

**THE VALUE OF TWO SURVEY-BASED INDICATORS IN SOUTH AFRICA: THE
RMB/BER BUSINESS CONFIDENCE INDEX AND THE INVESTEC/BER PMI**

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¹ The views expressed in this paper are solely those of the author, and do not necessarily reflect those of the Bureau for Economic Research.

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INTRODUCTION

The Bureau for Economic Research (BER) launched its Business Opinion Survey in 1954 and has since been conducting business tendency surveys in the South African (SA) economy. One of its most well known indicators, developed from the business tendency surveys in the retail, wholesale, motor trade, manufacturing and construction sectors, is the BER Business Confidence Index (BCI). The BER's Business Opinion Survey was originally modeled on the German IFO Institute's so-called Konjunktur Test. The BER recently approached a private bank (Rand Merchant Bank) to sponsor the index financially and as a result the name of the index changed to the RMB/BER Business Confidence Index. The index is produced on a quarterly basis.

A more recent development in the BER's arsenal of business tendency surveys is the Purchasing Managers Index (PMI) for SA, sponsored by Investec Asset Management. The index was modeled on its US counterpart, currently produced by the USA Institute of Supply Management (ISM). The PMI survey commenced in September 1999 and was launched in September 2000. It is a monthly indicator of business conditions in the manufacturing sector; its correlation with actual manufacturing production statistics produced by Statistics SA has been quite remarkable, particularly over the period since August 2001.

In this note, a brief overview is provided of the performance of these two indicators in order to highlight the value of these indicators. Due to time constraints the analysis is exploratory and mainly graphical/ descriptive at this stage, also relying on earlier research. In the first section below, the use of business survey data is briefly considered and the particular qualities of business tendency survey data are highlighted. In the light of these characteristics, the behaviour of the BER's BCI and PMI is considered in the subsequent two sections respectively. In the final section of the note, some concluding remarks are made.

THE USE OF BUSINESS SURVEY DATA

The original aim of business tendency surveys was to obtain information on economic movements before the numerical (official) data became available, by making direct contact with the entrepreneur. Whilst the business survey information was originally intended mainly for the benefit of respondents, it became an invaluable tool for economic analysis for all types of users over the years. Short-term company planning and economic analysis is hampered as numeric (official) data is released with a time lag.

Business tendency surveys not only provide timeous information on hard (statistically) quantifiable economic data (e.g. sales – domestic and export – orders, production, employment, input costs, selling prices, stock levels, etc.) but also provide unique information, such as business confidence, rating of business conditions and respondents' expectations for the next quarter (and beyond) for which no official data exist. *It is today widely recognized that these subjective individual*

expectations play a key role in economic developments. Furthermore, the survey results of successive periods provide a means of tracking cyclical movements, pinpointing trend changes and establishing forecasts.

The OECD lists a number of qualities that business tendency survey data possesses (OECD Handbook, 2003: 65-66), e.g.:

- being highly *relevant* – measuring economic variables at the early stages of production, responding rapidly to economic changes and measuring (forward-looking) expectations; the fact that business survey data is released well ahead of the official statistics and contain forward-looking information makes it a very valuable tool for economic analysis and planning.
- business survey data usually does not contain a trend and therefore has good *cyclical behaviour characteristics*;
- business survey data is less erratic and usually final and not subject to *revision* after publication; and
- business tendency surveys measure *unquantifiable magnitudes* such as confidence levels, bottlenecks in production and other constraints, expectations, etc.

Prof Kauffman, assessing the ISM's PMI indicator, lists a number of indicator qualities required from proper economic indicators (Kauffman, 1999: 31-32):

- Validity and reliability – does the indicator represent or measure what it is intended to measure? For instance, how well does the indicator correlate with the underlying economic variable; does it produce consistent results?
- Timing – does the indicator lead, lag or coincide with the particular activity?
- Timeliness – how soon after the particular activity is the indicator available?
- Stability – how stable is the indicator, or does it possess excessive random fluctuations?
- Revision – is the indicator subject to revision?

Business tendency survey data tends to have a good track record regarding these issues (see Aylmer & Gill, February 2003: 83-84; Kauffman is also convinced regarding these indicator qualities in respect of the ISM's PMI indicator). These requirements could be applied in evaluating the performance of the BER's BCI and PMI. This is done below in an exploratory manner, providing a graphical/descriptive overview of the performance of these indicators – more research is required to produce more conclusive evidence. Before each indicator is considered, some background is provided on the development/ methodology of each indicator.

THE RMB/BER BUSINESS CONFIDENCE INDEX

Background

The RMB/BER BCI is a composite quarterly index compiled from the BER's business surveys in the retail, wholesale, motor trade, manufacturing and construction sectors. The BCI was first published in 1975. Business confidence is difficult to define. The BER prefers to measure the degree of satisfaction amongst business people regarding the prevailing business conditions. The BCI is derived from one simple question to the respondents in all the sectors covered in the survey, namely:

How do you find current business conditions?

Satisfactory	Unsatisfactory
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By capturing the gross percentages of the respondents that reply to the question, the BER quantifies the subjective "business mood". The BCI is calculated as the gross percentage of the respondents answering in the affirmative. An index is first calculated for each individual sector and then the BCI is calculated as a linear average of the 5 sectors' individual BCIs. An index value of zero indicates extreme pessimism, a value of 50, neutrality, and a value of 100, extreme optimism. However, the history of the index suggests a significant degree of bias – respondents tend to be consistently over-pessimistic as the long-term average of the index is only 41.

The BCI question is a rather vague question, which is likely to capture many factors – from actual business-related issues to general socio-political issues. As such, the problem of weighing different determinants of business confidence is solved. As the BCI measures the "business mood", the index should provide leading information of economic conditions as an optimistic business mood is likely to translate into increased stockpiling and fixed investment down the line, feeding into more lively general economic conditions (the converse would be true in the event of a pessimistic business mood). The BER's BCI has a consistent and very reliable track record in this respect – *see the charts below*. The economic sectors surveyed directly account for 34% of SA's GDP, however, when the forward and backward linkages are taken into consideration, the BCI's reach is much further than this. There is also the issue of measuring total business activity as opposed to value-added (or GDP) where intermediate sales are excluded (see Kauffman, 1999: 30). The BCI was designed to capture business cycle developments in the cyclical sectors of the SA economy, which tend to drive the overall business cycle.

The behaviour of the RMB/BER BCI

Being an indicator of broad economic developments one would expect the BCI to correlate well with broad statistical economic magnitudes such as GDP or composite indices measuring broad economic activity. Furthermore, as noted above, one would expect leading capabilities, given the design of the BCI. This is indeed the case. Pellissier (2002: 51-67) found that the BCI has leading properties, albeit that in terms of causality the indicator tended to move towards a coincident rather than a leading relationship with the business cycle. However, a turning point analysis clearly reveals leading properties at both the upper and lower turning points of the index. This is illustrated in the charts below.

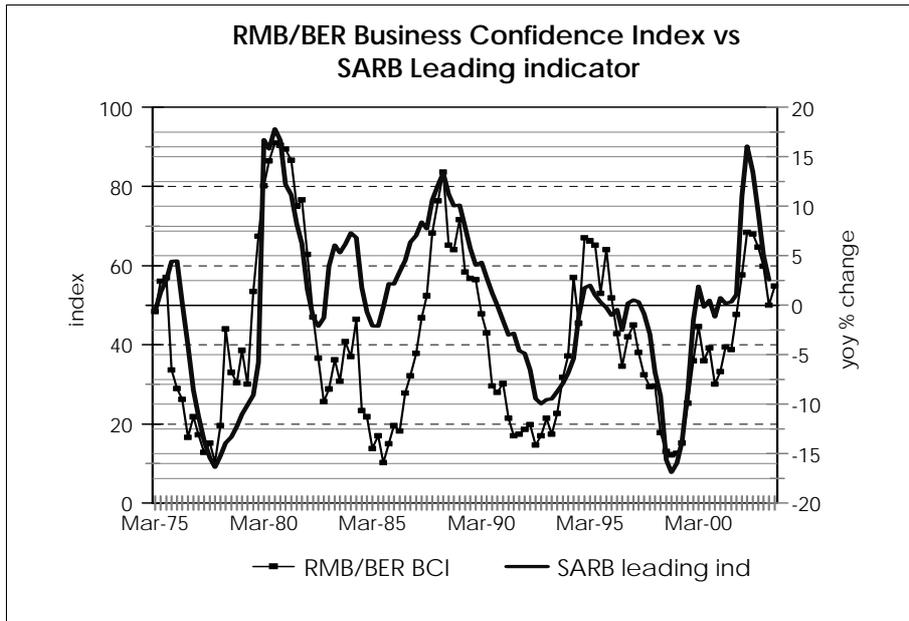


CHART 1

The first chart correlates the BCI with the SA Reserve Bank's composite leading indicator; the correlation coefficient over the complete period is 0.74, which is very satisfactory². The SA Reserve Bank's leading indicator has a proven 8 to 12 months lead-time, both at the upper and lower turning points of the business cycle (Van der Walt & Pretorius, 1994: 35). Another good correlation exists between the BCI and the year-on-year change in the SA Reserve Bank's composite coincident indicator – see *chart 2 below*. The correlation coefficient is a little weaker, i.e. 0.60, however increases to a remarkable 0.79 over the period 1981 to 2003. As year-on-year changes in an indicator lead changes in the actual level of the indicator, this correlation is further testimony of the BCI's leading properties.

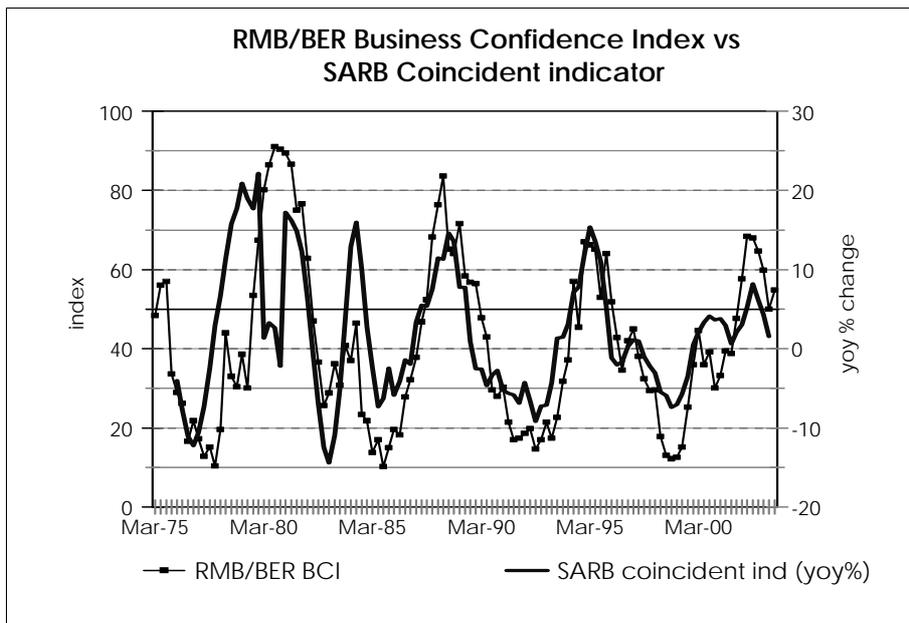


CHART 2

² The comparison is made with the deviations of the SA Reserve Bank's composite leading indicator from its trend line, as the indicator possesses a strong trend component.

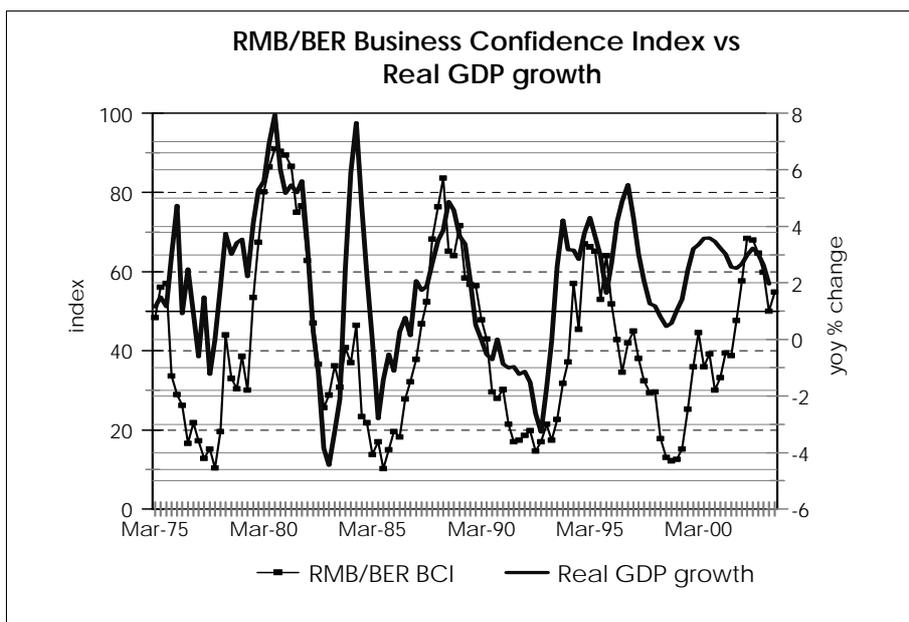


CHART 3

Given the good correlation with the SA Reserve Bank’s composite indicators, one would expect a good correlation between the BCI and SA’s real GDP growth as well – see *chart 3 above*. The correlation coefficient over the complete period is 0.65; the coefficient improves to 0.68 when the period from 1980 is considered. An analysis of the turning points of the SA business cycle and the relationship with the BCI reveals the following:

Table1: Timing relationship between the BCI and reference turning-points of the business cycle

Reference turning-points ¹		BCI	
Peak	Trough	Peak	Trough
August 1981	December 1977	-11	-6
June 1984	March 1983	0	-3
February 1989	March 1986	-9	-6
November 1996	May 1993	-23	-8
	August 1999		-8
Average		-11	-6
		-8	

¹ Source: SA Reserve Bank: *Quarterly Bulletin*, September 2003

The average lead time of the BCI at turning points of the SA business cycle is 8 months, similar to the lead time of the SA Reserve Bank’s composite leading indicator. However, it appears that the lead-time at the peak of the business cycle is longer, namely 11 months on average; at troughs of the business cycle the lead-time is consistently around 6 months. It is evident that the BCI is a reliable leading indicator of overall business cycle developments in the broader SA economy. Information provided by the BCI on the state of the general economic conditions is very useful for the BER’s forecasting work.

THE INVESTEC/BER PURCHASING MANAGERS INDEX

Background

The idea of a PMI for SA originated from talks in June 1998 between Mike Poulter, Assistant Dean: Faculty of Commerce, University of Natal and Murray Pellissier, Deputy Director of the BER. Including contact and support from the national purchasing associations in the USA, UK and Israel, the BER and the Institute for Purchasing & Supply Management South Africa (IPSA) embarked on a joint venture in October 1998 to launch the PMI for SA; the first survey was conducted in September 1999. A particular advantage for the BER was to add a monthly economic indicator to its range of quarterly business tendency surveys.

The survey is conducted by way of mailed questionnaires to a panel of around 250 purchasing managers in the manufacturing sector. The questionnaires are completed during the third week of every month, processed during the final week and the results released on the first working day of the following month. A set of 9 questions is included in the questionnaire and all ask for qualitative information only – *higher, lower or unchanged*; the reference period is a month. The positive-line method of “higher” plus one half “unchanged” is used to quantify individual results. The PMI is a composite weighted average of only five component questions, namely (weights in brackets) Business activity (25%), New sales orders (30%), Employment (20%), (the inverse of) Supplier deliveries (15%) and Inventories (10%). The weighting structure and survey questions are similar to that applied in the ISM's PMI survey. During the first 36 months of the survey, seasonal adjustment was carried out by proxy by using the seasonal factors applied by Statistics SA in the compilation of the official manufacturing production data. In September 2002, the historical seasonal factors were revised, using the Census X12 computer programme. This resulted in a major revision and improvement of the data; the seasonal adjustment was again updated in September 2003, resulting in only minor revisions.

The behaviour of the Investec/BER PMI

Unfortunately the index has a short history, which does not allow for proper cyclical analysis. The SA Reserve Bank dates the SA business cycle – a lower turning point was identified for the economy in August 1999 (a month before the inception of the PMI survey) and since then the domestic business cycle has been in an upward phase. It is therefore not possible to assess the PMI's performance around the turning points of the business cycle yet. However, within the manufacturing sector, a prominent mini-cycle developed in the wake of the rand exchange rate's sharp depreciation towards the end of 2001 and its sharp subsequent appreciation during 2002/3. The Investec/BER PMI proved an exceptionally accurate and timely indicator over this period – both in terms of the growth in the sector (production, value-added) and inflation. As a result, the PMI also quickly gained prominence amongst financial and economic analysts being frequently quoted in SA's major financial dailies and weeklies. Actual manufacturing production volume data is produced with a two-month time lag in SA; quarterly GDP data with a 5-month time lag. With the PMI available on the first working day of each month providing the previous month's results, the PMI certainly complies with timeliness requirements.

Chart 4 below reflects the correlation between the PMI and physical volume of production time series produced by Statistics SA; the comparison is between the level of the PMI index and the year-on-year change of the statistical time series. The correlation coefficient over the complete history of the index is 0.59; however, over the period since August 2001, the correlation coefficient is 0.83. An interesting aspect is the fact that the correlation coefficient with the monthly level of the index is much worse (0.29 over the complete period and 0.68 over the period since August 2001). This suggests that purchasing managers tend to make comparisons with conditions a year ago instead of that of a month ago as posed in the survey questionnaire. This corroborates with evidence noted by the OECD, that respondents often do not compare with the reference periods supplied in the questionnaire (OECD Handbook, 2003: 60).

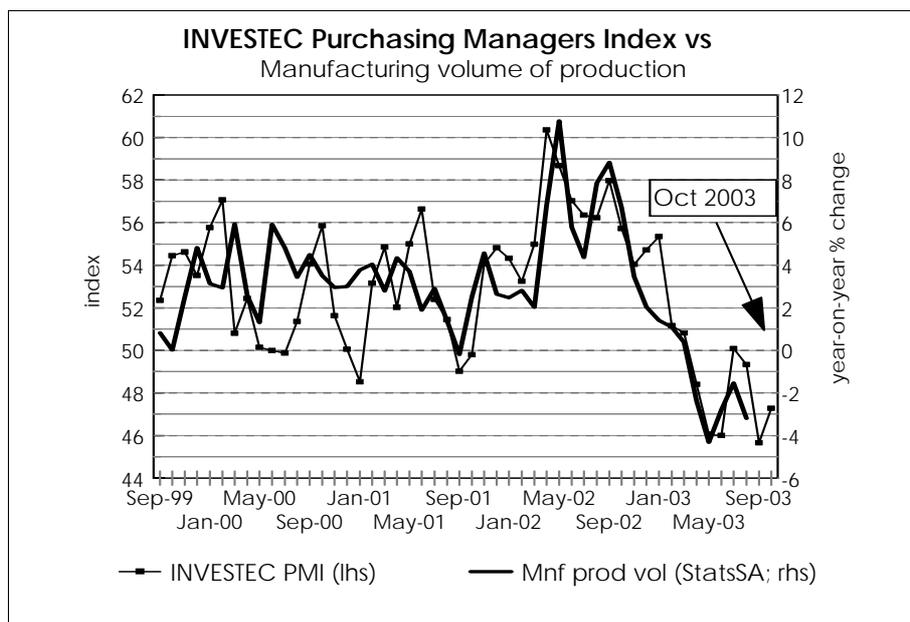


CHART 4

During the first part of the PMI's history (up to September 2001), the index oscillated above a level of 50 during the upward phase of the domestic business cycle. Following the sharp depreciation of the rand exchange rate during the final quarter of 2001, manufacturing production was stimulated strongly by increased export sales and orders, as well as increased domestic sales and orders as importers switched to local suppliers. This stimulus came to an abrupt end a year later when the rand appreciated strongly and local manufacturers also faced weak external demand conditions; in addition, manufacturers lost orders to import competitors favoured by the strong rand. The PMI consistently signaled both the beginning and end of this mini-cycle. As far as the timing of the index is concerned, the relationship with manufacturing production volumes appears to be a coinciding one rather than a leading one. The leading property of the index is embodied in the timeliness of the index, being available 2 to 5 months in advance of the corresponding manufacturing production and real value-added data.

The PMI also correlates closely with the manufacturing real value-added time series – chart 5 below compares the quarter-on-quarter changes in real manufacturing value-added with the level of the PMI.

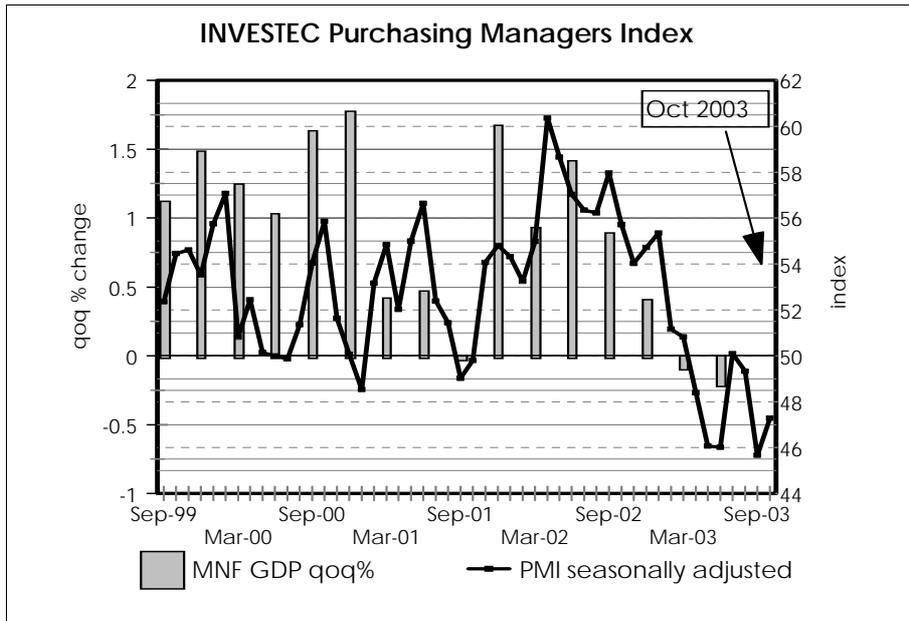


CHART 5

Quarters of weaker growth (2001Q3; 2003Q3) coincided with PMI values below 50; likewise, quarters of stronger growth (2000Q1, Q3; 2002Q4, 2003Q1) coincided with high values for the PMI. However, the leading properties of the PMI become apparent when the correlation is drawn with the SA Reserve Bank’s composite leading indicator – see *chart 6*; in *chart 7*, the comparison is with the year-on-year change of the Reserve Bank’s composite coincident indicator. As year-on-year calculations lead the level changes, both charts attest to the leading properties of the PMI when the national economic conditions (as opposed to that in the manufacturing sector) are considered.

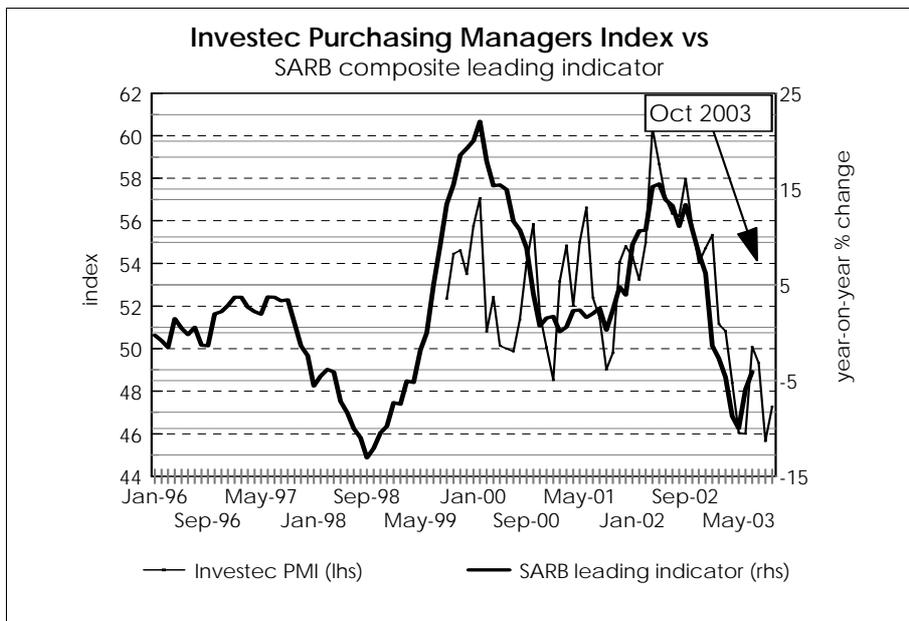


CHART 6

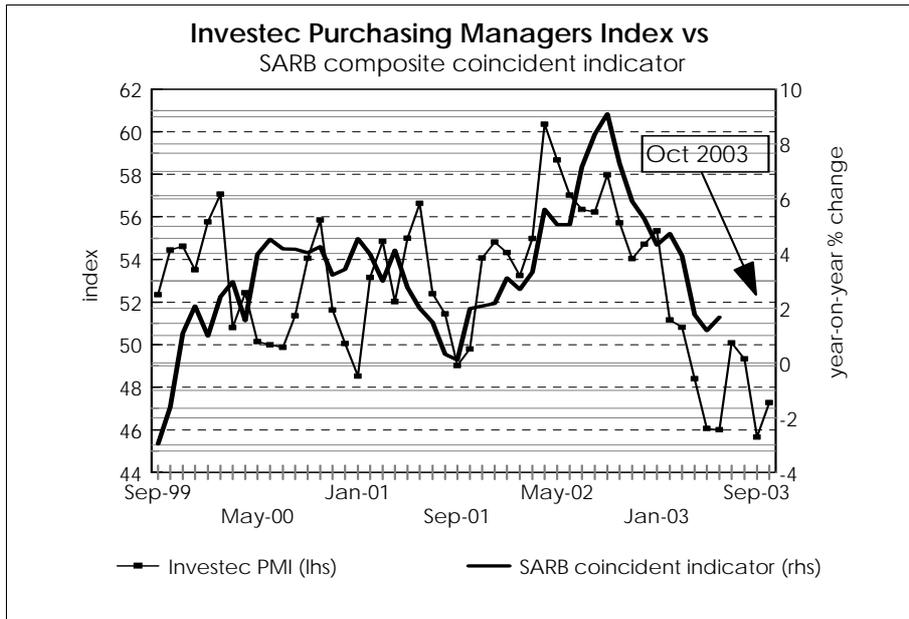


CHART 7

The correlation coefficients in respect of the composite business cycle indicators are not great (0.54 in the case of the year-on-year changes of the leading indicator and 0.38 in the case of the coincident indicator); however, improves for the period since September 2001 when the economy appears to have experienced a mini-cycle. The PMI behaves somewhat erratic over the period September 1999 to September 2001, which should be noted as a negative for the index. However, the general correlations with comparable economic data appear satisfactory, particularly over the period August 2001 to the present. The PMI is still in the process of establishing its reputation, however, the initial evidence is encouraging; the index certainly exhibits great potential. The chart below also reveals the close correlation between the price component of the PMI survey and actual PPI inflation in SA.

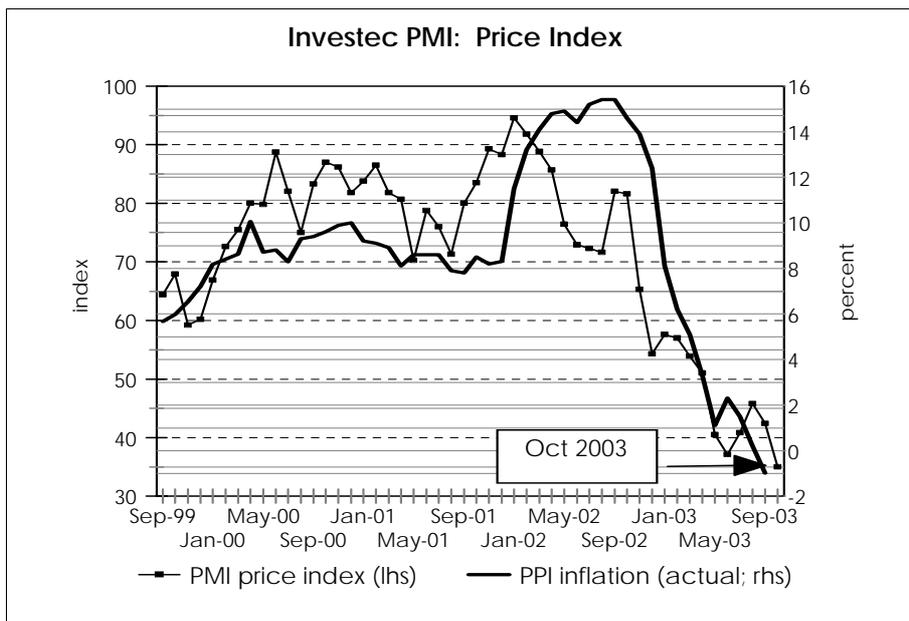


CHART 8

CONCLUDING REMARKS

The BER has two survey-based economic indicators that have performed very satisfactorily over the years. The RMB/BER BCI is a quarterly composite index first published in 1975 and captures/quantifies the prevailing general “business mood” on the basis of a single question to business executives in the retail, wholesale, motor trade, manufacturing and construction sectors of SA. The Investec/BER PMI is a monthly composite index designed to indicate the pace of business conditions in the SA manufacturing sector. The PMI is compiled from five component questions to purchasing managers in the SA manufacturing sector, using a similar methodology applied by most OECD countries. This note sought to explore the usefulness of both these indicators.

The RMB/BER BCI is a useful business cycle indicator with a well-established and reliable track record. Given its broad reach, it seems to be a valid indicator of directional changes in the general economic conditions in SA. Whilst respondents to the business confidence question in the BER’s surveys appear to be consistently over-pessimistic, this does not detract from the indicator’s usefulness. The BCI has clear leading properties, with the lead-time longer at the peak of the business cycle (11 months) than at the trough of the business cycle (6 months); the BCI also correlates well with the SA Reserve Bank’s composite leading indicator. The BCI results are stable and consistent, are final and available towards the end of the survey quarter, well in advance of the GDP data; combined with its leading capabilities this makes the BCI a very timely indicator, being a great tool in the BER’s forecasting department.

The Investec/BER PMI exhibits encouraging potential. Whilst a track record of reliability still has to be established, the initial evidence clearly points to a highly valid indicator, both in tracking manufacturing business conditions and broader economic conditions. Its relationship with manufacturing data appears to be coincident, however, in relation to broader economic conditions the index reveals leading properties (e.g. borne out by a close correlation with the SA Reserve Bank’s composite leading indicator). The greatest advantage of the index – as so many other countries have demonstrated – appears to be its timeliness, being available well in advance (2 to 5 months) of comparable hard economic indicators. On the negative side, the index exhibited a degree of randomness during the first two years of its history and its future performance needs to be checked for this factor. Revision should not present any problems as only minor revisions were made at the time of the annual revision of the seasonal factors in September 2003. In all, over its short life span, the PMI has acquired a prominent place in SA’s range of economic indicators.

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