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## I. Origins and causes of the crisis<sup>1</sup>

### *Current financial crisis caused by global macro liquidity policies and by a poor regulatory framework*

At the recent Reserve Bank of Australia conference on the current financial turmoil the paper by Adrian Blundell-Wignall and Paul Atkinson explained the current financial crisis as being caused at two levels: by global macro policies affecting liquidity and by a very poor regulatory framework that, far from acting as a second line of defence, actually contributed to the crisis in important ways.<sup>2</sup> The policies affecting liquidity created a situation like a dam overfilled with flooding water. Interest rates at one per cent in the United States and zero per cent in Japan, China's fixed exchange rate, the accumulation of reserves in Sovereign Wealth Funds, all helped to fill the liquidity reservoir to overflowing. The overflow got the asset bubbles and excess leverage under way. But the faults in the dam – namely the regulatory system – started from about 2004 to direct the water more forcefully into some very specific areas: mortgage securitisation and off-balance sheet activity. The pressure became so great that that the dam finally broke, and the damage has already been enormous.

This paper summarises the main findings of the Reserve Bank paper and extends it through focusing on the policy discussion and comments received.

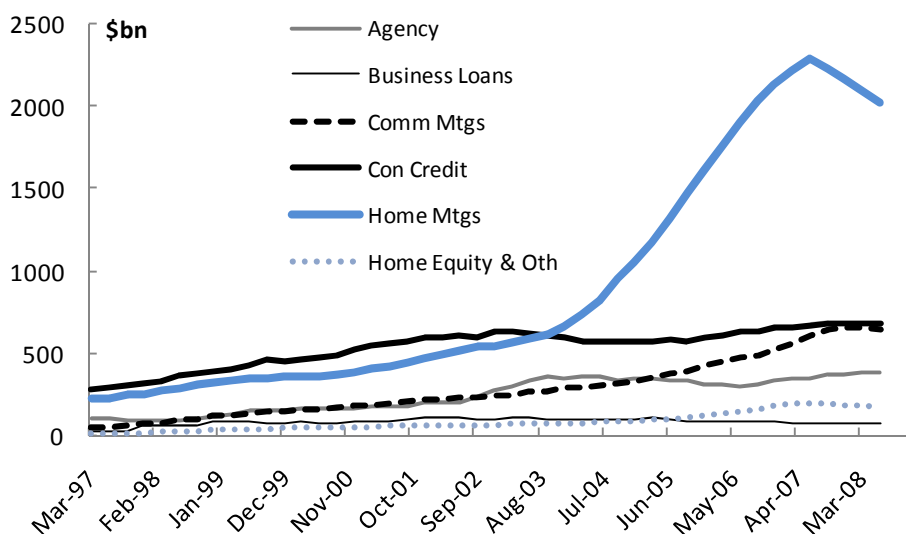
### *2004 is critical in thinking about causality*

#### *The crisis originated from the distortions and incentives created by past policy actions*

When economists talk about causality they usually have some notion of exogeneity in mind; that relatively independent factors changed and caused endogenous things to happen – in this case the biggest financial crisis since the Great Depression. The crisis itself was not independent, but originated from the distortions and incentives created by past policy actions.

#### *RMBS were in the vortex of the crisis*

Figure 1 shows the veritable explosion in residential mortgage-backed securities (RMBS) after 2004. As this class of assets was in the vortex of the crisis, any theory of causality must explain why it happened then and not at some other time.

Figure 1. **ABS issuers, home mortgages and other loans**

Source : OECD, Datastream.

*The financial system accommodated a new banking business model in its drive to benefit from the incentives that had been created over time, and were unleashed by time-specific catalysts*

Many of the reforms underway focus on securitisation, credit rating agencies, poor risk modelling and underwriting standards, as well as corporate governance lapses, amongst others, as though they were causal in the above sense. But for the most part these are only aspects of the financial system that accommodated a new banking business model in its drive to benefit from the incentives that had been created over time, and were unleashed by time-specific catalysts. The rapid acceleration in RMBS from 2004 suggests these factors were not causal in the exogeneity sense – that would require that they had been subject to independent behavioural changes. For example, rating agency practices would be causal if in 2004 agencies developed new inferior practices that triggered events; in fact they were only accommodating banks' drive for profit as the banking system responded to other exogenous factors.

*Four time specific factors in 2004 caused banks to accelerate off-balance sheet mortgage securitisation*

In 2004 four time specific factors came into play. (1) the Bush Administration 'American Dream'<sup>3</sup> zero equity mortgage proposals became operative, helping low-income families to obtain mortgages; (2) the then regulator of Fannie Mae and Freddie Mac, the Office of Federal Housing Enterprise Oversight (OFHEO), imposed greater capital requirements and balance sheet controls on those two government-sponsored mortgage securitisation monoliths, opening the way for banks to move in on their "patch" with plenty of low income mortgages coming on stream; (3) the Basel II accord on international bank regulation was published and opened an arbitrage opportunity for banks that caused them to accelerate off-balance-sheet activity; and (4) the SEC agreed to allow investment banks (IB's) voluntarily to benefit from regulation changes to manage their risk using capital calculations

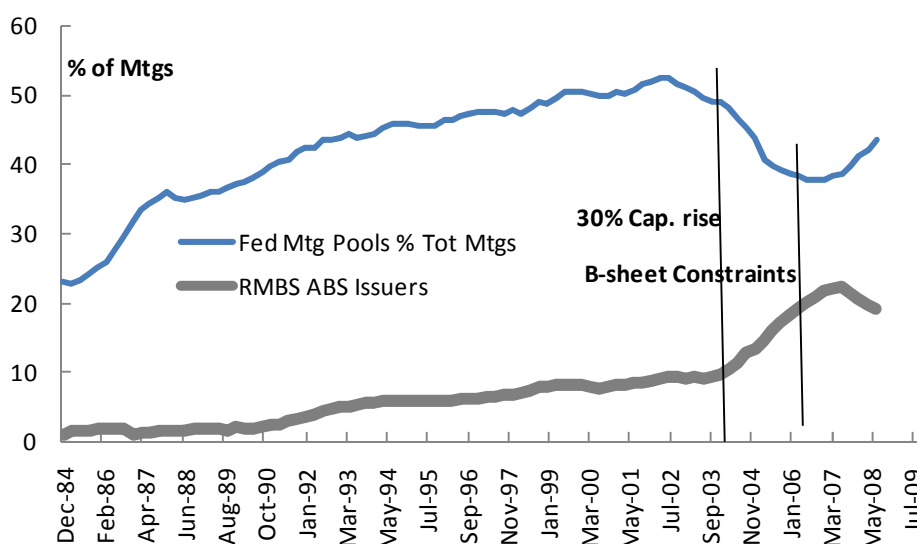
under the 'consolidated supervised entities program'. (Prior to 2004 broker dealers were supervised by stringent rules allowing a 15:1 debt to net equity ratio. Under the new scheme investment banks could agree voluntarily to SEC consolidated oversight (not just broker dealer activities), but with less stringent rules that allowed them to increase their leverage ratio towards 40:1 in some cases.) The combination of these four changes in 2004 caused the banks to accelerate off-balance sheet mortgage securitisation as a key avenue to drive the revenue and the share price of banks.

There was not much objection at the Reserve Bank conference to the idea that low interest rates and related policies (like 'American Dream') were a factor, nor that higher leverage in investment banks and multi-layered regulation in the US is problematic, of which the Fannie and Freddie controls were but one symptom.

*Banks created their own Fannie and Freddie look-alikes: SIVs and CDOs*

When OFHEO imposed greater capital requirements and balance sheet controls on Fannie and Freddie, banks that had been selling mortgages to them faced revenue gaps and an interruption to their earnings. Their solution was to create their own Fannie and Freddie look-alikes: the structured investment vehicles (SIVs) and collateralised debt obligation (CDOs). The influence of the controls affecting Federal Mortgage Pools and the corresponding response in private label RMBS is shown in Figure 2. This new surge of RMBS caused by the Fannie-Freddie regulator was picked up much too late by Bank regulators to take effective action.

Figure 2. Federal mortgage pools vs private label RMBS



Source: DataStream, OECD.

*The issue is understanding the business model and corporate culture that pushes risk taking too far*

There was greater dissent, however, with respect to the idea that the transition from Basel I to Basel II was a ‘co-sponsor’ of the added pressure to originate mortgages and issue RMBS. This deserves some response, because it goes to the very heart of the key regulatory issue that still confronts policy makers. That issue is one of understanding the business model and corporate culture that always pushes risk taking too far and results in periodic crises.

*The changed business model*

*Banking began to mix its traditional credit culture with an equity culture*

The business model for banks moved towards an equity culture with a focus on faster share price growth and earnings expansion during the 1990s. The previous model, based on balance sheets and old-fashioned spreads on loans, was not conducive to banks becoming “growth stocks”. So, the strategy switched more towards activity based on trading income and fees via securitisation which enabled banks to grow earnings while at the same time economising on capital by gaming the Basel system. Seen this way, the originate-to-distribute model and the securitisation process is not about risk spreading; rather it is a key part of the process to drive revenue, the return on capital and the share price higher. That is, it is more about increased risk taking, and up-front revenue recognition. Put another way, banking began to mix its traditional credit culture with an equity culture.

*Compensation too had to evolve in order to capture the benefits of this business model*

In order for executives and sales at all levels to capture the benefits of this business model, compensation, too, had to evolve. Bonuses based on up-front revenue generation rose relative to salary, and substantial option and employee share participation schemes became the norm. This was argued to be in shareholders’ interest – the common philosophy being that: “*if you pay peanuts you get monkeys*”.

*The securitisation business model was most easily executed by an IB*

This business model based on securitisation was most easily executed by an IB – so integral to the process of securitisation and capital market sales. In Europe universal banks like UBS and Deutsche Bank already had this advantage (a part of the point being made by US lobbyists with respect to: the Glass-Steagall Act; the SEC rules for IB’s that were too restrictive compared to Europe; and the competitive ‘unfairness’ of the FDIC Act of 1991 that required US banks to adhere to a leverage ratio). For these reasons US banks and/or IB’s strongly supported and lobbied the US authorities first to remove Glass-Steagall in 1999, move to new SEC rules in 2004; and to adopt Basel II as soon as possible.<sup>4</sup>

*Basel II makes mortgages more attractive*

*Lower capital weights helped to raise returns*

When Basel II was published in 2004 banks were informed that the capital weight given to mortgages would fall from 50 per cent (under

Basel I) to 35 per cent under the simplified Basel II, and to as little as 15-20 per cent depending on whether and how a bank would use the sophisticated internal ratings-based (IRB) version. A lower capital weight raises the return on capital for a given mortgage asset, and the corollary of this is that greater concentration in low-capital-weighted mortgages improves the overall bank return.

*Portfolio invariance as  
arbitrage opportunity*

One of the ‘*gob-smacking*’ assumptions of basic capital regulation under the Basel system is something called “portfolio invariance”.<sup>5</sup> In simple terms, the riskiness of an asset like a mortgage is independent of how much of the asset is added to the portfolio. Banks appear to have believed this, judging by the way they responded to the arbitrage opportunity that arose in the transition from Basel I to II. If mortgage securitisation could be accelerated and pushed into off-balance sheet vehicles, banks could raise the return on capital right away without waiting for the new regime. It would be quite rational to do this to the point where the proportion of on-balance sheet mortgages (with a 50 per cent capital weight) and off-balance sheet mortgages (with a zero capital weight) equated the (higher) return likely to emerge for a Basel II mortgage (where capital weightings would apply regardless of whether assets were on or off the balance sheet).

*The Citi example*

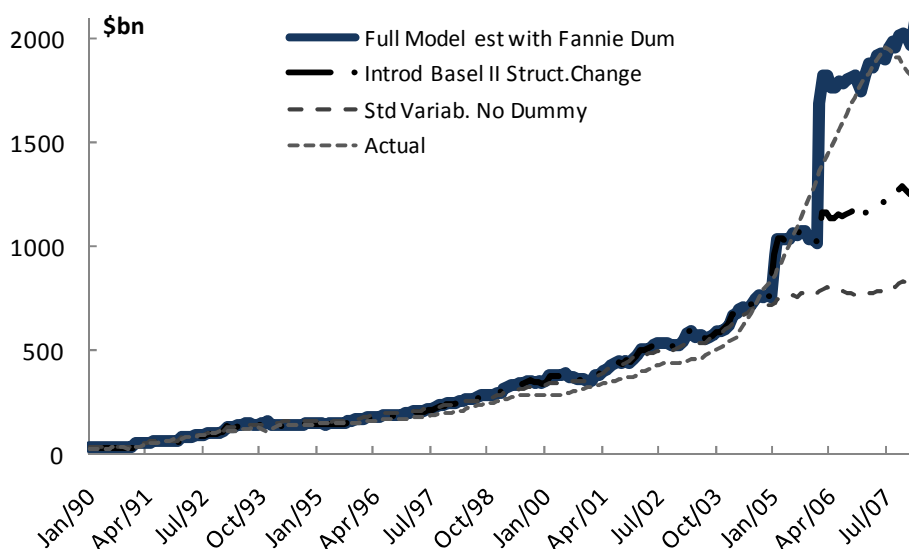
*Citi opted for IRB,  
offering arbitrage  
opportunities*

Citi was a perfect example of this. Citi chose to move towards the internal ratings based (IRB) Basel II option, where FDIC data on the Quantitative Impact Study number 4 (QIS4) showed that such banks expected the capital weight on mortgages to fall by 2/3, say from 50% under Basel I to 15-20% under Basel II.<sup>6</sup> With securitised off-balance-sheet mortgages not attracting a capital charge under Basel I, this presented a straightforward arbitrage: what percentage of on and off balance sheet mortgages would allow the increased return on capital for mortgages now (from 2004) without causing a shortage of capital later when Basel II became fully operational? The arbitrage in the perfect case would be:

$$\begin{aligned} & 0.33*(50\% \text{ On Bal. Sheet Cap. wt. Basel I}) + 67%*(0\% \text{ Off-Bal Sheet} \\ & \text{Basel I}) \\ & = 17\% \text{ Basel II Equivalent Overall Capital Requirement for} \\ & \text{Mortgages} \end{aligned}$$

At the end of 2007 Citi 10K filings show USD 313.5bn on balance sheet mortgages and USD 600.9bn Qualifying Special Purpose Entities (QSPE's) in mortgages, almost exactly the 33% and 67% split.

Figure 3. Model of RMBS and the 2004 acceleration



Source: Blundell-Wignall and Atkinson (2008).

### *The aggregate results on the sudden acceleration of subprime leverage*

#### *Likely freeing up of capital under the full Basel II system helps explain RMBS acceleration after 2004*

In the Reserve Bank conference paper RMBS was modelled with GDP, the mortgage rate, the mortgage spread to Fed Funds, 12-month house price inflation, aggregate excess bank capital under Basel, and an allowance for the impact of the S&L crisis at the end of the 1980s. With these standard variables the model worked well for sample periods prior to 2004, but broke with the 4 regulatory/structural shifts afterwards. In short, this standard model could not explain the parabolic jump after 2004, as can be seen from the dashed line in Figure 3. The authors then calculated the likely freeing up of capital under the full Basel II system for sophisticated adherents as was known to banks through their participation in the QIS4 simulations. This would be an additional capital saving of USD 220bn by the end of 2007 (in addition to the Basel 1 excess capital). When included in the model, this variable adds a jump of around USD 0.5tn in private label RMBS. When a dummy variable is included for the Fannie and Freddie controls (and doubling for the SEC rule change in 2004) a further USD 0.8tn is added.<sup>7</sup> This full model result is shown in the thick line. Once these two new variables are added, the coefficients on GDP and other variables are restored to their pre-2004 values. This suggests that the period in which Basel II was anticipated and arbitrated (as in the Citi example) and the Fannie and Freddie controls were in play, banks were able to accelerate RMBS using lower quality mortgages (and supported by 'American Dream' policies) by some USD 1.3tn. Much of the problems now known as the subprime crisis can be traced to these securities.

### ***Why was mortgage securitisation in subprime more pronounced in the USA?***

***There are several, also tax reasons why mortgage securitisation in subprime was more pronounced in the USA***

One question raised at the Reserve Bank conference was this: if all this is true about the Basel global bank regulation, then why was this activity so much stronger in the US than elsewhere? There are many reasons for this, all of them to do with policy. First, the Bush Administration 'American Dream' policy that tried to spread home ownership to lower income groups through zero equity lending greatly facilitated generation of the mortgage raw materials. Second, mortgage interest for home owners is deductible in the US. Third, the 1986 tax reform act included the Real Estate Mortgage Investment Conduit (REMIC) rules which can issue multiple-class pass through securities without an entity-level tax. This greatly enhanced the attractiveness of mortgage securitisation. Fourth, the 1997 tax change substantially exempting homes from capital gains tax (which did not apply to financial assets like stocks). Fifth, the Fannie/Freddie capital restrictions from 2004, which saw banks move into the vacuum that was left. Sixth, the greater overall dominance of the investment banking culture in the USA which was a key feature of the new business model.

***Most of the early disasters in the crisis occurred where investment banks were involved***

The incentives created by these factors, when combined with the features of Basel I and the transition to Basel II and the SEC rule changes in 2004, proved to be too strong a temptation for the bank business model to ignore. Most of the early disasters in the crisis occurred where investment banks were involved – either separately or as a part of a diversified financial institution: Bear Stearns, Merrill Lynch, Lehmans, Citi, UBS and AIG (via its investment bank subsidiary AIG Financial Products that had CDS losses on a massive scale), were all prominent in this respect. The push to keep fee income from securitisation of (low-capital-charge) mortgages as a key source of earnings growth necessitated moving further and further into low quality mortgages, and the issuance of RMBS based on them, that would prove increasingly toxic in the levered vehicles and bank balance sheets into which they were thrust.

***Other countries whose banks took up similar activities would be drawn into the crisis***

Other countries', such as Switzerland's, Germany's and the UK's, investment banks took up similar activities – often to keep market share, or because the incentive to improve returns by gaming the Basel process was too strong. But many countries would be drawn into the crisis in other ways as their banks expanded off-balance-sheet activity, rapidly expanded use of wholesale funding to anticipate more profitable mortgages under Basel II (see Northern Rock below), invested in the products created, copied strategies in efforts to hold market share, or became involved as counterparties with banks at risk (for example in credit default swap transactions).



### ***The Northern Rock example***

***Northern Rock grew assets by borrowing heavily in wholesale markets and concentrating assets in mortgage products***

Liquidity problems, whereby bank liabilities were not matched to the duration of their assets as they grew mortgage products with Basel II anticipation in mind is well illustrated by Northern Rock in the UK. Mortgage products had been made so attractive by IRB adherence to Basel II, that there was an incentive to grow them more quickly than could be funded by deposits. Northern Rock grew assets at a rate of over 25 per cent per annum in the few years preceding the collapse, funded by borrowing heavily in wholesale markets and concentrating assets in mortgage products (75 per cent of assets) which would reduce their capital requirement as their Basel II application came into force. When equity culture was mixed in with credit culture, the attraction for management was to have expanded businesses with more profitable mortgage products driving their expansion and share price; or they could return excess capital to shareholders, with an equally beneficial impact on the share price.

***Excess capital was returned to shareholders***

Here is the response of the Northern Rock CEO in the UK Treasury Committee Evidence:<sup>8</sup>

Mr Fallon: *Mr Applegarth, why was it decided a month after the first profit warning, as late as the end of July, to increase the dividend at the expense of the balance sheet?*

Mr Applegarth: *Because we had just completed our Basel II two and a half year process and under that, and in consultation with the FSA, it meant that we had surplus capital and therefore that could be repatriated to shareholders through increasing the dividend.*

***Northern Rock had become highly leveraged***

By June 2007, just as the crisis was to break and liquidity was to dry up, Northern Rock had total assets of GBP 113bn and shareholders' equity of GBP 2.2bn. Their RWA under Basel II was a mere GBP 19bn (16.7 per cent of total assets), compared to GBP 34bn under Basel I (30 per cent of assets). Under Basel II they had Tier 1 capital of a 'healthy' 11.3 per cent of RWA, but only 2 per cent of total assets. When the crisis started, and liquidity dried up, they suffered the first run on a British bank since 1866, and their regulatory capital was less than 10 per cent of the GBP 23 billion that the authorities used to support it.

### ***The UBS example – investment banking culture and governance<sup>9</sup>***

***UBS expanded securitised products, global structured finance and high yield loan business, as well as structured credit***

UBS management saw Citi and others rapidly growing their fixed income business in investment banking through securitisation. An external consultant was also appointed to recommend strategy. This consultant pointed out that of all the businesses, fixed income was the area where the UBS investment bank lagged the three leading competitors the most. The IB had its biggest gaps in the Credit, Securitised Products and Commodities

businesses – product gaps in credit, interest rates, mortgage-backed securities (MBS), subprime and adjustable rate mortgages (ARMs) were singled out. In March 2006, the IB presented its conclusions and key initiatives to close revenue gaps. These included expanding: its securitised products via a new Securitised Products Group; its Global Structured Finance and High Yield Loan Business; Structured Credit; and the development of trading strategies for these products.

*UBS developed a ‘me too’ revenue gaps strategy at exactly the wrong time from a macro prudential risk perspective*

The three biggest players in fixed income revenue in 2005 and 2006 were Goldman Sachs (about USD 8.75bn and rising to USD 10.4bn in 2006), Citigroup (about USD 9.25bn and rising to USD 10.5bn in 2006); and Deutsche Bank (about USD 9bn and rising to USD 11.5bn in 2006). These numbers were presented by the UBS head of Fixed Income in March 2007 as the ‘gap’ that had to be closed – UBS was a mere ninth at around USD 6bn in 2005 and about USD 6.2bn in 2006.<sup>10</sup> UBS developed a ‘me too’ revenue gaps strategy – a ‘growth at any cost’ mentality – at exactly the wrong time from a macro prudential risk perspective. This is classic investment banking (from the Latin American Debt crisis to subprime, the modern bankers continue a long tradition). Market share, revenue gaps and beating the key competition is the topic of every morning meeting at all levels in the bank, and for senior management it can be a question of holding your job.

*Risk managers were replaced by people from a sales background*

The corporate governance and risk control functions in many firms will adjust to accommodate strategy when an equity culture is mixed in with a banking credit culture. In UBS departing top risk managers were replaced by people from a sales background (consistent with growth) not a risk management background.

*UBS chose to distribute funds internally...*

UBS has a centralised treasury able to raise funds efficiently in the open market, and it chose to distribute funds internally within the normal external spread:

*“...i.e. internal bid price bids were always higher than the relevant LIBID and the internal offer prices were always lower than LIBOR”.<sup>11</sup>*

*...and its businesses were able to fund themselves at below market prices*

The businesses were able to fund themselves at prices better than in the market. No attempt was made to take account of liquidity in this process (to match term funding to liquidity). A stricter funding model was seen as a ‘constraint on the growth strategy’.

*Strong resistance to hard balance sheet limits*

There was strong resistance from the IB management to hard limits on the balance sheet. Such limits were quickly installed in Q3 and Q4 2007, only once the crisis was under way.

*Compensation incentives were not risk compatible*

Staff compensation incentives did not differentiate between the creation of genuine ‘alpha’ versus the creation of returns based on low cost funding, nor the quality (risk attributes) of staff earnings for the company. The relatively high yield from subprime made this an attractive candidate for long position carry trades (even with thin

margins) via leverage (and using derivatives). This encouraged concentration in the higher carry mezzanine tranches of CDO's. It also encouraged minimal hedging of super senior positions (in order to be more profitable).

*Management did not adjust to subprime risk until July 2007*

Notwithstanding the fact that the senior management and the board identified the subprime issue as a major risk in September 2006, the IB management did not adjust until July 2007. The Board did not feel strongly enough about the risk. Growth and revenue are in the interests of the shareholders and the Board would not have been able to act forcefully: in complete contrast to their actions once the crisis became clear and the weight to a negative view rose. IB management held sway and senior management and the Board went along with it. The *Shareholder Report* (April 2008) states that senior management took comfort from the main exposures being AAA CDO's, and that they were prepared to rely on IB assurances that the risk was well managed. Revenue growth and catching up to competitors was the dominant culture. All management focus within the IB on 'processes' for new business initiatives and prior approval of transactions were:

*"...on speeding up approvals as opposed to ensuring that the process achieved the goal of delivering substantive and holistic risk assessment of the proposals presented".<sup>12</sup>*

*Internal reporting of risk positions was complex*

The report also states that internal reporting of risk positions was complex, even across the 'silos' within a business line. A holistic picture of the risk situation within IB business lines was not presented to management or the board, and there was no serious internal challenge to the overall strategy.

### **Corporate governance**

*Corporate governance, too, played a role in the crisis...*

The UBS example illustrates clearly that corporate governance, too, played a role in the crisis. Banks without IB's that were reasonably diversified (*i.e.* not mortgage specialists) performed relatively better. This suggests four hypotheses about corporate governance in the crisis. One is that the culture of investment banking is much harder to control from the board room. Another is that the business is more complex, and the products are inherently more difficult to understand than simple banking products so that risk control practices are much more difficult. Another is the extent of ownership of risks associated with bank strategy in the longer run, perhaps associated with board structure and the independence of directors. Still another concerns remuneration incentives that became such a clear part of the business model drivers, with bonuses linked to up-front revenue and the current share price. The transition to Basel II, and the strategy to cope with problems such as the Fannie and Freddie mortgage buying halt and the use of lower quality mortgages to fill the gap, placed the survival of banks at risk, and the board room in many cases was found wanting.

Table 1. Corporate governance overview

Company	%chg. in stock price since Jan 2007	Subprime related losses (USD bn)	(% of Tier 1)	(% of revenues)	(As of June 2007)	Investment banking segment	Employee compensation. (% rev. > 20%)	Top 5/(salaries & benefits) > 0.78%	Risk committee chair not on board
Washington Mutual	-99.9	45.6	219.1	178.6		--	--		X
Wachovia Corp.	-89.5	52.7	121.1	94.9		--	X	X	--
Merrill Lynch	-86.3	52.2	165.4	84.3		X	X	X	X
National City Corp.	-94.4	5.4	57.6	45.9		--	X		--
Citigroup Inc.	-85.9	60.8	68.1	38.2		X	X	X	--
Lehman Brothers	-99.9	13.8	59.7	23.4		X	--		X
Fifth third bancor	-76.4	1.9	21.3	22.4		--	--		--
Wells Fargo & Co.	-18.6	10	27.2	18.4		--	X	X	--
Morgan Stanley	-77.1	15.7	48.9	18.4		X	--	X	X
Bank of America Corp.	-71.4	21.2	25.4	17.8		--	--	X	--
JP Morgan Chase & Co.	-34.3	18.8	21.2	16.2		X	--	X	--
U.S. Bancorp	-20.9	1.3	7.4	6.4		--	--	X	--
Goldman Sachs Group	-60.4	4.9	11.5	5.6		X	X		X
Regions Financial Corp	-72.5	n/a				--	X		--
Suntrust	-63.4	n/a				--	X	X	--
BB&T	-30.5	n/a				--	--		--
PNC Financial Group	-24.1	n/a				--		X	--

Source: Company reports, OECD.

*...but there are no simple answers...*

However, a quick examination of some crude indicators in Table 1 suggests that there are no simple answers. These banks are arranged from left to right in terms of known subprime related losses as a percentage of Tier 1 capital – from worst to best. All of the above banks had a majority of “independent directors” and this line was excluded from the table. With respect to investment banking JP Morgan and Goldmans sit towards the right side of the table, suggesting that governance can handle this complex business compared to other investment banks and can control the aggressive IB culture. Above average staff compensation is not obviously linked with better or poorly-governed banks. If top-five executive compensation (including equities) as a percentage of staff compensation being below the average of the group were thought to be a positive it is not borne out either. Whether or not the chair of the risk committee has a board seat also appears to have no clear performance link.

*...and that there is no simple indicator of good governance*

These observations suggest that there is no simple indicator of good governance linked to independence, compensation, and remuneration. It is likely to be complex and idiosyncratic to the firm.<sup>13</sup> It is not high pay or moderate pay, but whether pay is genuinely linked to bringing long-term value to the bank with funding costs linked to the risks that bank staff take (as the case of UBS shows in terms of errors in this respect). Similarly, discussions with senior bank management post the crisis suggest that the role of the risk committee with remuneration incentives based on deal flow proved to be a mixed blessing. Loan officers often presented to the risk committee to get the deal approved and took comfort from the approval they received, as opposed to owning risk assessment in a traditional credit risk culture.

## II. Policy considerations: solving bank insolvency

As the crisis unfolded, governments have been forced into the role of becoming new owners of distressed financial institutions, guarantors of loans, taking over the risk implicit in poor collateral (with contingent liabilities for the taxpayer), and making regulatory adjustments on the run. In thinking about policy, the Reserve Bank conference discussion focused on addressing bank solvency in a crisis and the longer-term requirements of reform.

*Three basic steps with respect to crisis management:*

*guarantee liabilities...*

*... separate good from bad assets...*

With respect to crisis management there are three basic and separable steps required to deal with a banking system solvency crisis:<sup>14</sup>

- Guarantee liabilities to stop bank runs. All deposits need to be covered to avoid creating runs between covered and non-covered institutions.
- Separate the good assets from the bad assets, and get the bad assets off bank balance sheets. One approach to this is like the

Troubled Asset Relief Program (TARP) program in its initial form: essentially an 'asset management' approach to buying toxic assets (as was used during the Asia crisis). Another approach used in Scandinavia in 1991 and in the 'S&L' crisis in the US around the same time via the Resolution Trust Corporation (RTC), is essentially to nationalise banks, separate the bad assets, and then sell the cleaned-up banks back to the private sector. A version of his latter approach with an interesting funding mechanism was recommended in Financial Market Trends in March 2008.<sup>15</sup> Still another method is to encourage a large better capitalised bank to take over a smaller failing bank and absorb its losses. The process of encouragement to merge may entail certain government guarantees on asset losses and write downs that the acquiring bank may realise after completion of the merger. Since it does not add new capital to the system as a whole, the banks will still need to raise more equity (if they are not significantly overcapitalised to start with).

*...and recapitalise the asset-cleansed banks*

- Recapitalise the asset-cleansed banks by finding new equity holders. This can be via selling common shares or preference shares (that provide a higher yield to the owner) to private entities or the government. The latter is not desirable in the longer run, as it can contribute to moral hazard issues and level playing field issues.

*US TARP and European rescue plans*

The US had the USD 700 bn TARP approved by Congress,<sup>16</sup> the first tranche of which had scope to buy toxic assets (which was certainly the initial idea, as implied by the title) or to invest directly in banks. On the weekend of 11-12 October the UK PM Gordon Brown decided to inject new money directly into banks without step 2. Europe, following the summit led by France and Germany, also decided to inject money directly and guarantee loans as part of the co-ordinated action plan. Immediately after the UK decision (Monday 13 October) US Treasury Secretary decided first to follow the UK path – putting to one side the original decision to buy bank assets in an asset management approach – and called in nine banks to receive a capital injection of USD 125 bn (Bank of America/Merrill Lynch, Bank of New York Mellon, Citi, Goldman Sachs, JP Morgan, Morgan Stanley, Wells Fargo/Wachovia, and State Street). The capital injections are in exchange for preferred shares (5% dividend for 5 years and 9% thereafter) and warrants equal to 15% of the equity infusion value, with a strike price equal to the average of the 20 days preceding the infusion.

In addition to the TARP, the Government and the Federal Reserve have taken on commitments in loans and guarantees that could run into much more than USD 700bn.

### *Lessons of the Japan banking crisis*

#### *Removing the bad loans from the banks as a precondition for recapitalisation*

The Japan banking crisis led to repeated policy rescue packages from 1996 to 2004.<sup>17</sup> The failure systematically to take step 2 above, *i.e.* removing the bad loans from the banks as a precondition for recapitalisation, prolonged the crisis. There was a strong desire to keep ‘zombie’ companies alive, either as a decision of bank management due to strong past relationships with the companies, or because of official encouragement to avoid unemployment. If bad loans are not removed from the balance sheet the potential for further asset deterioration in a period of recessed activity will require more capital and/or will result in greater deleveraging. It is this ‘slippage’ that causes the crisis to be dragged out for a longer period of time. The failure of Asahi and Daiwa banks provides a good example. The two banks were merged into Resona bank, and further injections of capital failed to save it as the bad loans were not dealt with. This is a potential risk for the recent decisions of the UK, EU and US to bypass step 2 in favour of direct capital injections.

Recapitalisation becomes a moving target; if loan problems worsen, leading to more write-downs of asset values, further injections are required to avoid a credit crunch.

### **III. Policy considerations: exit strategy & long-term reform**

#### *As the crisis passes, it will be important to focus on sustainable policies for the financial system*

In the longer run, as the crisis passes, most conference participants and other commentators agree that it will be important to focus on sustainable policies for the financial system. There are 3 interrelated areas that will need attention as emergency measures need to be relaxed and removed.

1. Reforming the incentive systems that gave rise to the crisis in the first place.
2. Matching the regulatory influence on the cost of capital to the risks that institutions actually take.
3. Exiting from government bank ownership and insurance commitments through asset sales and debt management techniques.

#### *(1) Incentive structures & the theory of the second best*

#### *Policy makers have been dealing with a system driven by many factors that lie outside their purview*

The key point of the Reserve Bank conference paper and some of the discussion around it is that prudential policy makers have been dealing with a system driven by many factors that lie outside their purview: the banking business model itself and how it responds to incentives from macro liquidity policy, regulation, taxation rules, and policies to make mortgages an element of social policy.

***More 'teeth' to enforce better governance are required***

The massive failure in corporate governance in some companies reflects poor incentive structures for decision making consistent with sustainable corporate growth. The up-front fees and remuneration systems based on recent performance criteria could be important here, as could the structure of the board and how they manage risk. General principles and soft rules implicit in self regulation do not seem to be enough. This may require more 'teeth' to enforce better governance. For example, the tax system could be used to foster slow-vesting share participation schemes instead of up-front cash bonus payments (including for 'retiring' executives).

***Policies need to be reinforcing of each other***

Some of the main channels of influence are shown in Figure 4. The aim is to get the diverse influences to swing the arrow at the end of the interaction process to positive lower risk activities. Tax, regulation, macro policy, governance, remuneration, etc. need to be reinforcing of each other and not creating conflicts in policy objectives.

***Reforms to improve only pieces of the system may not help***

The theory of the second best is very relevant here: if market failures are present then reforms to improve pieces of the system (as opposed to reforming the global interactions between regulatory, tax, remuneration and other governance factors, etc.) may not help and indeed may make things worse.<sup>18</sup> These interactions are complex, and it is by no means clear that adjusting prudential rules to deal with the main features of the current crisis will necessarily help to avoid future crises.

***(2) Matching the cost of capital to risk taking<sup>19</sup>******Cost of capital is lower if creditors believe that banks are supervised and will not fail***

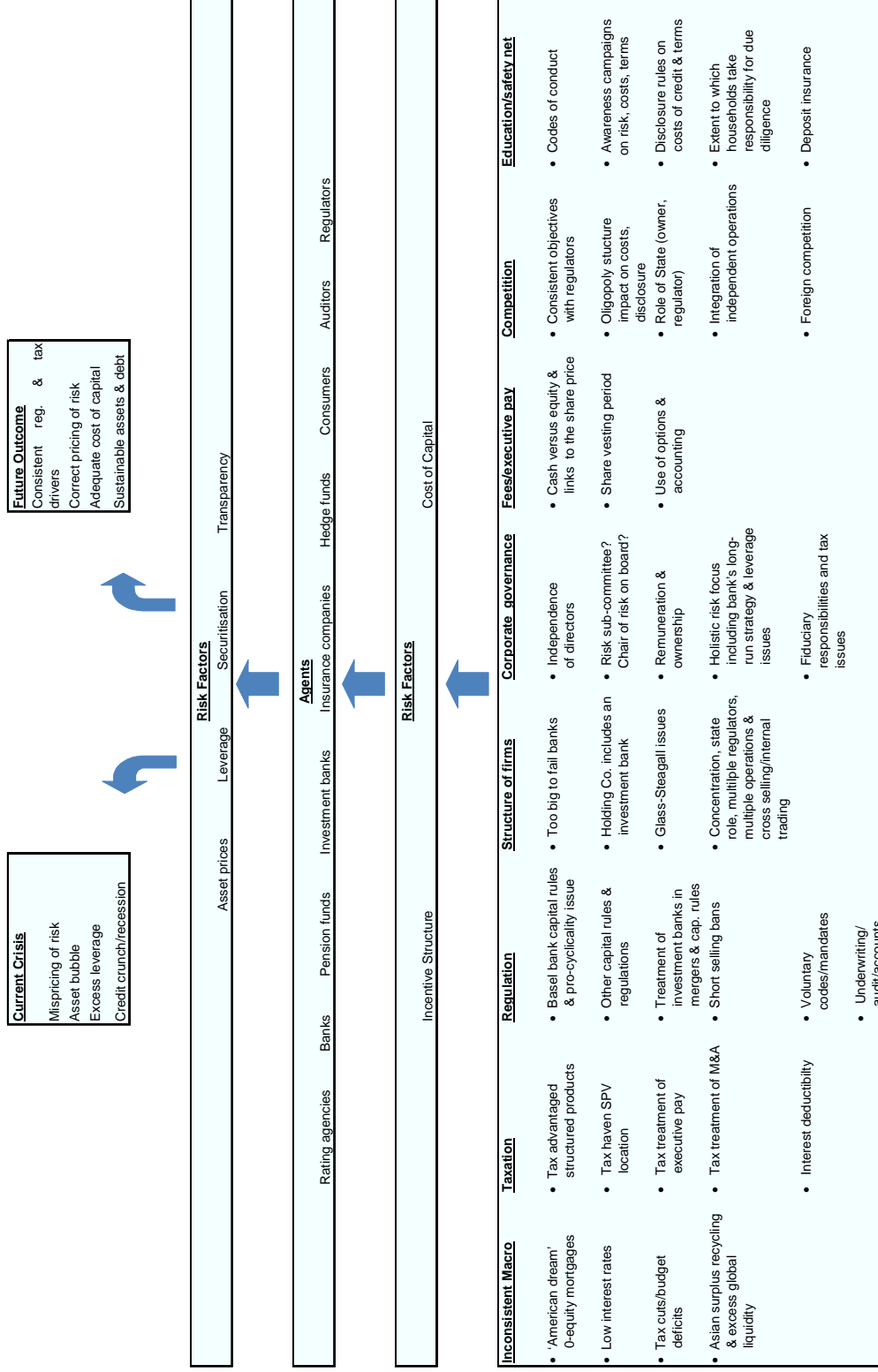
Basel I and Basel II have sought to match capital regulation with the riskiness of bank lending, but particularities of the institutional structures of banking organisations have thwarted these efforts. Failures of risky IBs have been a feature of this crisis. These businesses benefitted from a too low cost of capital and, commensurately, they became too large (systemically important) as a consequence. The cost of capital is lower if creditors believe that banks are supervised and will not fail.

***Policy needs to ensure that credit and equity cultures are not mixed, and that capital rules are targeted efficiently...***

IB's benefitted from the low 20% capital weight accorded to them under the Basel system. This reflects relative safety, making it cheap for banks to provide credit as counterparties to IB's. The 2004 capital rule changes and the increased role of supervisory oversight for investment banks helped keep the cost of capital low while simultaneously permitting more leverage. When embedded inside a financial conglomerate like Citi or a European universal bank like UBS, excessively large IB's segments put those institutions at risk.



Figure 4. Incentive structure, influences and outcomes



Future policy needs to ensure that credit and equity cultures are not mixed, and that the capital rules that apply to these risky businesses are targeted efficiently to them and the cost of leverage is sufficiently high to ensure their size and risk taking activities are appropriately contained.

*...either by narrowing the concept of a 'bank', separating consumer banks from IBs...*

There are two basic choices for efficient targeting of the cost of capital and other supervision activities. First, one could regulate to ensure a narrower concept of a 'bank' that will be regulated closely and supported in crises, while allowing *caveat emptor* to apply in the high-risk sector (particularly IB-like activities). The idea that consumer banks and IB's make a good counter-cyclical combination (the consumer bank helps the IB in the crises periods and the IB helps the bank keep up in the boom) has been discredited by recent events. A 'bank' under this view would take (guaranteed) deposits, create private information and lend on its balance sheet, be strongly capitalised and have a decent liquidity buffer fully backed up by lender-of-last-resort (LOLR). This requires separation of the consumer bank from the IB in diversified financial institutions. IB's take on a lot of risk and their losses can eat up the capital of the group quickly. IB's in this first approach could sit outside the well-regulated fence, along with hedge funds and the like, where *caveat emptor* applies.

Some at the conference argued that this structure might still not avoid major systemic problems in the future because banks inside the regulatory fence would still have counterparty relationships with IB's and other high-risk firms outside the fence – pulling them back though it as it were. But the quantum of risk opportunities that need to be taken is not given and independent of the cost of capital.

Banks would get into counterparty relationships with higher-risk financial firms – but with very clear capital rules (up to full cover where necessary), protecting bank solvency. IB's would (and should) face a much higher cost of capital compared to the status quo. In particular, IB's would no longer be able to take advantage of the diversified banks' treasury operation (and 'regulated' status) raising low-cost external capital to allocate to high-risk internal deals. Fewer deals would meet internal rate of return requirements, and leverage and systemic risk will be commensurately smaller – as would the size and (undue) influence of the financial sector on the economy. Even so, some at the conference argued that it is too late to try to turn the clock back, and current policy in the crisis needs to combine stronger and weaker institutions which can't be undone later on.

*...or by working with non operating holding company structures*

A second less radical approach is to work with non operating holding company structures (NOHC's). This separates a financial conglomerate into its constituent parts: consumer banking, investment banking, wealth management, etc. There are separate boards and strong firewalls between the subsidiary parts. Capital rules can be tailored to the riskiness of the activities of the subsidiaries, and in the

event of a crisis any loss making subsidiary can be dealt with by supervisors without endangering the whole conglomerate. It is much easier to sell or liquidate a problematic IB securities trader, for example, if it is a subsidiary of the NOHC rather than the entity at the top of the tree. The NOHC structure is also much more transparent and it is much easier to limit intra-group exposures. The NOHC provides a more transparent and flexible structure for narrowly defined, deposit-taking banking that is superior to having the bank at the top of the group or having the bank as the group itself (*i.e.* as in universal banking in Europe). In short NOHC's would be easier to regulate.

*The key point is that high-risk financial activities need to pay the correct market cost of capital...*

The key general point is that high-risk financial activities need to pay the correct market cost of capital without distortions caused by the regulation and bank structure interface. UBS for example used its treasury operation to use the bank name to borrow cheaply on the capital market and then internally allocated cheap funds to high risk investment banking units.

*...and as well to reform the regulatory authorities*

It is also important to reform the regulatory authorities as well. As the above Fannie and Freddie analysis showed, multiple overlapping regulations can cause confusion.

### **(3) Exit strategy**

*Public sector has taken on a much wider role in the crisis...*

The public sector has taken on a much wider role in the crisis, not only as an owner of financial companies through preference shares and warrants, but also as an insurer and lender. While these commitments have led to substantial expenditures, their potential scope is very large indeed. A partial summary of the measures includes:

*... also as an insurer, investor and lender*

- **Insurer:** The FDIC was charged with guaranteeing for 3 years new debt issues until 30 June 2009 (capped at 125% of the debt outstanding at 30 September 2008), potentially worth up to about USD 1500bn; and Non-interest bearing deposit accounts used in business working capital around USD 500bn. The Government is backing USD 306bn in Citi loans and securities; USD 29bn Bear Stearns assets; and USD 9bn Morgan Stanley. The Federal Reserve is guaranteeing Money Market funds of around USD 600bn. The Government is guaranteeing the USD 5.5tn Fannie and Freddie portfolio for up to USD 200bn losses.
- **Investor:** the USD 700bn TARP. The Federal Reserve is the buyer of last resort for the USD 1.6tn Commercial Paper market. The Government will buy MBS from Fannie and Freddie (perhaps USD 600bn). The Government nationalised AIG for USD 53bn.
- **Lender:** within the financial system the Term Auction Facility (TAF) and the Term Asset-Backed Loan Facility (TALF) (perhaps potentially in the USD 1-2tn range); swaps with foreign central banks.

*It is important to exit from these emergency measures as soon as practicable*

It is important to exit from these emergency measures as soon as practicable. When governments are owners of companies and/or guarantors of their assets and liabilities, they distort competition between companies within and between regions. With government support the cost of capital may become too low as investors believe recent actions demonstrate that support for capital, assets and deposit liabilities will always be there.

*This process should follow OECD guidelines for state-owned enterprises*

Some assets and debts will need to be sold back to the private sector in better times and hopefully for a profit for the taxpayer. This may require institutional arrangements involving public debt management offices and the creation of specialist bodies reminiscent of the RTC. This process may take some time, and while it does the government will need to use governance techniques that follow as closely as possible the OECD guidelines for state-owned enterprises to maintain level playing field conditions to the maximum extent possible.

### Notes

- <sup>1</sup> Adrian Blundell-Wignall and Paul Atkinson (2008), "The Subprime Crisis: Causal Distortions and Regulatory Reform", in: Paul Bloxham and Christopher Kent, *Lessons from the Financial Turmoil of 2007 and 2008*, Proceedings of a Conference held at the H.C. Coombs Centre for Financial Studies, Kirribilli, on 14-15 July 2008; Reserve Bank of Australia; available at [http://www.rba.gov.au/PublicationsAndResearch/Conferences/2008/Blundell-Wignall\\_Atkinson.pdf](http://www.rba.gov.au/PublicationsAndResearch/Conferences/2008/Blundell-Wignall_Atkinson.pdf).
- <sup>2</sup> Blundell-Wignall, A and P. Atkinson (2008), "The Sub-prime Crisis: Causal Distortions and Regulatory Reform", in Paul Bloxham and Christopher Kent, eds., *Lessons from the Financial Turmoil of 2007 and 2008*, Reserve Bank of Australia. This full paper published paper was circulated to the OECD Committee on Financial Markets meeting in November 2008.
- <sup>3</sup> See The White House press release, President George W. Bush, "Increasing Affordable Housing and Expanding Home Ownership", 2 September 2004.
- <sup>4</sup> See for example the letter by Davis C. Bushnell, senior risk officer of Citigroup to the Federal Reserve, FDIC, Controller of the Currency and office of Thrift Supervision as late as the 17<sup>th</sup> of March 2007 just before the crisis, arguing against leverage ratios requiring more capital and strongly supporting the push to Basel II.
- <sup>5</sup> In following up the discussion at the Reserve Bank Conference, one author used the term "gob-smacking" (meaning 'astonished') in one of two contributed articles published in the Australian Financial Review: See Adrian Blundell-Wignall "Why Does the Banking System Always Result in Turmoil Despite the Best Efforts of Regulators", *Australian Financial Review*, 8 September 2008.

- <sup>6</sup> See FDIC (2005), "Capital and Accounting News...Basel II and the Potential Effects on Insured Institutions in the United States: Results of the Fourth Quantitative Impact Study (QIS4)", *Supervisory Insights*, Winter, pp. 27-32.
- <sup>7</sup> This corresponds also with the period of the 2004 SEC rule change, and it is impossible to separate this effect from the Fannie and Freddie effect – clearly greater leverage possibilities for IBs greatly helped the response to compensating for Fannie and Freddie constraints.
- <sup>8</sup> Treasury Committee (2007); *Evidence* 47.
- <sup>9</sup> This section is based on *Shareholder Report on UBS Write-Downs*, UBS AG, April 2008.
- <sup>10</sup> Simon Bruce, *UBS Fixed Income Investor Day*, March 2007. He identifies a USD 4.3bn revenue gap to the top 3 competitors as the most significant revenue opportunity.
- <sup>11</sup> UBS (2008), p. 25.
- <sup>12</sup> UBS (2008), p. 41.
- <sup>13</sup> One board member of Santander recently told the first author of this article that the main reason why that bank avoided the subprime crisis was because the Botin family has run the bank since the beginning (140 years) and care about losing money – instilling a strong risk culture and controls.
- <sup>14</sup> See also the Statement by Mr. Angel Gurría, Secretary-General of the OECD, before the International Monetary and Financial Committee, Washington D.C., 11 October 2008.
- <sup>15</sup> See Blundell-Wignall (2008), "The Subprime Crisis: Size, Deleveraging and Some Policy Options" *Financial Market Trends* vol. 2008/1.
- <sup>16</sup> See also the article "Lessons from the Financial Market Turmoil: Challenges ahead for the Financial Industry and Policy Makers" in this volume of *Financial Market Trends*.
- <sup>17</sup> See also the article "Resolutions of Weak Institutions: Lessons Learned From Previous Crises" in this volume of *Financial Market Trends*.
- <sup>18</sup> R.G. Lipsey & Kelvin Lancaster (1956), "The General Theory of the Second Best", *The Review of Economic Studies*, vol 24, No. 1.
- <sup>19</sup> This section draws on discussion following the Reserve Bank Conference summarised in A. Blundell-Wignall, "Redefining the Bank Will Solve Many Issues", *Australian Financial Review*, 15 September 2008.