

FINANCIAL STABILITY REVIEW

September 2005

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Overview

The Australian financial system remains in good shape. The banking sector, in particular, is continuing to perform strongly, supported by the ongoing expansion of the Australian economy. Banks remain well capitalised, are experiencing historically low levels of bad debts and, despite a pick-up in competition, are continuing to record high rates of return on equity.

As noted in previous *Reviews*, this strong performance of the Australian banking sector over the past decade owes much to a business strategy focused on lending to households. Since 1996, bank lending to households has grown at an average rate of 13 per cent per year, and housing loans now account for more than half of banks' loans. As has been well documented, the rapid expansion of household credit – reflecting lower and more stable interest rates as well as financial innovation – has been associated with significant increases in house prices, with prices more than doubling between 1996 and the end of 2003.

Over the past year and a half, however, there has been a significant change in housing markets and household borrowing. In particular, house prices at the national level have stabilised over this period after they increased by almost 20 per cent in 2003. In addition, growth in household credit has slowed, as turnover in the housing market has declined and households have taken a more cautious approach to their finances. To date, these adjustments have occurred smoothly, without damaging either the economy or the financial system. From the standpoint of financial stability they are a welcome development, since they reduce the chance of a potentially costly correction at some point in the future. While the changed dynamics of the housing market are acting as a mild restraining influence on consumption growth, an important offsetting influence for the economy as a whole is the stimulus to incomes from the significant increase in the terms of trade.

At the international level, the global financial system is benefiting from above-average growth in the world economy. The past year has been characterised by relatively strong profits in many banking systems and stable financial markets, with earlier fears about a sudden reassessment of risk leading to excessive volatility not, thus far, being realised. Overall, financial markets remain generally sanguine about future prospects.

Despite these favourable outcomes, risks, as always, remain. These can usefully be characterised into three broad groups.

The first are those relating to the international environment. A striking characteristic of the global economy over recent years has been the simultaneous occurrence of low and stable goods and services price inflation, and significant upward pressure on many asset prices. One example of this pressure is that long-term bond yields in many countries are at very low levels, notwithstanding the favourable growth outcomes and the progressive increase in policy rates in the United States. Low interest rates and low volatility have encouraged many investors to seek out alternative assets and increase leverage in an effort to maintain returns – a sequence of events which, amongst other things, has led to a significant compression in credit risk premia in

many markets. Residential property prices have also risen steeply in a number of countries, most recently in the United States. As has been the case in Australia, this increase in prices has been associated with a pick-up in household indebtedness.

From a financial stability perspective, the concern is that the combination of elevated asset prices and increased levels of debt in many markets could be sowing the seeds for future problems. As with the Australian house price and household borrowing booms, the longer leverage builds up at historically high prices, the greater is the potential for costly adjustments at some point later on. As such, the earlier any corrections take place, the less likely it is that the outcomes will be detrimental to the stability of the global economy and financial markets.

A possible catalyst for these adjustments could be a sudden reassessment of risk in global financial markets. This could occur for a number of reasons including a sudden shift in international capital flows, a further increase in oil prices, the default of a significant borrower, or an unexpected pick-up in inflation. Such a reassessment of risk could turn out to be relatively benign, although given that leverage in markets has built up significantly and many assets appear fully priced, the pre-conditions are in place for quite abrupt swings in sentiment and a disruptive snap-back in pricing.

The second group of risks are domestic and are rooted in the expansion of household balance sheets that went hand-in-hand with the run-up in Australian house prices. While the adjustment to date has proceeded smoothly, the household sector remains vulnerable to a deterioration in the economic climate, and there remains a possibility that the adjustment could turn out to be much larger than currently anticipated. The probability of this occurring, however, has declined somewhat over the past year.

Finally, the Australian banking system has entered a period of intensified competition. Competition for household savings is increasing in response to a number of banks offering high interest rates on online savings accounts. And as the housing market has softened and the growth in household credit has slowed, there is also evidence that competition in lending markets has increased as banks seek to bolster, or simply maintain, market shares. While this increase in competition is to be welcomed – so long as the underlying risk is appropriately priced – it will bear careful monitoring in the period ahead, given that historical experience may not be a good guide to future developments.

1. The Macroeconomic and Financial Environment

1.1 The International Environment

Over the past year, financial systems around the world have enjoyed favourable operating conditions. In most countries, financial institutions' profits have been high, and earlier fears of costly adjustments in financial markets have not been realised.

These favourable outcomes partly reflect the continued strength of the world economy. In 2005, growth in world GDP is forecast to be around 4¼ per cent, well above the average of the past 30 years, although somewhat slower than the very strong growth in 2004 (Table 1). The Chinese economy continues to expand rapidly, and domestic demand in the United States has been growing solidly. In Japan, recent indicators of economic activity have also been encouraging. In contrast, in Europe there continue to be few signs of a sustained recovery.

One of the important factors underpinning these generally good growth outcomes has been the historically low level of policy interest rates in many countries. Interest rates in the United States, Japan and the euro area have all been well below average in recent years, with policy rates in all three areas being at their lowest levels in 40 years in early 2004 (Graph 1). While the Federal Reserve has recently unwound some of the monetary stimulus in the United States, increasing interest rates by a cumulative 2.75 percentage points since mid 2004, interest rates there are still at relatively low levels. In Japan and the euro area, policy interest rates remain at historic lows, and elsewhere around the world there are few countries in which interest rates are above long-term averages.

Table 1: World GDP Growth
Year-average, per cent^(a)

	2004	2005	2006
		Consensus forecasts (September 2005)	
United States	4.2	3.5	3.3
Euro area	2.1	1.3	1.7
Japan	2.7	2.0	1.8
China	9.5	9.1	8.1
Other east Asia ^(b)	5.8	4.3	4.8
Australia's trading partners ^(c)	4.9	3.9	3.8
World	5.1	4.3	4.3

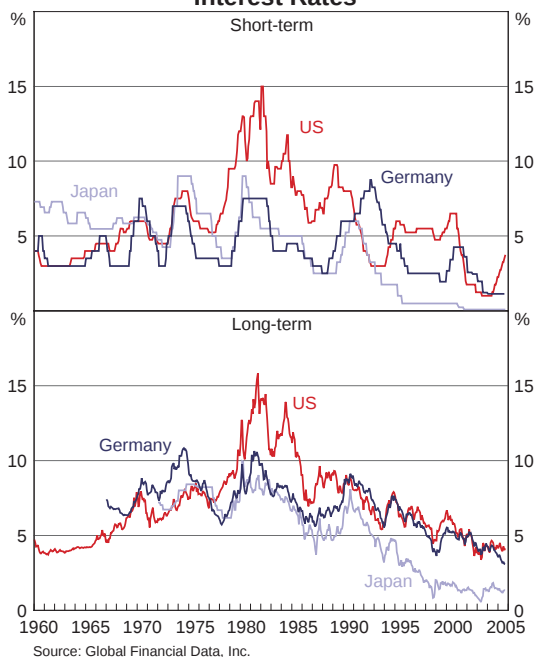
(a) Aggregates weighted by GDP at PPP exchange rates unless otherwise specified

(b) Weighted using market exchange rates

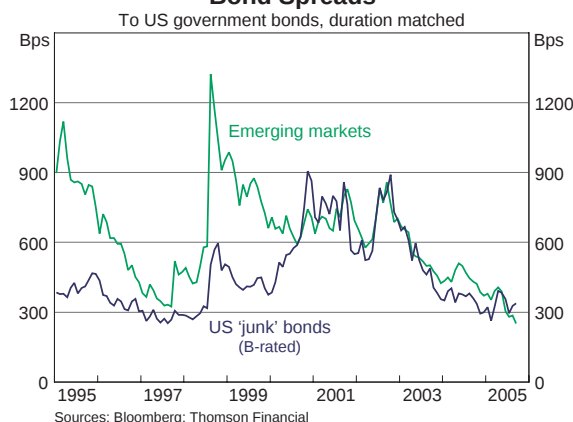
(c) Weighted using merchandise export shares

Sources: CEIC; Consensus Economics; IMF; RBA; Thomson Financial

Graph 1
Interest Rates



Graph 2
Bond Spreads



This combination of generally low interest rates and good economic growth has, to date, not been associated with a generalised pick-up in inflation. Indeed, in a number of countries, inflation outcomes have been lower than anticipated, and expectations are that inflation will remain in check, despite significant increases in commodity prices, particularly oil prices.

In contrast to low goods and services price inflation, recent years have seen significant upward pressure on asset prices around the world. This is evident not just in commodity markets, but also in government bond markets, where price increases have seen long-term bond yields fall to historically low levels. In the United States, 10-year bond yields are currently lower than they were in June 2004 when the Federal Reserve initiated the current tightening cycle, in contrast to the experience in previous tightening cycles in which long-term bond yields increased, at least initially. The downward pressure on bond yields is also evident in the corporate and emerging bond markets, where spreads are currently around their lowest levels for some years (Graph 2).

Upward pressure on asset prices has also been evident in many

residential property markets, although the timing and magnitude of price increases has varied from country to country. The United States has recently had this experience, with house prices in a number of states recording substantial gains over the past year or so (Graph 3). For example, house prices in California, Florida and Nevada all increased by more than 20 per cent over the year to June 2005. Many stock markets have also recorded significant gains over the past couple of years (Graph 4). The global MSCI share price index, for example, is 62 per cent higher than its 2003 trough. Share markets in the traditionally more risky emerging countries have recorded

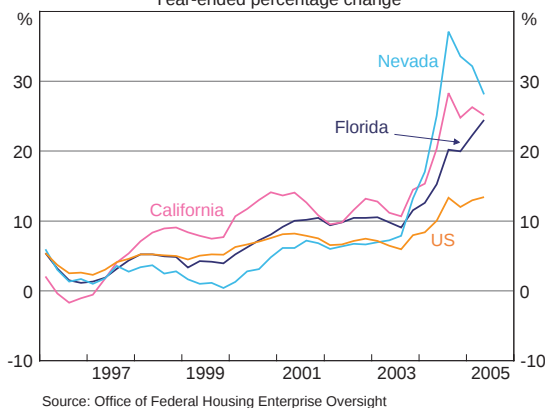
larger gains, with the MSCI Emerging Markets index rising by 21 per cent over 2005 to be more than double the level at its 2003 trough.

These strongly performing asset markets have recently coincided with a further reduction in investors' perceptions about future volatility. In the United States, the implied volatility of 1-year swap rates (calculated from options prices) has fallen to its lowest level since 1998, suggesting that market participants view it as unlikely that there will be significant monetary policy surprises in the period ahead (Graph 5). Similarly, the implied volatility of 10-year yields and the main stock market indices are also at very low levels.

This combination of increases in asset prices and relatively low volatility has contributed to a willingness of investors to increase their indebtedness, and to purchase assets at historically high prices, including those assets traditionally viewed as quite risky. One example of this general phenomenon is that bond issuance in domestic currency by emerging market sovereigns more than doubled in 2004, and has picked up further in 2005. There has also been substantial growth in hedge fund activity, with some funds moving into a broader range of markets and investments, partly in response to the difficulty of generating high returns in a low-volatility environment (Graph 6).

The general trend to greater leverage is also evident in the household sectors in a range of

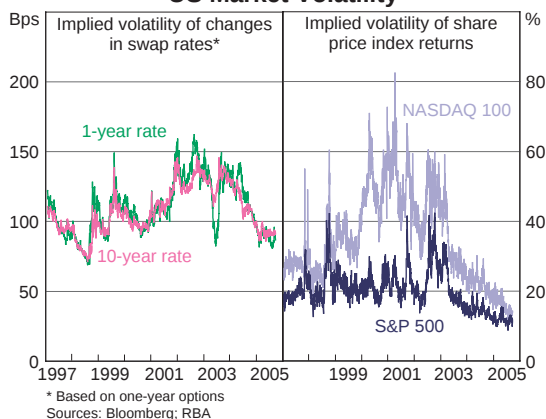
Graph 3
United States – House Prices
Year-ended percentage change



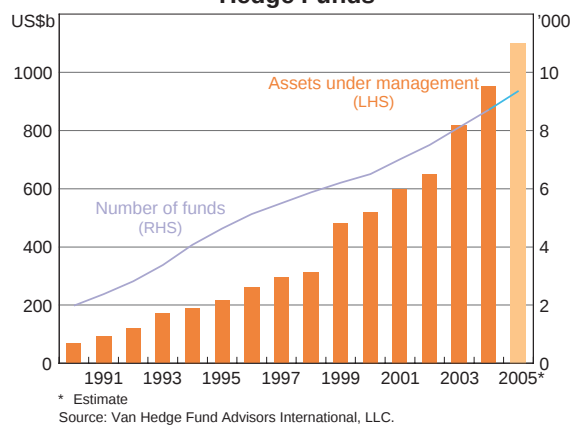
Graph 4
Share Markets
1 January 1995 = 100



Graph 5
US Market Volatility

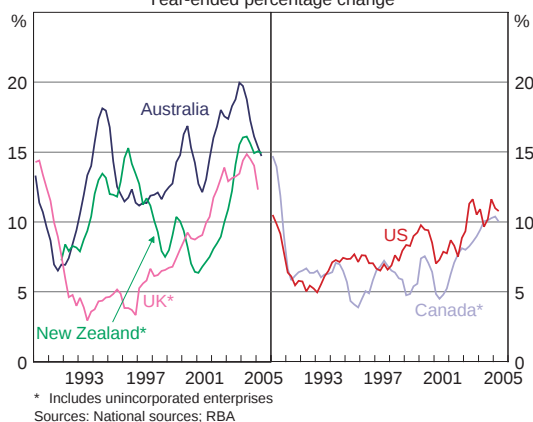


Graph 6
Hedge Funds



Graph 7

Household Debt
Year-ended percentage change



countries, with households increasing their borrowings mainly for the purpose of housing. In turn, this has reinforced house price appreciation over recent years and supported strong consumption growth. These trends have been most evident in the predominantly English-speaking countries, reflecting their more liberalised financial systems and their better growth outcomes. In North America, household debt is currently growing at around the fastest rate for more than a decade, and while growth rates in household debt have recently eased in Australia, New Zealand and the United Kingdom, they remain higher than in many other parts of the world (Graph 7).

Recent developments in the United States show some parallels with those seen earlier in Australia and the United Kingdom. There has been increased interest in investment properties and some lowering of lending standards as intermediaries compete for business. At the same time, households have increasingly taken advantage of higher property

prices to access unrealised capital gains. While loan refinancing to benefit from lower interest rates has been a common practice in the United States for many years, in recent years there has been a pick-up in the number of households taking out larger loans when refinancing in order to extract equity from their homes. In 2003 and 2004, the amount of equity withdrawn through these so-called 'cash out' refinancings was the equivalent of over 1½ per cent of annual household disposable income, up considerably from the experience in the 1990s (Graph 8).

From a financial stability perspective, the concern is that the increase in prices and leverage across a range of asset markets might be sowing the seeds for future problems. In many markets, there seems to be considerably more scope for asset prices to fall than to increase. From this perspective, as is usual when financial imbalances emerge, the earlier any adjustments occur, the less likely they are to be damaging to the economy.

Predicting the timing and cause of any adjustment is intrinsically difficult. It is plausible (although probably undesirable) that the current situation will continue for a number of

years yet. One possible trigger is a generalised reassessment of risk in global financial markets. Such a reassessment could occur for a number of reasons, including, for example: a shift in international capital flows; a further increase in oil prices; the default of a significant borrower; or an unexpected rise in inflation. While some of the pre-conditions are in place for quite abrupt swings in sentiment and prices to occur, some reassessment of risk in the immediate period ahead would be likely to reduce the probability of potentially costly adjustments later on.

Financial Institutions

The continuing strength of the global economy has provided positive conditions for financial institutions over the past half year. Bank sector share prices in most major countries are around the highest level for the past few years, with earnings buoyed by lending growth and low levels of non-performing loans (Graph 9).

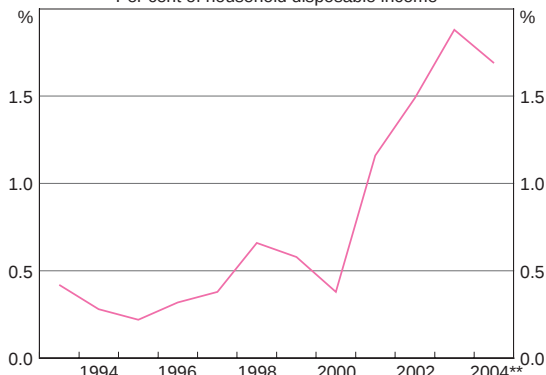
In the United States, strong growth in housing and business loans coupled with increased fees have boosted profits of large banks, though the flatter yield curve has acted as a drag on interest margins. Across the euro area countries, strength in housing lending growth, reduced provisions for bad debts and cost savings have improved bank returns. Large Japanese banks have continued their recovery, reflecting better macroeconomic conditions and falling levels of non-performing loans.

Operating conditions have also been generally favourable in global insurance markets, notwithstanding considerable insured losses arising from Hurricane Katrina in the United States. This hurricane may be the single most expensive natural catastrophe on record – preliminary estimates are for insured losses of US\$40-60 billion – prompting Standard & Poor's and Fitch to downgrade their outlook for some major global insurers and reinsurers affected by the disaster.

Graph 8

US 'Cash Out' Refinancing*

Per cent of household disposable income



* Based on prime, conventional mortgages. Household sector excludes unincorporated enterprises. Disposable income is after tax and before the deduction of interest payments.

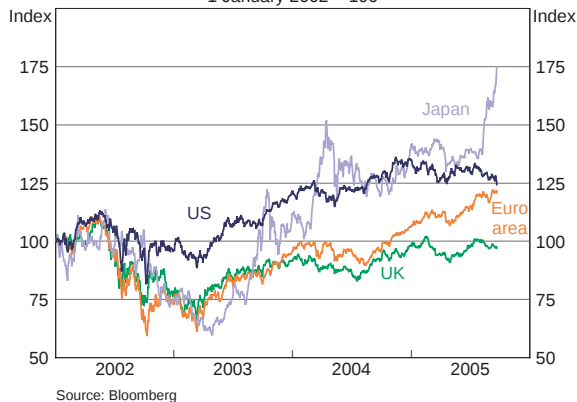
** Estimate

Source: Freddie Mac

Graph 9

Share Price Indices – Banks

1 January 2002 = 100



Source: Bloomberg

Nonetheless, the insurance industry's ability to absorb such claims will be supported by strong underwriting and investment returns over recent years. In the United States, holdings of short-term interest-bearing securities, a significant component of insurers' investment portfolios, have benefited from the rise in short-term interest rates since mid 2004. Profits have also been strong among European insurers, as relatively high premium rates have supported underwriting results and investment returns have benefited from rising share prices. Global life insurers have also experienced relatively benign operating conditions over recent years.

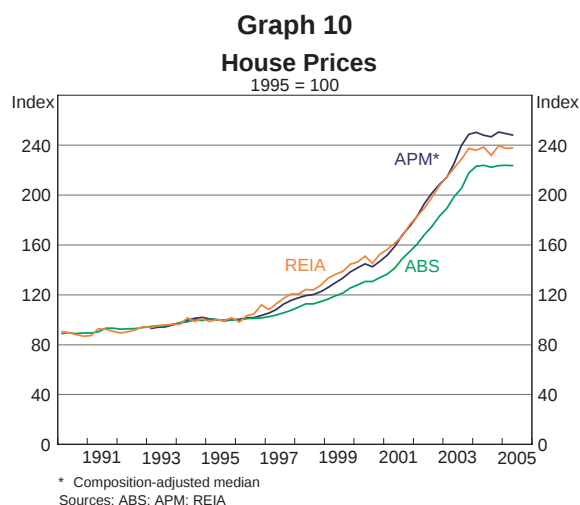
1.2 Australia

As with the international situation, recent developments in Australia have been favourable. The correction in the housing market has, to date, proceeded smoothly, without damaging either the macroeconomy or financial institutions, and has helped alleviate earlier concerns of a potentially more damaging adjustment at some point in the future. There are also welcome signs that households are taking steps to consolidate their finances, after a period of particularly rapid growth in borrowings, much of it to invest in property. While this adjustment is weighing somewhat on consumption growth, the strong global environment and significant increases in Australia's terms of trade flowing from commodity price increases are important offsetting influences on overall activity. The latter developments are contributing to a strong corporate sector, where balance sheets remain in good shape.

Household Sector

Over the past year and a half, there has been a marked change in the Australian housing market. Nationwide, average prices have been broadly flat over this period, following an increase of

almost 20 per cent in 2003, and an average annual increase of 11 per cent over the preceding seven years (Graph 10).



This cooling in conditions is evident in all capital cities, although it is most pronounced in Sydney where house price growth during the boom was higher than elsewhere (Table 2). Averaging across the various available measures, the median price of a house in Sydney declined by around 5 per cent over the year to June 2005, while prices in Melbourne and Brisbane have been

broadly stable. In most other capital cities, prices have risen, albeit at much slower rates than previously.

This adjustment in the housing market comes after the previous boom pushed the ratio of house prices to household disposable income to very high levels, not just by the standards of Australia's past experience, but by international standards as well. With house prices flat recently

Table 2: House Prices

Year-ended percentage change to June 2005

	ABS	APM ^{(a)(b)}	CBA	REIA ^(a)
Sydney	-5.0	-4.8	-6.8	-3.9
Melbourne	-1.4	1.0	-3.0	-2.0
Brisbane	1.8	1.1	1.6	0.6
Adelaide	7.0	4.6	12.0	3.8
Perth	11.7	13.1	7.0	16.5
Canberra	2.5	-0.2	-8.7	-6.0
Australia	-0.1	0.0	-1.4	-0.4

(a) Preliminary

(b) Composition-adjusted median

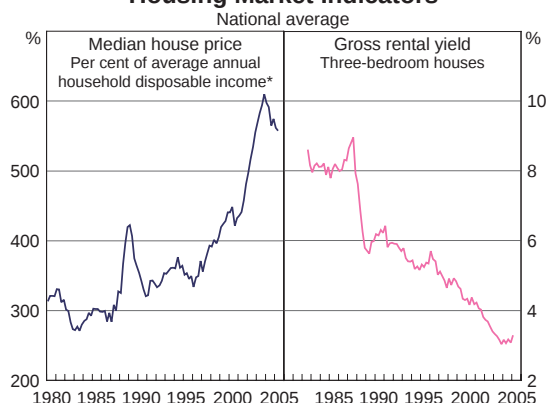
Sources: ABS; APM; CBA; REIA

and household incomes continuing to rise, this ratio has fallen but remains high; Australia-wide, the median house price is around 5½ times average annual household income, with the ratio considerably higher in Sydney (Graph 11). Similarly, stable house prices, combined with modest growth in rents, has seen the gross rental yield on houses increase a little since 2003, although yields remain very low in terms of both historical and international experience.

A particular characteristic of the Australian housing boom was the very strong demand for property

from household investors. At the peak of the boom, housing loan approvals to investors accounted for an unprecedented 45 per cent of total loan approvals (Graph 12). Since then, approvals to investors have fallen more markedly than those to owner-occupiers, with the result that loan approvals to investors currently account for around 36 per cent of total housing loan approvals. In contrast, the share of loan approvals to first-home buyers has increased over the past two years, although it remains below its historical average.

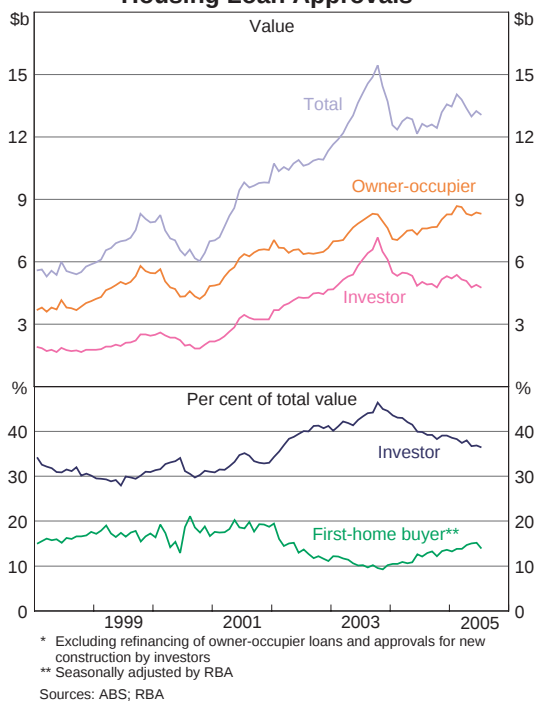
The strong demand by investors during the boom is also evident in data from the Australian Taxation Office. Over the 10 years to the 2002/03 financial year (the latest year for which data are publicly available) the share of individuals reporting rental income increased from 10 per cent to 13 per cent. Many individuals appear to have bought property in the expectation of substantial capital gains, with rental income often below financing and other costs. In 2002/03, 60 per cent of property investors claimed a rental loss (i.e. deductible expenses exceeding rental income), with the average loss experienced by these investors almost \$5 500. Five years earlier, 51 per cent of individuals reported a loss, with the average loss below \$4 000.

Graph 11**Housing Market Indicators**

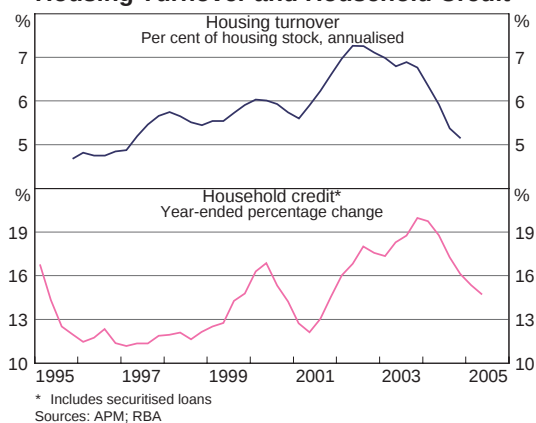
* Household sector excludes unincorporated enterprises. Disposable income is after tax and before the deduction of interest payments.

Sources: ABS; REIA

Graph 12
Housing Loan Approvals*



Graph 13
Housing Turnover and Household Credit



The turnaround in the housing market has been associated with a slowdown in the pace of household credit growth, although recent revisions to the credit data suggest that the slowdown is less marked than previously thought. Over the six months to July 2005, household credit increased at an annualised rate of 13 per cent, down from a peak growth rate of around 20 per cent in the second half of 2003. As noted above, the slowdown has been more pronounced in borrowing by housing investors, which is currently growing at an annual rate of around 12 per cent, down from over 30 per cent at its peak.

The overall slowdown in household credit growth is linked to the change in price trends and the substantial fall in turnover in the housing market. In 2002 and 2003, around 7 per cent of the housing stock changed hands, considerably above the average turnover rate of preceding years (Graph 13). By itself, an increase in turnover tends to increase credit growth, as sellers typically have less debt remaining on properties being sold than the debt taken on by purchasers (unless the purchaser is downsizing). This is even more so during a period in which prices increased significantly.

While household credit growth has slowed, it continues to outstrip growth in household disposable income by a reasonable margin. As a result, the ratio of household debt to disposable income has risen further to 150 per cent as at June 2005 (Graph 14). The increase in housing debt in recent years largely reflects an increase in average loan size, though it is also partly explained by an increase in the number of households with owner-occupier housing debt (see Box A).

Both as a result of higher debt levels, and the increase in mortgage rates earlier this year, the ratio of aggregate household interest payments to disposable income has increased further

to 9.8 per cent, the highest level on record. The total repayment burden, allowing for principal repayments, is higher again relative to past experience, given the increase in average loan size. In addition to aggregate measures of indebtedness and the debt-servicing burden, the distribution of debt across households is important in assessing the sensitivity of the household sector to changes in economic and financial conditions. Available data show that the bulk of housing debt is owed by upper-income households, who tend to have lower debt-servicing burdens and relatively higher assets

than lower-income households.¹ Among borrowers with housing debt, those with the highest debt-servicing burdens, or the smallest buffers on which to fall back in adverse circumstances, are often those that have taken out loans only recently as well as lower-income households and investors.

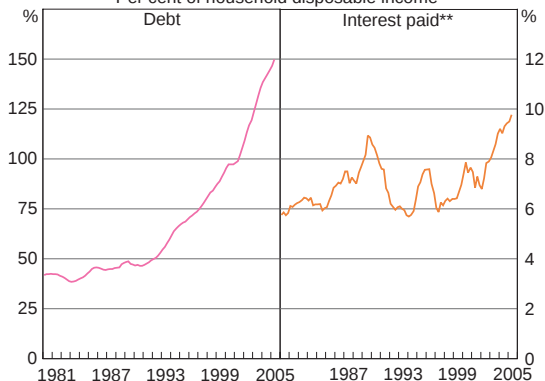
In contrast to the general slowdown in household credit growth, refinancing activity by owner-occupiers has increased substantially over 2005, after falling for a period from late 2003 (Graph 15). In part, this pick-up reflects the strong competition in housing finance markets, which has seen many borrowers seek a change in loan terms and conditions. In addition, some households have also refinanced to tap the existing equity in their home.

The slowdown in household credit growth largely reflects an easing in housing-related credit growth, rather than a slowdown in the pace of personal borrowing. Over the past 12 months, personal credit – which, in total, represents around 15 per cent of household debt – has increased by 14 per cent, down slightly from the recent peak of 16 per cent in early 2004. Within personal credit, outstanding debt on credit cards has increased by around 13 per cent over the past year, much the same rate as in the previous three years, and well down on growth rates in

Graph 14

Household Indebtedness

Per cent of household disposable income*



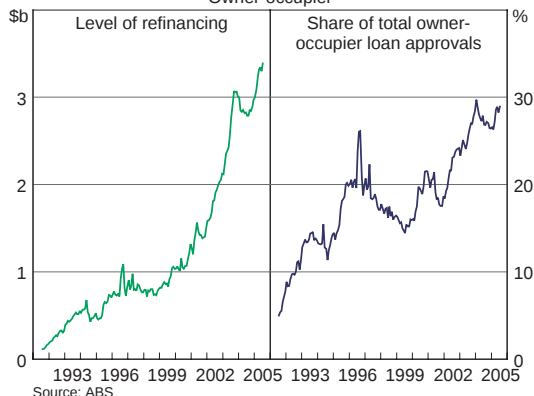
* Household sector excludes unincorporated enterprises. Disposable income is after tax and before the deduction of interest payments.

** Includes the imputed financial intermediation service charge.
Sources: ABS; RBA

Graph 15

Mortgage Refinancing

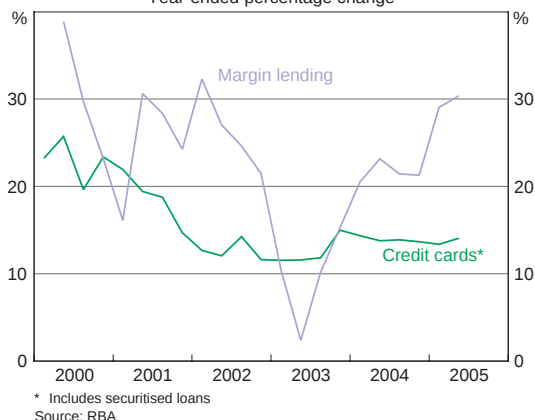
Owner-occupier



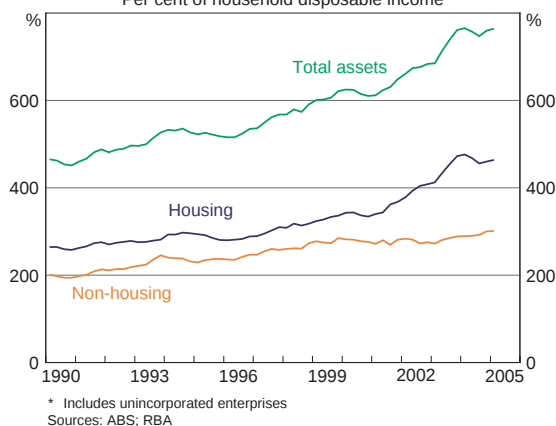
Source: ABS

¹ See Reserve Bank of Australia (2005), 'Box A: A Disaggregated Analysis of Household Financial Exposures', Financial Stability Review, March.

Graph 16
Personal Lending
Year-ended percentage change



Graph 17
Household Assets*
Per cent of household disposable income



the late 1990s (Graph 16). Growth in other components of personal credit, including 'personal' borrowing using a line of credit secured against housing, has tended to slow. An exception to this is margin lending (used to purchase equities and invest in managed funds) which has increased by around twice the pace of overall personal credit growth over the past year. Despite this strong growth, the average number of margin calls per day has declined, reflecting the buoyant stock market. As at June 2005, total outstanding margin loans equalled \$18 billion, compared with total credit card debt of \$28 billion, and total housing-related debt of \$676 billion.

With nationwide house prices broadly flat, the ratio of the household sector's assets to annual income has generally stabilised over the past year or so, after increasing steadily from the early 1990s; as at March 2005, total assets were equivalent to around 7.6 times household disposable income (Graph 17). Over the year to March 2005, the household sector's holdings of

equities and superannuation fund assets increased by 16 per cent and 18½ per cent, respectively, largely reflecting the strong equity market over this period. Combined, these two asset types account for 22 per cent of the household sector's total assets, while housing assets account for 61 per cent of total assets.

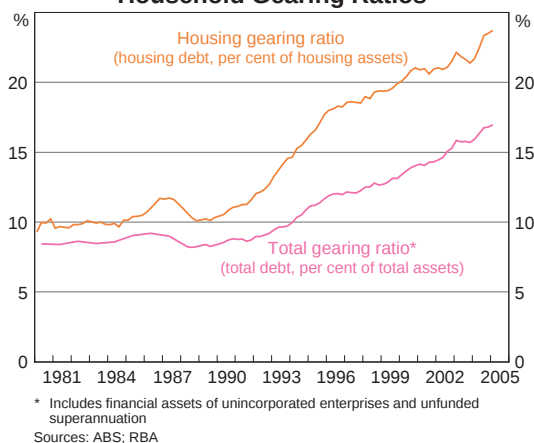
The combined effect of higher levels of debt and slower growth in the value of assets has seen the household sector's gearing ratio increase further over the past year. At end March 2005, the ratio of household debt to the total value of household assets stood at 17 per cent, up from 16 per cent a year earlier (Graph 18). The increase in the ratio of housing-related debt to the value of housing assets has been somewhat larger over the past year, reflecting the fact that the value of housing assets has grown considerably more slowly than the value of financial assets owned by the household sector.

While measures of household indebtedness, debt servicing and leverage have all increased recently there are few signs that the household sector is having difficulty meeting its financial

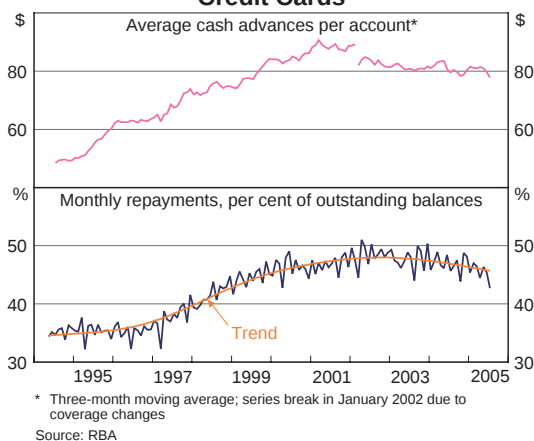
obligations. According to survey measures, consumer sentiment was around its long-term average in September 2005, notwithstanding falls over the year from historically high levels. The level of housing loans in arrears remains very low, although the ratio of arrears to total housing loans has increased a little over the past year (see *Financial Intermediaries* chapter). Similarly, credit card arrears remain at a low level, although these have also marginally increased recently. There has been no increase in the average size of cash advances per credit card account (an expensive way of obtaining funds), with the total value of advances in the June quarter around 5 per cent higher than a year earlier, though the series is volatile. Similarly, the ratio of monthly credit card repayments to outstanding balances has not changed materially over the past year, although it is down a little from its peak in 2002 (Graph 19).

To a significant extent, these favourable outcomes are attributable to the continued strength of the Australian labour market and the corresponding growth in household incomes. The unemployment rate is currently at 5 per cent, the lowest level since the mid 1970s, and over the six months to August 2005, employment has increased at an annualised pace of 3.6 per cent (Graph 20). Over the first half of 2005, real household disposable income increased at an annualised rate of 3.6 per cent, and

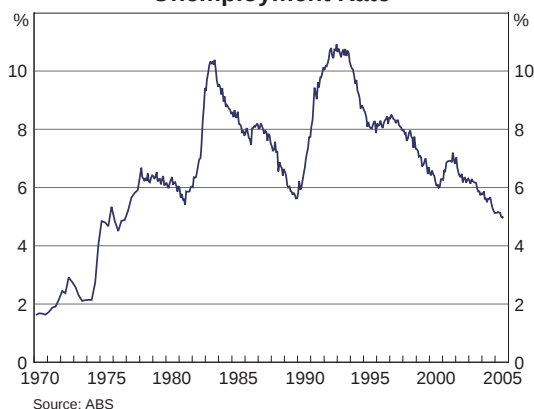
Graph 18
Household Gearing Ratios



Graph 19
Credit Cards



Graph 20
Unemployment Rate



more recently, growth has been further supported by the round of income tax cuts that took effect from July.

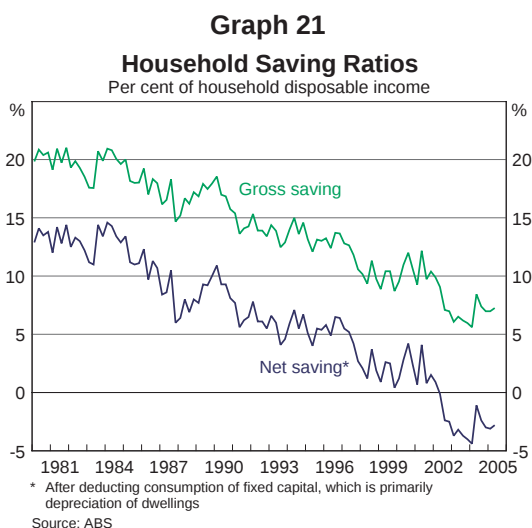
Assessment of vulnerabilities

The softer housing market and the slowdown in the pace of growth of household credit are welcome developments from a financial stability perspective. Had the trends evident in earlier years continued over the past year and a half, the risk of a disruptive adjustment at some point in the future would have increased significantly. The concern was not that such an adjustment would directly imperil the health of the financial system. But it could have ushered in a period of unusually weak consumption growth and thus weak economic growth which would make for more difficult operating conditions for financial intermediaries.

To date, the adjustment has proceeded smoothly. Household spending growth has slowed from the unsustainable pace of earlier years as households have taken a more cautious approach to their finances. Consumption, nonetheless, continues to grow at a solid rate; over the year to the June quarter, it increased by 3 per cent, compared with peak annual

growth of more than 6 per cent over the year to the March quarter 2004. Recent growth has been broadly in line with growth in household incomes, so that the saving rate has stabilised after a long period of decline (Graph 21).

There has also been a significant slowdown in the growth of renovation spending. Over the year to the June quarter, total spending on alterations and additions (in real terms) was broadly unchanged, after growing at an average annual rate of



11 per cent over the previous three years. Despite the slowing, spending on renovations as a share of GDP remains at a historically high level.

Taken together, spending on renovations and investment in new housing over the past year has been exceeded by the increase in housing-related credit, suggesting that the household sector has continued to withdraw equity from the housing stock (Graph 22). The amount withdrawn over the past year is, however, significantly down on that withdrawn over the year to June 2004. This decline is to some extent the result of lower turnover in the property market, although it also reflects the more cautious approach by households to their finances.

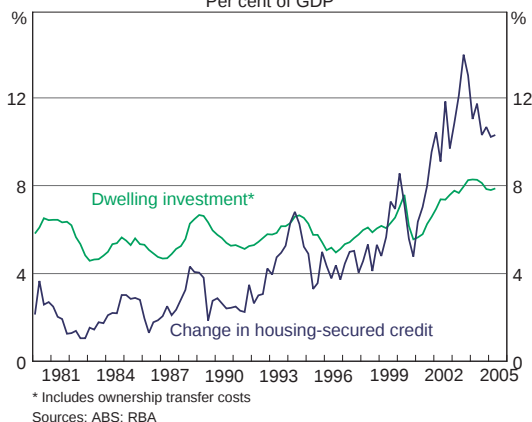
Looking forward, risks remain in both directions.

On the one hand, there is a risk that the property market will reignite and household credit growth will again accelerate. This risk, however, looks to have receded further over the course of the year. Investor interest in housing has declined significantly, and fewer people report that

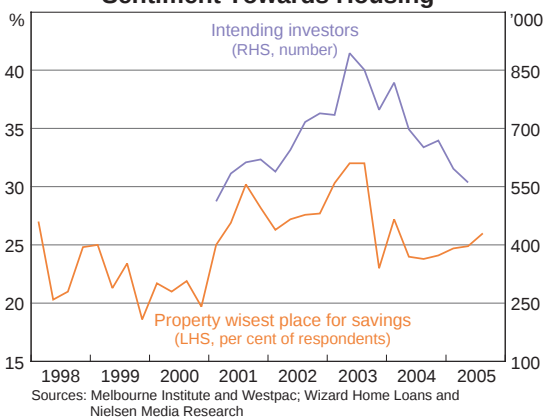
housing is the wisest place for their savings than was the case at the peak of the boom (Graph 23). In addition, the recent price falls in some locations are likely to have dispelled the notion held by some households that residential property prices never fall. High levels of indebtedness and debt servicing, and the current high level of house prices relative to income, also suggest that the boom is unlikely to reignite.

On the other hand, the adjustment in household balance sheets and the housing market could turn out to be more disruptive than seen to date, although again the risk of this occurring seems to have declined a little over the past six months. The economy is currently benefiting from strong increases in the terms of trade and above-average growth in the world economy, and employment has been growing strongly (Graph 24). There are few signs of financial stress in the household sector and measures of consumer sentiment are around their long-run average levels. In the property market, auction clearance rates have increased from their trough, although they remain below historical averages, and the average time to sell a property has stabilised over the first half of this year, after increasing over the second half of 2004. Notwithstanding this assessment, the high levels of household debt make the household sector vulnerable to a change in the generally favourable economic and financial climate. Given this,

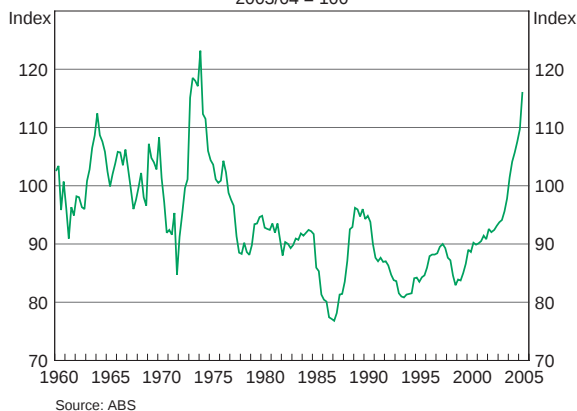
Graph 22
Housing Equity Withdrawal
Per cent of GDP



Graph 23
Sentiment Towards Housing



Graph 24
Terms of Trade
2003/04 = 100

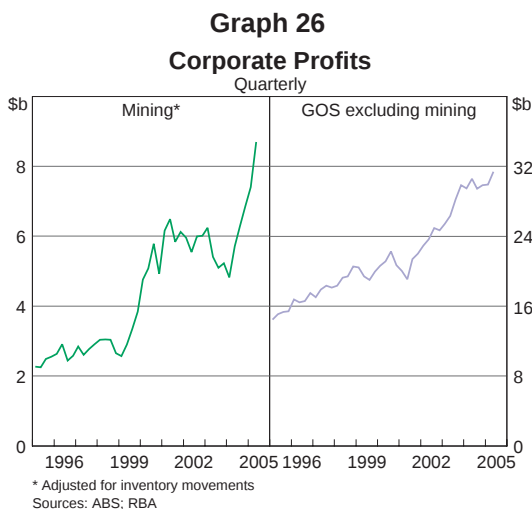
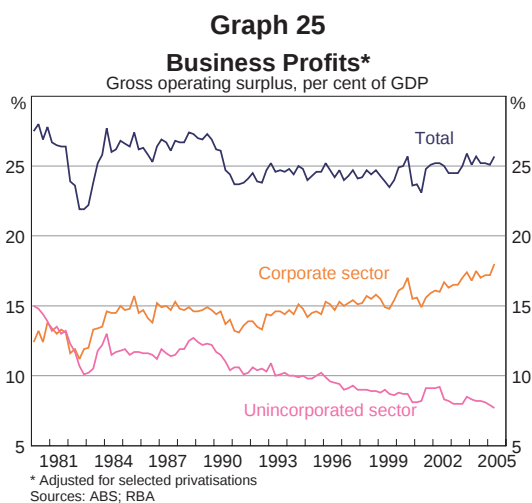


developments in household sector finances and the housing market will bear close watching in the period ahead.

Business Sector

Conditions in the business sector remain highly favourable. Trading conditions and profitability are strong, especially in a number of export-related industries, and though indebtedness has recently increased, the sector's overall debt-servicing ratio remains low by historical standards.

Corporate sector profits, as measured by private non-financial corporate sector gross operating surplus (GOS), grew by almost 10½ per cent over the year to June 2005, and as a share of GDP, are at their highest level on record (Graph 25). This reflects both the recent strength in profits,



and the longer-run trend towards incorporation by unincorporated businesses. In contrast, profitability of the unincorporated sector rose only slightly over the year to June, partly as a result of the effect of the drought on farm production. Overall business sector profits, as measured by total private non-financial GOS, rose by 7½ per cent over the year.

The recent increase in corporate profitability is largely accounted for by the strong growth in profits in the mining sector; over the year to June, profits in this sector were up by 52 per cent, reflecting the strength in the global economy and favourable terms of trade (Graph 26). In contrast, after strong growth in preceding years, profits in domestically focused sectors have stabilised recently in line with the general slowing in domestic demand. In a number of industries there have also been pressures on costs, particularly for skilled labour and raw materials.

The generally buoyant business conditions are reflected in ongoing share price gains, with the resources

and mining sector showing particular strength; the ASX Resources market index has risen by 35 per cent over 2005, compared with a 12 per cent rise in the overall share market index. In contrast, the consumer discretionary index has underperformed the market, falling by 5 per cent so far this year, reflecting the slower pace of consumer spending. The bulk of ASX 200

companies that report on a June/December basis have done so for the six months to June 2005, and net profits for those companies are 26 per cent higher than the previous corresponding half. Earnings have typically equalled or surpassed analyst expectations.

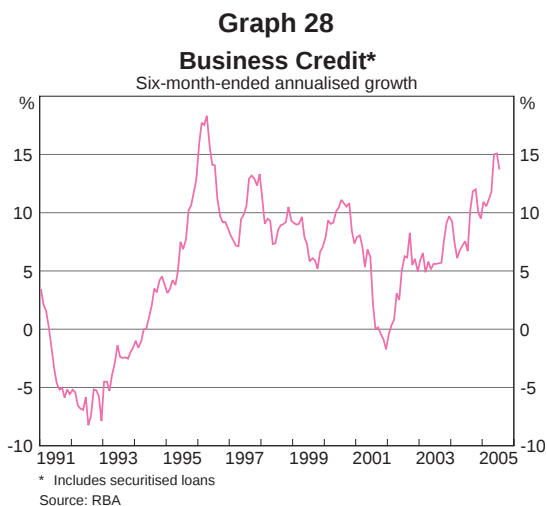
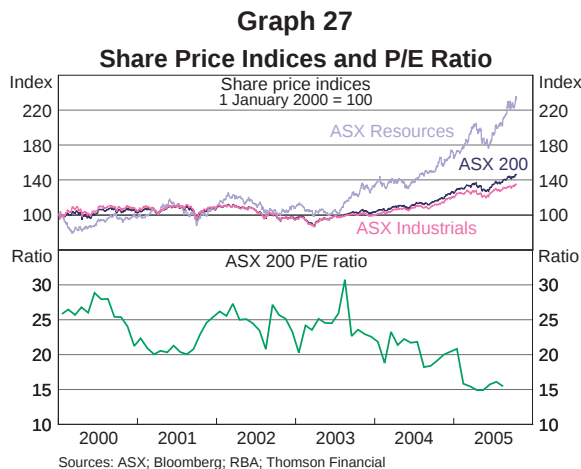
Overall, the ASX 200 price/earnings (P/E) ratio has declined over the past couple of years, as growth in reported profits has outstripped price gains (Graph 27). The ratio is currently around 30 per cent lower than its average level since 1995. As with many global markets, volatility has also declined recently and measures of expected volatility derived from options prices are at historically low levels.

Despite the ready availability of internal funds resulting from generally strong profit results, the demand for external finance by the business sector has increased over the past year. This is consistent with very strong growth in business investment, which was up by 16 per cent over the year to June 2005, and is reflected in a pick-up in business credit, which has grown

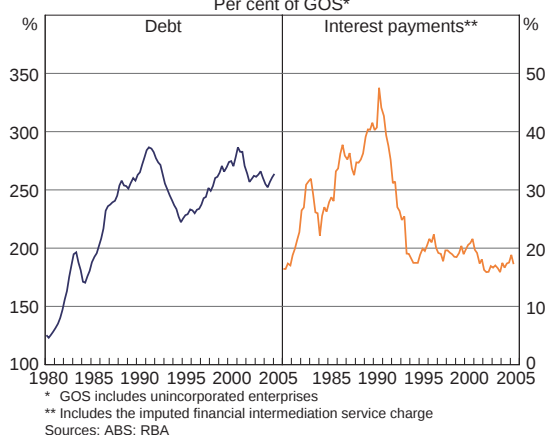
at an annualised rate of around 14 per cent over the six months to July, after average growth of around 6½ per cent over the previous five years (Graph 28). Partly in response to the slowing in housing credit growth, competition among banks for business loans has increased recently, with interest-rate margins falling further and a variety of new products being introduced.

The corporate sector is comfortably placed to service the higher levels of debt. Growth in profits means that the ratios of business debt and interest payments to business profits have been broadly unchanged over the past year, with the ratio of interest payments to profits at a particularly low level (Graph 29).

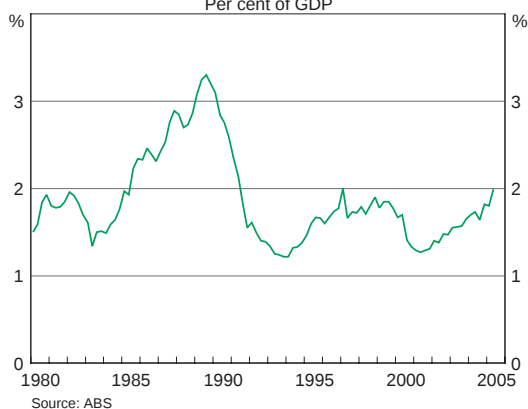
In the commercial property market there are few signs of the excesses that caused difficulties for companies and lenders in the early 1990s. Non-residential building construction, as a ratio to GDP, remains well below the peak reached during that period, although the ratio has increased over the past few years, and is currently at around its highest level since 1991 (Graph 30). The increase in construction activity reflects the generally favourable conditions persisting across



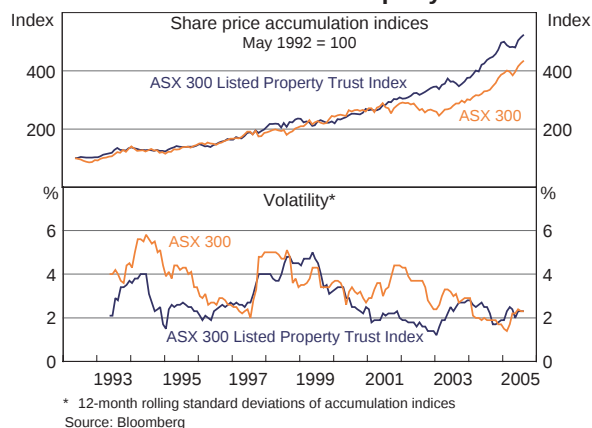
Graph 29
Business Sector Finances
Per cent of GOS*



Graph 30
Non-residential Building Construction
Per cent of GDP



Graph 31
Performance of Listed Property Trusts



commercial property markets. Over the year to June 2005, average retail property rents increased by 5.7 per cent, continuing the solid growth of recent years. In the sectors for which data are available, prices of capital city office property and industrial property have grown by 3.7 per cent and 9.6 per cent, respectively, over the year to June, although in real terms, both remain considerably below their 1989 peaks.

Australian listed property trusts have performed particularly well in recent years, outperforming the broader market and typically displaying less volatility (Graph 31). The pattern of relative outperformance of domestic property trusts has also been a feature of many offshore markets, consistent with the attraction of high yielding investments in the low-interest rate environment.

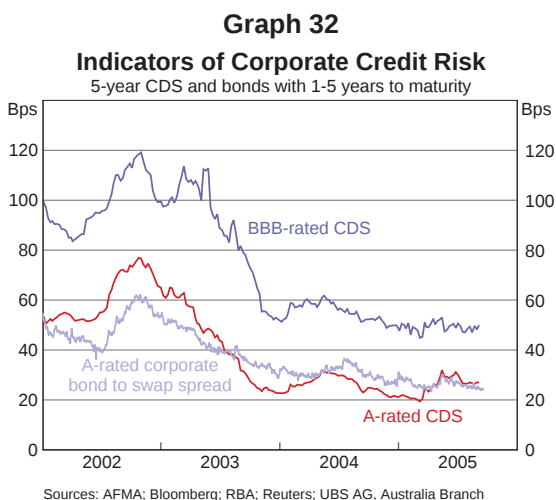
Assessment of vulnerabilities

While the health of the business sector is clearly dependent upon the health of the overall economy, the strength of corporate profits and business balance sheets means that the sector does not currently pose a threat to financial stability.

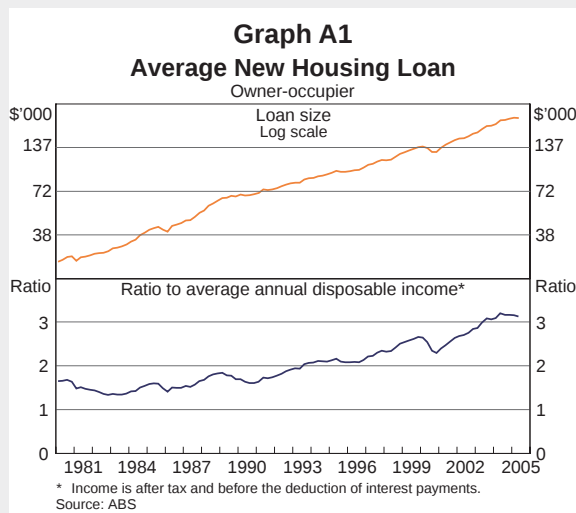
Broad surveys show that business conditions are above their long-run average, albeit somewhat lower than the very high readings of late 2004, consistent with the easing in domestic spending growth. According to the NAB Business Survey, conditions in the mining industry remain by far the strongest, with the retail, wholesale and transport industries

more subdued. The positive operating environment is reflected in the views of rating agencies; since end 2003, Australian corporate rating upgrades by Standard & Poor's have outnumbered downgrades.

The overall favourable conditions are also evident in financial markets' assessment of corporate sector health. As noted above, share prices have been high and volatility low. Likewise, indicators of corporate credit risk remain at quite low levels by historical standards, reflecting a perception of low risk by financial market participants (Graph 32).



Box A: Rates of Indebted Home Ownership



The rapid growth in housing debt over recent years is largely accounted for by an increase in average loan size. For example, since 1996 the average new owner-occupier housing loan has more than doubled in size from \$99 000 to \$215 000, and the ratio of the average new loan to average household income has increased by 50 per cent (Graph A1). These outcomes largely reflect the fall in nominal interest rates that was associated with Australia's return to low inflation in the early 1990s, and a relaxation of banks' lending criteria.

The growth in housing debt is, however, also partly explained by an increase in the number of households with housing debt. Although comprehensive time-series data are not available, the number of households with owner-occupier housing debt appears to have increased by over 40 per cent since 1996, considerably faster than growth in the total number of households. With the share of households that are owner-occupiers remaining relatively stable over this period, the result has been an increase in the share of owner-occupier households with housing debt.

The main sources of data on home ownership in Australia are the Census, the Household Expenditure Survey (HES), the Survey of Income and Housing (SIH) and the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The various surveys show similar and broadly steady rates of overall home ownership, with just over 70 per cent of households owning their home either with or without debt (Graph A2). On the share of owner-occupier households with housing debt, there is greater variation among the surveys, but all show some pick-up in this share since the mid 1990s. For example, over the decade to 2004, the HES suggests that the share of households with debt secured on their home has increased from less than 30 per cent to 36 per cent. The current share is broadly comparable to that in the early 1980s although housing debt levels were much lower relative to income at that time.¹

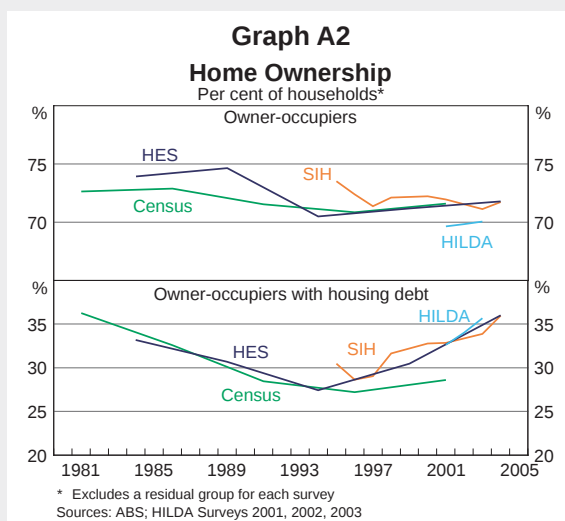
The fact that the latest Census estimate (for 2001) of the share of owner-occupier households with housing debt is below estimates from the other surveys is partly explained by the relatively narrow nature of the Census questions on housing tenure. In particular, the Census asks

¹ These figures exclude owner-occupier households that only had housing debt secured over investment or other residential properties.

households if their home is ‘being purchased’, whereas the other surveys effectively ask households if they have ‘mortgages or other loans secured over the property’. To the extent that households increasingly have debt secured on their dwelling for purposes other than purchasing the dwelling, such as home-equity loans used to finance renovations or other spending, the Census will tend to underestimate the proportion of owner-occupiers with housing-secured debt.

The upward trend in the share of owner-occupier households with housing debt reflects a number of factors. One is that households now have larger debts relative to their income than was the case previously, and therefore the average time taken to pay off the debt is likely to have increased. This is particularly the case where households draw down home-equity loans, or refinance and take on a larger loan when the value of their property rises. A second reason is that there has been an increase in the share of households owning investment properties, with investors – who are typically (but not universally) owner-occupiers – often having some debt secured on their primary residence.

In addition to owner-occupiers with housing debt, a number of renter households also have housing debt, typically on investment properties. While there is little information on the evolution of the importance of these households, the HILDA Survey suggests that around 7 per cent of renter households had property debt in 2002.



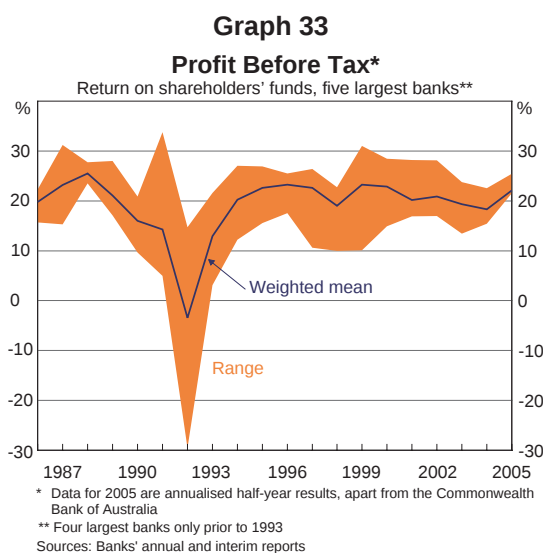
2. Financial Intermediaries

Australian financial intermediaries continue to perform strongly, reaping the benefits of the ongoing expansion of the domestic economy. While the demand for credit from the household sector has slowed and margins remain under downward competitive pressure, the return on equity in the banking sector has been maintained at historically high levels – an outcome that partly reflects ongoing reductions in cost-to-income ratios and strong earnings from wealth management operations. The pressure on margins and slower household credit growth have, however, encouraged some institutions to take on more risk, and at lower margins, than they have in the past. As a result, credit losses can be expected to pick up in the period ahead from the current low levels. As has been the case with banks, insurance companies have performed well over the past year, benefiting from relatively high investment returns, although stronger competition among insurers is also beginning to dampen underwriting returns.

2.1 Deposit-taking Institutions

Profitability

Banks continued their run of strong results in the most recent half year. In aggregate, the before-tax profits of the five largest banks increased by around 21 per cent compared to the same period a year ago, with the annualised before-tax return on equity equal to 22 per cent,



around the highest rate over the past decade or so (Graph 33). Not only have returns in the banking industry been high and remarkably stable over the past decade, there has also been a marked reduction in the variability of returns across banks, as the major banks have come to adopt increasingly similar business strategies with a strong focus on domestic retail lending.

The recent profitability of the Australian banking sector compares favourably with the profitability of banking sectors in other countries. Measured both as a return on assets and as a return on equity, the profits

of Australian banks are consistently higher than those recorded by continental European banks and broadly similar to recent returns earned by banks in the United States and United Kingdom (Table 3). When compared to the recent returns made by banks operating in countries with a broadly similar banking structure to Australia's, such as Canada and Sweden, Australian banks

Table 3: Banks' Return on Assets and Equity^(a)

Before-tax earnings, per cent

	Sample	Return on Assets			Return on Equity		
		2002	2003	2004	2002	2003	2004
Australia	4	1.5	1.4	1.4	21.9	20.6	19.2
United States	19	1.8	2.1	1.7	21.0	24.9	19.3
Canada	5	0.6	1.0	1.2	11.8	18.9	22.6
Japan	9	-0.8	0.2	0.4	-24.8	4.7	9.2
United Kingdom	7	0.9	1.1	1.2	16.8	19.2	20.4
France	6	0.5	0.6	0.7	12.4	14.2	16.0
Germany	9	0.0	-0.1	0.2	0.1	-2.6	5.2
Italy	6	0.5	0.8	0.9	9.2	13.1	15.1
Sweden	4	0.6	0.8	1.0	15.3	17.9	22.6
Other Europe	18	0.5	0.7	0.8	10.7	16.2	18.7

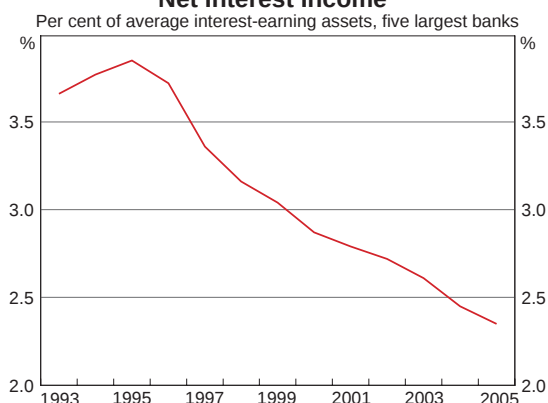
(a) Annual results for selected large banks as ranked by Tier 1 capital.

Sources: Banks' annual reports; The Banker; BankScope; Bloomberg; RBA

have earned significantly higher returns on assets, but comparable returns on equity, an outcome that reflects the relatively low gearing of Australian banks. In terms of volatility, the returns in the Australian banking sector have been remarkably stable compared with those in most other countries.

The strong performance of Australian banks has been underpinned by robust balance sheet growth. Average interest-earning assets of the five largest banks increased by 13 per cent over the past year, with slower household credit growth offset by a pick-up in business credit growth. In contrast, net interest income grew by a more modest 7 per cent – in line with the average outcome over the past decade – with growth held down by the continuing squeeze on margins (Table 4). Reflecting this, the ratio of net interest income to average interest-earning assets fell by a further 6 basis points in the first half of 2005, bringing the cumulative decline since the mid 1990s to around 150 basis points (Graph 34). This decade-long decline is the result of a combination of factors affecting both the asset and liability sides of banks' balance sheets.

On the asset side, competition in the housing loan market has had a significant effect. While the spread between the average standard variable home loan interest rate and the cash rate has been stable at around 1.8 percentage points since 1997 (after falling by around 2½ percentage points over the

Graph 34**Net Interest Income***

* Data for 2005 are annualised half-year results, apart from the Commonwealth Bank of Australia

Sources: Banks' annual and interim reports

Table 4: Banks' Half-yearly Profit Results^(a)

Five largest banks, consolidated

	2004	2005	Growth
	\$b	\$b	Per cent
Income			
Net interest income	12.0	12.8	7.3
Net income from wealth management	2.5	3.0	17.1
Other non-interest income ^(b)	6.6	7.8	18.9
Expenses			
Operating expenses ^(b)	10.6	11.7	10.6
Bad and doubtful debts	1.0	1.0	-0.1
Goodwill amortisation	0.4	0.5	5.7
Profit^(c)			
Net profit before tax and revaluations	9.1	10.5	15.4
Net profit before tax	9.1	11.0	21.1
Net profit after tax	6.6	8.1	23.1

(a) The six months to March 2005 for the ANZ Banking Group, National Australia Bank, St George Bank and Westpac Banking Corporation, and the six months to June 2005 for the Commonwealth Bank of Australia.

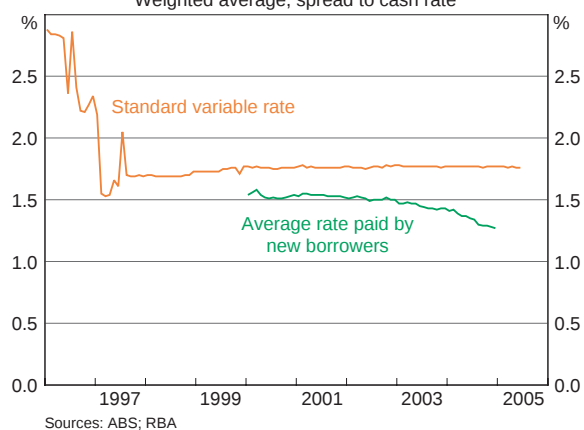
(b) Includes Commonwealth Bank of Australia's 'Which New Bank' restructuring costs; National Australia Bank's foreign currency options trading losses, sale of stakes in AMP and St George Bank, the disposal of two Irish banks and reversal of HomeSide provisions.

(c) Before outside equity interests.

Sources: Banks' annual and interim reports

previous four years), many borrowers now pay considerably less than the standard variable rate.² Indeed, widespread discounting of home loans has pushed the average interest rate paid by new borrowers to around 50 basis points below the standard variable rate (Graph 35). Furthermore,

Graph 35
Housing Loan Variable Interest Rate Spreads
Weighted average, spread to cash rate



over recent months, a number of lenders have begun to more actively promote discounts of about 70 basis points below the standard variable interest rate, typically for loans in excess of around \$500 000.

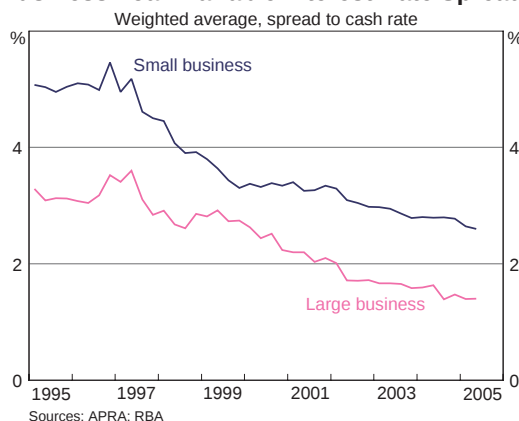
Margins have also been under pressure as a result of banks sourcing a higher share of their loans through mortgage brokers than in the past. On average, lenders typically pay brokers an upfront commission of about 65 basis points of the initial loan value and a trailing commission of around 25 basis points of the

² See Reserve Bank of Australia (2005), 'Box B: Variable Interest Rates on Housing Loans', Financial Stability Review, March.

outstanding loan balance each year. Although the share of new mortgages originated through brokers varies substantially from bank to bank, it is not uncommon for banks to source a third of their new loans in this way. In response to the erosion of margins, some banks have sought to change the structure of the fees they pay to brokers.

Margins are also under pressure in business lending, where the spread between the weighted-average variable interest rate paid by both small and large business borrowers and the cash rate has continued to fall (Graph 36). While this compression may be partly explained by a shift by borrowers towards lower-cost products – including loans backed by residential property – some lenders are targeting business lending more aggressively than in the past in response to weaker demand for housing finance. The origination of business loans through brokers is also becoming more common, exerting further downward pressure on margins.

Graph 36
Business Loan Variable Interest Rate Spreads

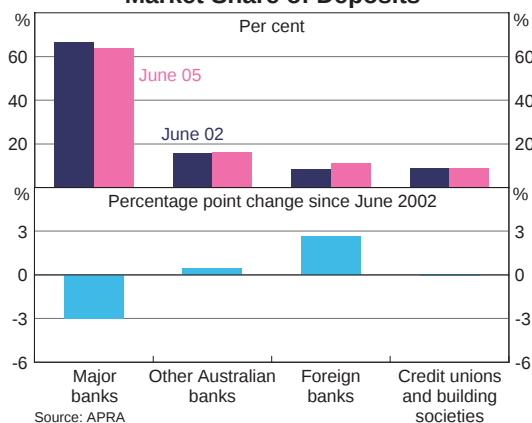


Competition and new product offerings are also affecting the margins that banks earn on personal lending, including those on credit cards. In particular, a number of credit card issuers now offer ‘low rate’ cards with interest rates in the 10 to 13 per cent range, compared with an average rate of 16¾ per cent on other cards. In addition, a number of issuers are offering zero per cent deals on balance transfers. Similarly to other products, new entrants, including foreign-owned banks, have been at the forefront of this competition.

On the liability side of the balance sheet, the decline in the share of funding sourced through low-cost retail deposits has also compressed margins. This decline partly reflects households investing a larger share of their savings in non-deposit products, leading banks to turn to both domestic and international wholesale markets to fund their balance sheet growth. It also reflects the increased competition in the retail deposit market. This competition was initially spurred by the introduction of high-yield online saving accounts by a number of foreign-owned banks. More recently, similar accounts have been introduced by many other banks after a number of them initially indicated that they would not do so because they considered that the interest rates being offered were too high. Notwithstanding this, foreign-owned banks have increased their share of the deposit market noticeably over recent years, albeit from a low base (Graph 37). The average online interest rate is currently 5.4 per cent, just below the cash rate of 5½ per cent, with a number of banks offering interest rates at or above the cash rate (Graph 38). In contrast, many traditional transaction accounts attract an interest rate of less than ¼ per cent.

Recently, this pressure on margins has been offset slightly by a contraction of the spread between the 90-day bank bill rate (which provides an indication of banks’ funding costs) and

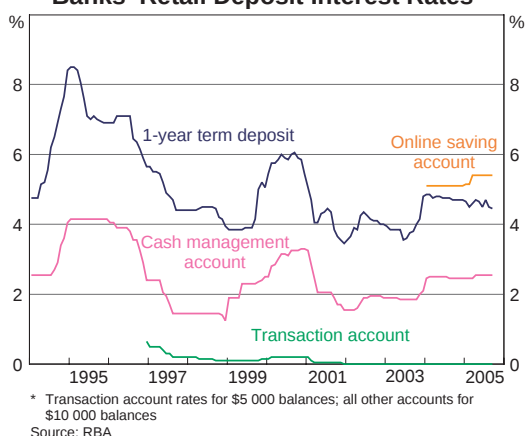
Graph 37
Market Share of Deposits



the cash rate (to which many loan rates are implicitly linked). In 2004, the spread between these two rates averaged around 23 basis points, but it is currently around 12 basis points, with the fall largely reflecting the market's assessment that the probability of another tightening in monetary policy has declined.

At the same time as lending margins have fallen, banks have generated an increasing share of income from non-banking activities, particularly through their wealth management subsidiaries. Despite this, profits from wealth management activities still account for only 11 per cent of the total (after-tax) profits of the major banks. Total non-interest income, which includes fees and commissions from lending, was boosted in the latest half year by the sale of NAB's Irish operations, though this was partly offset by more moderate growth in total fees and commissions.

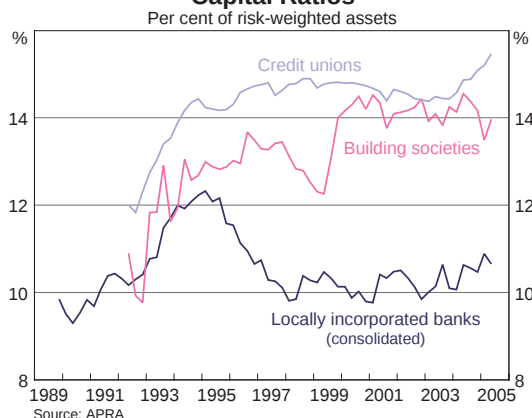
Graph 38
Banks' Retail Deposit Interest Rates*



Capital Adequacy

The Australian banking system remains well capitalised. The regulatory capital ratio for the system as a whole has been broadly stable over the past decade, although it has drifted up a little over the past year, to 10.7 per cent as at June 2005 (Graph 39). Notwithstanding this increase, the bulk of profits continue to be paid out to shareholders in the form of dividends, with banks being able to obtain the capital required to fund balance sheet growth by retaining only around one quarter to one third of their profits. Credit

Graph 39
Capital Ratios



unions and building societies also remain well capitalised in aggregate, with regulatory capital ratios of around 14 to 15 per cent.

Credit Risk

Australian banks' non-performing assets remain at exceptionally low levels. According to APRA data, as at end June 2005, impaired assets – those on which payments are in arrears by more than 90 days, or otherwise doubtful, and not completely covered by collateral – accounted for 0.3 per cent of banks' on-balance sheet assets. When well-secured assets on which payments are more than 90 days past due are added (to measure total 'distressed' assets), the figure is still only around 0.5 per cent. This is slightly lower than it was a year ago (Graph 40).

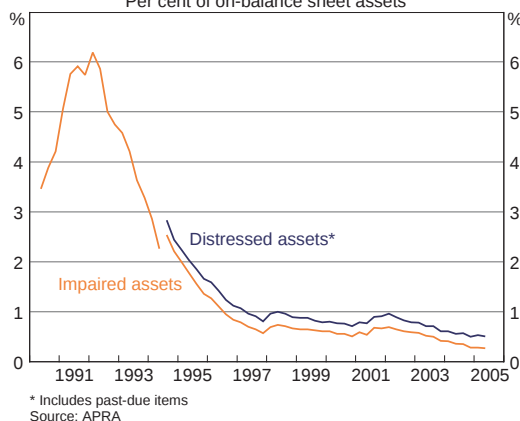
Within this aggregate result, there are slightly divergent trends in the performance of loans to the household and business sectors. In particular, over the past year, the ratio of distressed business loans to total business loans has fallen, while the reverse is true for household loans (Graph 41). To some extent these divergent trends reflect the two sectors' different appetites for borrowing over recent years. Business credit has grown relatively slowly over this period and, with profits up considerably, debt-servicing burdens in the business sector are low by historical standards. In contrast, debt and interest-servicing burdens are at record highs for the household sector (see the *Macroeconomic and Financial Environment* chapter).

The slight pick-up in housing loan arrears is evident across most banks' portfolios (Graph 42). The aggregate arrears rate, however, remains very low in comparison to both historical and international experience. There has been a slightly more pronounced increase in the share of securitised loans on which repayments are more than 90 days overdue, partly reflecting a rise in the share of 'low doc' loans – which have higher default rates – in the pool of securitised mortgages.

Graph 40

Non-performing Assets of Banks

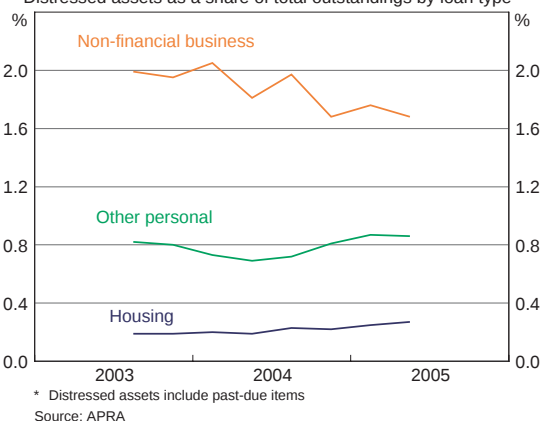
Per cent of on-balance sheet assets



Graph 41

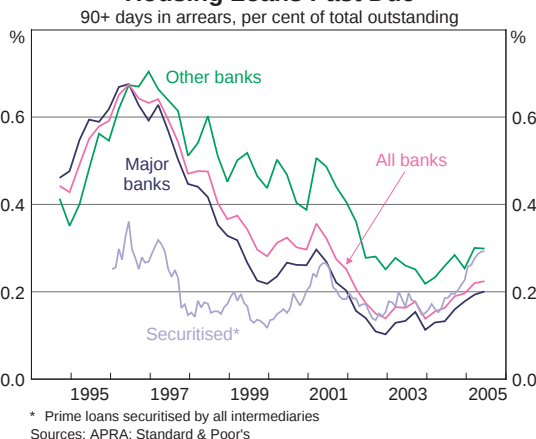
Arrears Rates

Distressed assets as a share of total outstandings by loan type*



Graph 42

Housing Loans Past Due



The mild pick-up in the rate of housing loan arrears is not surprising given the relaxation of lending criteria seen over the past five or so years. Over this period, as detailed in the previous *Review*, there has been: an increased reliance on brokers to originate loans; an increase in permissible debt-servicing burdens and loan-to-valuation ratios; strong growth of low-doc loans; rapid growth in lending to investors; and the use of property valuation techniques that do not involve a full external and internal inspection of the property. Competition has also

manifested itself in some intermediaries offering non-housing related inducements or expanding their distribution channels into non-traditional avenues. In combination with the changes in household balance sheets over recent years, these developments are likely to have increased the overall riskiness of banks' housing loan portfolios.

Of the changes in lending practices noted above, low-doc lending is an area that has attracted particular attention recently. This segment of the mortgage market has grown rapidly in recent years and the interest margin being earned by lenders to compensate for the extra risk has declined considerably (see Box B). From a risk management perspective, an important consideration is that the credit quality of low-doc loans is yet to be tested in a more difficult economic environment.

The same is true for many of the housing loans that banks have made to investors over recent years. Investor loans currently account for around 35 per cent of banks' total housing loans outstanding, up from 15 per cent in 1990. As noted in the previous chapter, many of these loans were made to investors earning negative running yields, but expecting to make offsetting capital gains. Although the increase in the arrears rate on investor loans has been modest to date, it is possible that it could rise further if the weaker residential property market persists.

Another form of lending to households that has grown strongly in recent years is personal lending. While this type of lending accounts for only 10 per cent of aggregate bank credit outstanding, personal loans, which are often unsecured, tend to have considerably higher arrears and default rates than housing loans, and thus attract higher lending margins. Over the past year, for example, personal lending accounted for around half of banks' total credit losses, or write-offs (Graph 43). In part, this reflects the historically low level of credit losses in aggregate. Furthermore, there is little evidence that the credit quality of banks' personal loan portfolios has deteriorated in recent times – in 2004, the write-off rate on personal loans fell to its lowest level since the mid 1990s, and more recent data show that the share of credit card loans past due has also not increased noticeably.

There are currently few concerns, in aggregate, about the business lending portfolios of authorised deposit-taking institutions (ADIs). This is not surprising given that the business sector is currently in good shape. As noted in the *Macroeconomic and Financial Environment* chapter, trading conditions and profitability are strong, especially in the mining sector, with debt-servicing ratios remaining low. Despite the generally strong profit results, the demand for external finance has picked up recently due to strong growth in

investment – total business credit grew at an annualised rate of close to 14 per cent over the six months to July. Banks have been keen to facilitate this as an offset to the more subdued demand for housing finance. Increased business lending is reflected in data from APRA's survey of bank business credit, which showed that this form of lending increased by 11 per cent over the year to June, compared to an average annual rate of 8 per cent over the past five years (Table 5). By far the largest segment of business lending is for loans in excess of \$2 million which are either unsecured or secured against business collateral, including commercial property.

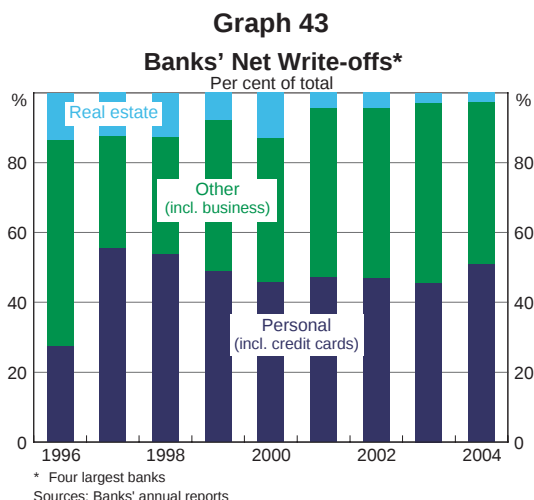


Table 5: Bank Business Lending by Loan Size

As at June 2005

Loan size	Level \$b	Share of total	Growth
		Per cent	Year to June, per cent
< 100k	24.2	6	-2
100k – 500k	65.5	17	9
500k – 2m	66.9	18	16
> 2m	219.5	58	12
Total	376.2	100	11

Source: APRA

In terms of sector exposures, banks' lending for commercial property is one area that has grown relatively briskly of late, with the latest available data showing commercial property exposures up by 19 per cent over the year to March 2005 (Table 6). While strong growth has been observed across most types of commercial property, a notable feature has been the rapid growth of commercial lending related to residential property despite the slowing in the residential property market more generally. Notwithstanding this, the asset quality of banks' commercial property portfolios remains sound, with only 0.1 per cent of outstanding commercial property loans impaired as at March 2005. Furthermore, as noted in the previous chapter, there are few signs of the excesses in the commercial property market that have created problems for banks in the past.

Table 6: Banks' Australian Commercial Property Exposures

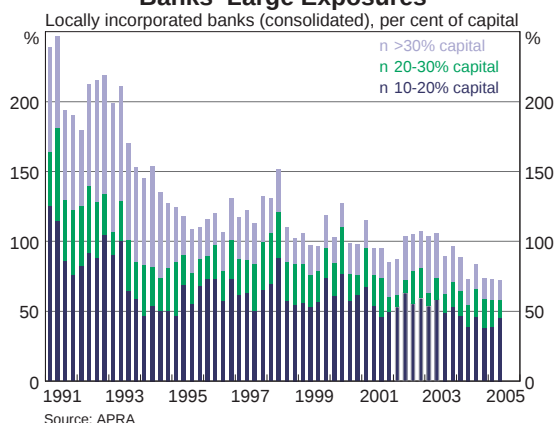
Per cent, as at March 2005

Type of exposure	Growth Year to March 2005	Share of total commercial lending	Impaired assets Share of commercial property exposures
Office	9	9	0.1
Retail	20	7	0.0
Industrial	24	4	0.1
Residential	22	11	0.3
Tourism and leisure	17	1	0.1
Other	34	4	0.3
Total	19	36	0.1

Source: APRA

Graph 44

Banks' Large Exposures



While growth in business lending has picked up, banks have continued to reduce the number of 'large' exposures on their balance sheets, a trend that has been evident since the early 1990s. In particular, banks in aggregate have markedly reduced individual exposures that amount to more than 30 per cent of capital over this period (Graph 44).

Australian banks' most significant overseas exposures are to New Zealand and the United Kingdom, predominantly through lending to residents by branches and

subsidiaries located in those countries, rather than from cross-border lending by their Australian-based operations (Table 7). Since the previous *Review*, the share of offshore exposures to the United Kingdom and Ireland has fallen to a combined 24 per cent, from 28 per cent, largely reflecting NAB's sale of Northern Bank and National Irish Bank. A significant proportion of banks' exposures to New Zealand and the United Kingdom is lending for housing and, as in Australia, there are signs that there has been a cooling in the housing market in these countries after a period of strong growth.

Table 7: Australian Banks' Foreign Exposures

As at June 2005

Country	Total		of which:	
	Level	Share	Cross-border	Local
	\$b	Per cent	\$b	\$b
New Zealand	165.1	47.8	11.1	154.0
United Kingdom	83.2	24.1	13.7	69.5
United States	30.7	8.9	15.5	15.2
Other developed countries	43.8	12.7	41.6	2.2
Developing countries	12.2	3.5	6.1	6.0
Offshore centres ^(a)	10.3	3.0	6.8	3.5
Other	0.3	0.1	0.2	0.1
Total	345.6	100.0	95.1	250.6
<i>Memo: Per cent of total assets</i>	<i>27.1</i>		<i>7.5</i>	<i>19.6</i>

(a) Includes Hong Kong and Singapore

Source: APRA

Market Risk

Australian banks continue to have relatively small exposures to market risk. Based on the latest half year results, the average daily value-at-risk (VaR) for the four largest banks was equivalent to 0.04 per cent of shareholders' funds, which is low by international standards, and represents a decline since the corresponding period in 2004 (Table 8). Interest-rate risk accounts for the largest share of banks' traded market risk.

The low level of exposure to traded market risk partly reflects the fact that Australian banks make extensive use of hedging, including through the use of derivatives. The majority of the banks' derivatives exposures are in foreign exchange and interest rate markets, with the value of outstanding contracts being fairly stable over the past two years, at about 9 per cent of on-balance sheet assets (Graph 45). Most of these contracts are arranged in over-the-counter markets, rather than on exchanges. While these markets have the advantage of being better able to tailor products to banks' requirements, they potentially expose banks to other risks such as the potential default of a counterparty. That said, counterparty risk tends to be concentrated in entities which are highly rated.

Table 8: Traded Market Risk^(a)

Per cent of shareholders' funds, four largest banks

	2004	2005
	Half-yearly average	
Interest rate	0.03	0.03
Foreign exchange	0.02	0.01
Other ^(b)	0.02	0.01
Diversification benefit	-0.02	-0.01
Total	0.06	0.04

(a) Value-at-risk is calculated using a 99 per cent confidence interval and one-day holding period.

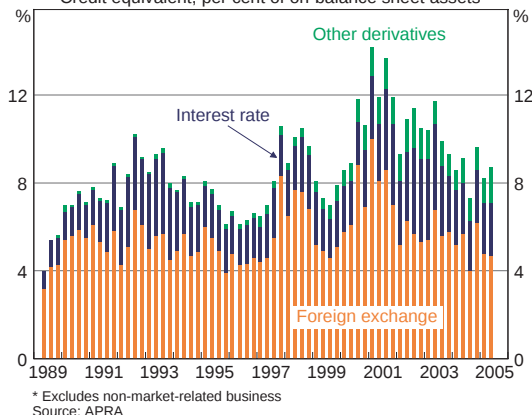
(b) Other market risks include commodity, equity, prepayment, volatility and credit spread risk.

Sources: Banks' annual and interim reports

Graph 45

Banks' Off-balance Sheet Business*

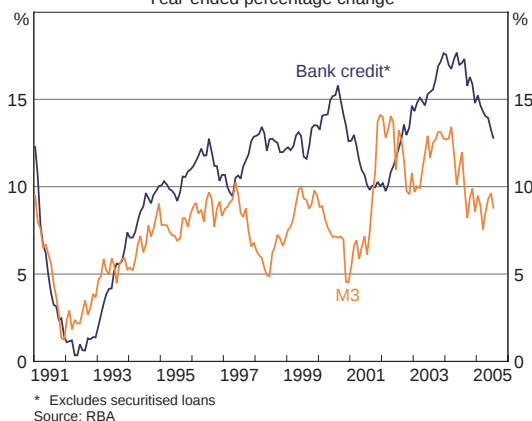
Credit equivalent, per cent of on-balance sheet assets



Graph 46

Bank Credit and Deposits

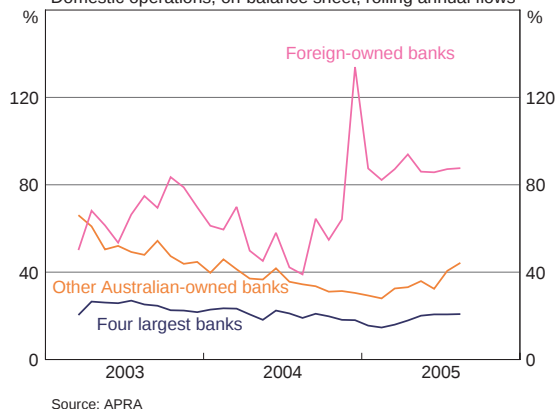
Year-ended percentage change



Graph 47

New Lending Funded by Retail Deposits

Domestic operations, on-balance sheet, rolling annual flows



Liquidity and Funding

As lending growth has outstripped the growth in deposits for much of the past decade, banks have increasingly turned to wholesale markets for funding (Graph 46). This largely reflects developments in the household sector, where the saving rate has fallen and an increasing share of savings has been channelled into non-deposit products, and at the same time, the demand for bank finance by households has grown rapidly. Over the past year, the four largest banks funded less than one quarter of their new lending from retail deposits (Graph 47). For other Australian-owned banks, there is less reliance on offshore wholesale markets to fund balance sheet growth, in part, reflecting the extensive use of the securitisation market by some of the smaller regional banks. In contrast, the inroads that foreign-owned banks have made into the deposit market have seen these banks fund the majority of their recent lending from retail deposits.

Over the past six months, most of the growth in banks' wholesale funding has been through the issuance of debt securities offshore, with the bulk of these having a maturity of greater than one year (Graph 48). While the value of domestic debt securities outstanding has been fairly stable in recent quarters, there has also been some shift into securities with longer maturities. Other things equal, this lengthening of the maturity profile of banks' debt should reduce

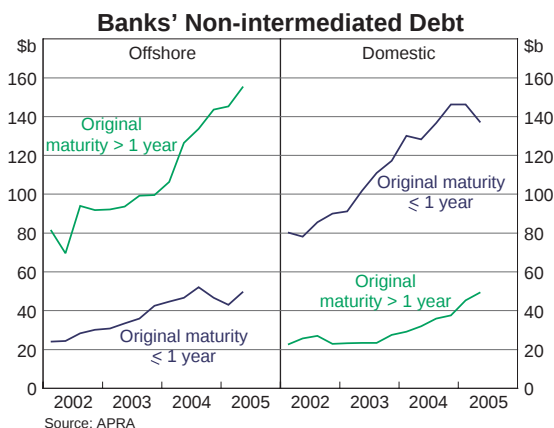
the potential for difficulties in rolling over their liabilities.

Another important part of managing liquidity risk is ensuring sufficient holdings of assets that can be readily sold in difficult market conditions. Banks that have sufficiently sophisticated and robust liquidity measurement techniques are required to demonstrate to APRA that they hold enough liquid assets to meet their payments for five business days under various adverse scenarios. Other ADIs must maintain a minimum holding of 9 per cent of total liabilities in specified liquid assets. In recent years, banks' total holdings of liquid assets – which include government securities, certain bank bills and certificates of deposit – have remained stable, at around 12 per cent of total assets. The proportion of these liquid assets that can be used in repurchase obligations with the Reserve Bank has also been broadly stable since the eligibility criteria were changed by the Bank in March 2004 (Graph 49).³

Financial Markets' Assessment

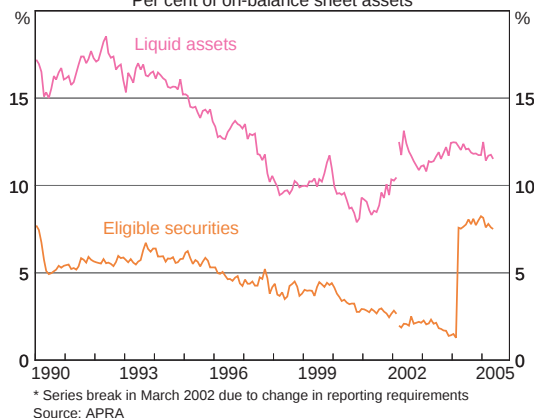
Financial market-based indicators continue to suggest that market participants have few concerns about the prospects of the Australian banking sector. The spread between bank bond yields and the swap rate remains around the low levels observed over recent years, as does the average credit default swap premium for the four major banks (this premium represents the cost of

Graph 48

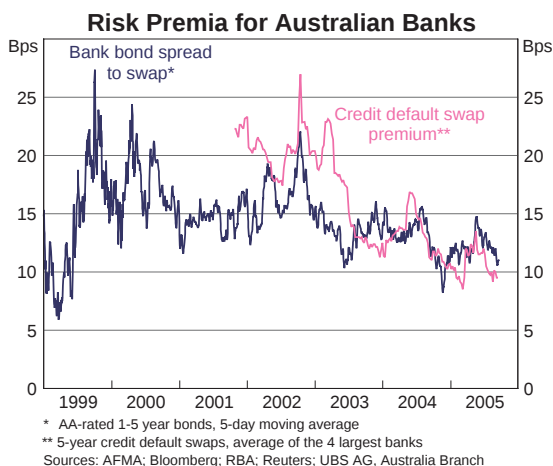


Graph 49

Banks' Eligible Securities and Liquid Assets* Per cent of on-balance sheet assets



Graph 50



³ See page 33 of the March 2005 Financial Stability Review for a further discussion.

‘insuring’ against a bank defaulting on its bonds) (Graph 50). Similarly, the expected future volatility of banks’ share prices, measured from options data, remains low, as do the probabilities of large price movements implied by options prices (Graph 51 and Box C).

No bank has had its credit rating reduced in the past six months, and four banks have received upgrades. Standard & Poor’s upgraded Bank of Queensland (to BBB+), HSBC Bank Australia (to AA-) and ING Bank (Australia) (to AA) by one notch. Moody’s upgraded Arab Bank Australia from Baa3 to Baa2 (Table 9).

Table 9: Long-term Ratings of Australian Banks

As at 22 September 2005

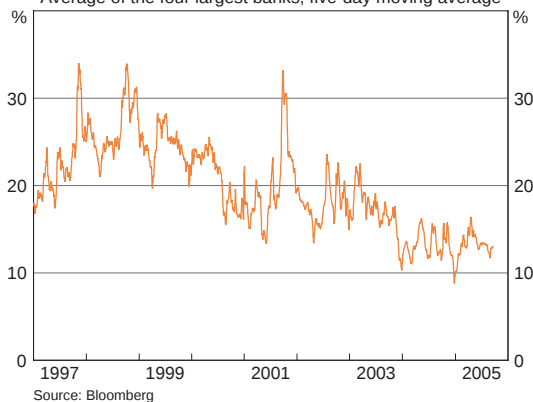
	Standard & Poor’s	Moody’s	Fitch
Adelaide Bank	BBB+	Baa1	na
AMP Bank	A-	A3	na
ANZ Banking Group	AA-	Aa3	AA-
Arab Bank Australia	na	Baa2	BBB+
Bank of Queensland	BBB+	Baa3	BBB
BankWest	A+	A1	na
Bendigo Bank	BBB+	na	BBB+
Commonwealth Bank of Australia	AA-	Aa3	AA
HSBC Bank Australia	AA-	A1	na
ING Bank (Australia)	AA	Aa2	na
Macquarie Bank	A	A2	A+
National Australia Bank	AA-	Aa3	AA
St George Bank	A	A2	A+
Suncorp-Metway	A	A2	A
Westpac Banking Corporation	AA-	Aa3	AA-

Sources: Fitch; Moody’s; Standard & Poor’s

Graph 51

Implied Volatility of Banks’ Share Prices

Average of the four largest banks, five-day moving average



While banks’ share prices have slightly outperformed the broader market since the previous *Review*, the banking index has been relatively stable since mid 2005 (Graph 52). This may reflect a slightly more circumspect outlook for banks’ future profit growth in the face of the slowdown in the housing market and the competitive pressures discussed above.

2.2 General Insurance

The general insurance industry has continued to benefit from favourable operating conditions, maintaining

profits at a high level over the past year. According to APRA data for the first three quarters of the 2004/05 financial year, the general insurance sector earned an annualised aggregate after-tax profit of around \$5 billion (Graph 53). This solid profit outcome was underpinned by investment returns, though underwriting results made a significant contribution to profitability for the third consecutive year.

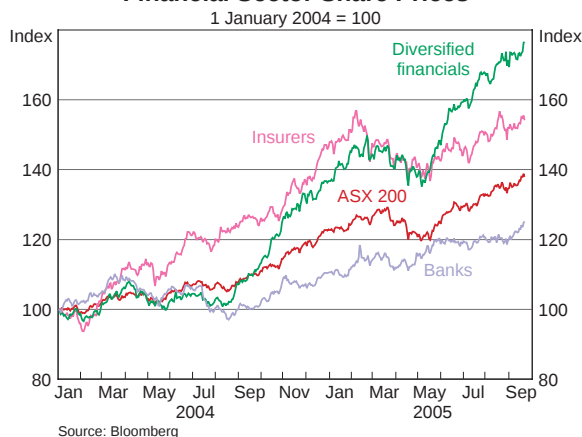
The ongoing strength of the recovery in underwriting results is, however, likely to be tested in the period ahead, largely because of the impact of competition on premiums. Industry surveys suggest that premium rates have already fallen by as much as 20 per cent over the year in some business lines, with competition most intense in commercial rather than personal segments. The effect of this on profits may be compounded if claims return to levels more in line with longer term averages, from the unusually low levels of recent years.

Despite these emerging pressures, in aggregate, the general insurance industry appears to be in a sound financial position. Over recent years, the industry has maintained its capital holdings at over twice the regulatory minimum and changes to prudential requirements introduced by APRA since 2001 have supported improvements in insurers' risk management procedures.

Rating agencies have taken a generally favourable view of the domestic general insurance industry, with the largest insurers each maintaining 'A' ratings, or higher (Table 10). Equity market participants also continue to view the sector positively, with insurers' share prices consolidating the strong gains of 2004, despite underperforming the broader market so far this year (Graph 54).

Notwithstanding expected losses from Hurricane Katrina, the global reinsurance industry appears to remain well placed to absorb some of the risk from domestic insurers. Following Hurricane Katrina, some large global reinsurers downgraded their profit forecasts and have

Graph 52
Financial Sector Share Prices



Graph 53
Performance of General Insurers
Year-ended June*

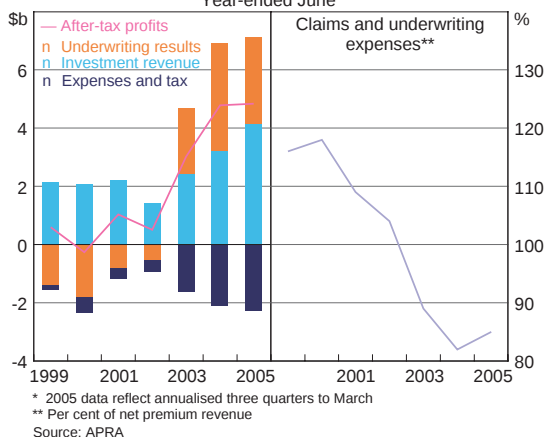


Table 10: Long-term Ratings of Selected General Insurers

As at 22 September 2005

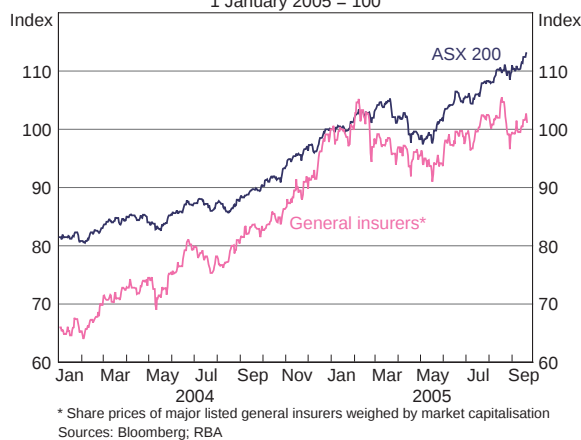
Insurance Australia	AA
Vero Insurance (Promina)	A+
QBE Insurance Australia	A+
Suncorp Metway Insurance	A

Source: Standard & Poor's

Graph 54

General Insurers' Share Prices

1 January 2005 = 100



been placed on negative credit watch by Standard & Poor's. However, strong premium revenue over recent years has boosted reinsurers' profits and capitalisation, which is likely to leave them well placed to absorb the losses. Although equity prices for some of the largest global reinsurers fell by up to 7 per cent following the disaster, they remain higher than in late 2004. Similarly, domestic insurers have announced relatively modest exposures to Hurricane Katrina, compared to provisions for such events.

Aside from current conditions, an issue facing the insurance industry, both at home and abroad, is the regulatory investigations into the misuse of financial reinsurance arrangements. These investigations have led to a number of regulatory initiatives, which are discussed in the *Developments in the Financial System Infrastructure* chapter.

2.3 Wealth Management

Funds in wealth management vehicles have grown strongly in Australia over the past 15 years, at an average annual rate of around 10½ per cent. The assets of superannuation funds have increased particularly strongly, up by a factor of seven over this period, to nearly \$500 billion (Table 11).

Superannuation Funds

Superannuation funds' (unconsolidated) assets increased by 18 per cent over the year to March 2005, supported by both strong returns on existing assets and substantial new contributions (Graph 55). Much of this growth was in assets managed by industry and self-managed funds, which have increased their share of superannuation assets significantly over the past decade, to a combined 38 per cent (Graph 56). At the same time, the share of superannuation assets managed by corporate and public sector funds has declined. Flows between funds may be given further impetus following the introduction of 'choice of fund' on 1 July, which gives a large proportion of the Australian workforce the right to choose the fund into which their compulsory superannuation contributions are deposited.

Table 11: Assets under Management

Consolidated, as at June

	1990		2005	
	Level \$b	Share of total Per cent	Level \$b	Share of total Per cent
Superannuation funds	75.4	37.5	496.3	54.2
Life insurers	81.2	40.3	188.9	20.7
Other managed funds	44.7	22.2	230.0	25.1
Total	201.3	100.0	915.2	100.0

Sources: ABS; APRA

Life Insurers

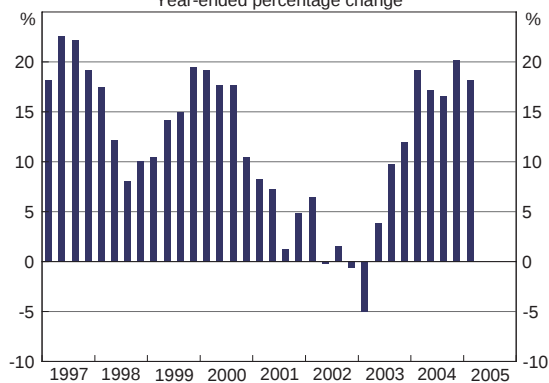
The profitability of life insurers improved further over the past year, following difficult conditions in 2002 and 2003 (Graph 57). This improvement was almost exclusively driven by investment returns, reflecting the strong performance of equity markets. Like other wealth managers, life insurers have increased the share of their investment portfolios held in equities, to around 60 per cent of total domestic investments, up from less than one third a decade ago.

In contrast to the strong investment returns, income from new premiums and contributions was broadly offset by policy payments. The relative weakness of net insurance flows highlights the pressure the life insurance industry has been under for some time. In part, this is due to the gradual shift of superannuation assets away from life offices to superannuation funds. While around 40 per cent of total superannuation assets were invested through life offices in the early 1990s, this share has now fallen to

Graph 55

Superannuation Funds' Assets

Year-ended percentage change

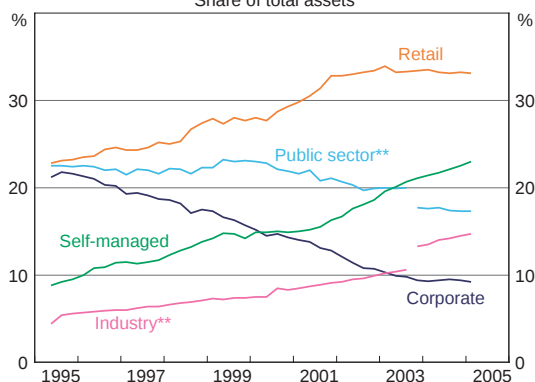


Source: APRA

Graph 56

Superannuation Assets by Sector*

Share of total assets

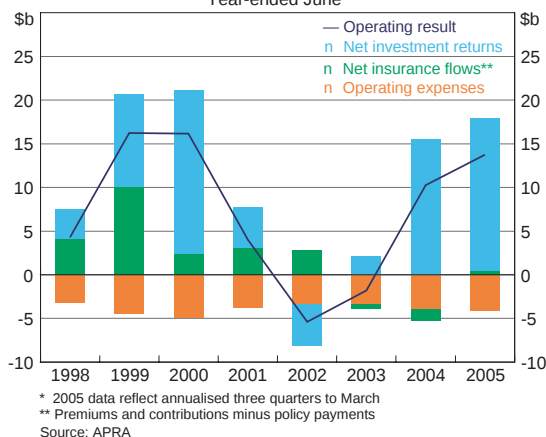


* Excludes the balance of statutory funds of life offices

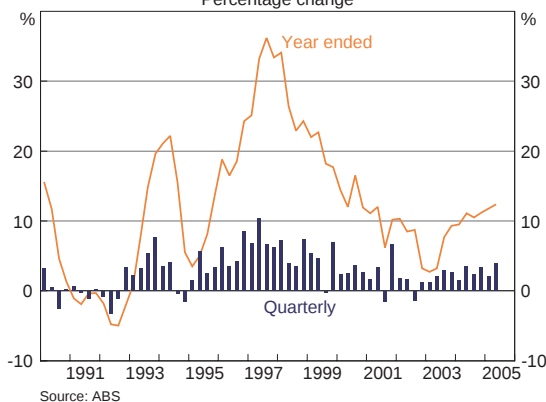
** Series break in December 2003 due to coverage changes

Source: APRA

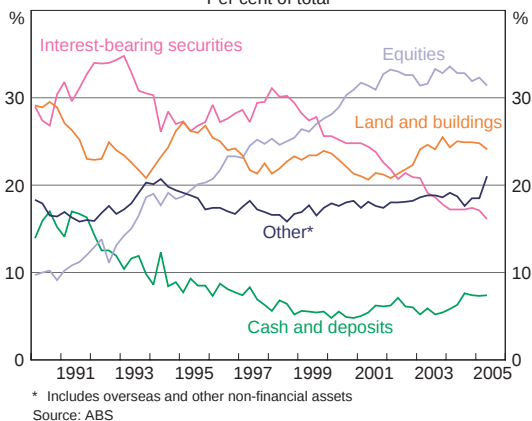
Graph 57
Life Insurers' Performance
Year-ended June*



Graph 58
Other Managed Funds' Assets
Percentage change



Graph 59
Assets of Other Managed Funds
Per cent of total



around one quarter. As noted in the previous *Review*, this trend may be reinforced following the phasing out of some tax concessions for life insurers which occurred in July this year. A further factor weighing on the life insurance industry is the extent of 'legacy' business on their books – policies written in the past at comparatively less profitable terms than modern policies, thereby placing downward pressure on net insurance flows.

Other Managed Funds

Growth of assets managed by unit trusts, cash management trusts, common funds and friendly societies has picked up over the past two years, though it remains well below the very rapid growth of the late 1990s (Graph 58). Like other wealth managers, this pick-up largely reflects the strong growth of the domestic share market over the recent period. Equities now account for the largest share of assets held by these 'other' managed funds, following a shift away from cash and interest-bearing securities over the past decade (Graph 59). The share of assets held in real estate has also picked up since 2001, as listed property trusts have benefited from strong contributions of new funds and the attraction of relatively favourable commercial property yields in the generally low-yield environment.

Box B: Developments in the Low-doc Loan Market

One of the fastest growing segments of the mortgage market in recent years has been ‘low doc’ loans. These are loans for which borrowers self-verify their income in the application process. They are designed mainly for the self-employed or those with irregular income who do not have the documentation required to obtain a conventional housing loan. But the lack of documentation also leaves them open to abuse, for example by people who are overstating their income to the lender in order to obtain a larger loan than otherwise. They may also be used by people who have understated their income for taxation purposes.¹

The value of low-doc loan approvals has grown over the past year, even though the value of total housing loan approvals has been broadly flat. As a result, while low-doc loans are estimated to account for only around 5 per cent of all outstanding housing loans, their share has been rising. These loans are currently estimated to make up a little under 10 per cent of new loans, though the shares differ widely across lenders.

The rapid growth of the market has occurred alongside increased competition, of which the most visible sign has been an increase in the number and type of providers. Initially, low-doc loans were marketed only by specialist non-bank lenders, but in recent years mainstream lenders have also entered the market. Some smaller banks, in particular, have targeted this segment. The major banks were slower to enter the market, but they have recently begun to actively promote these products.

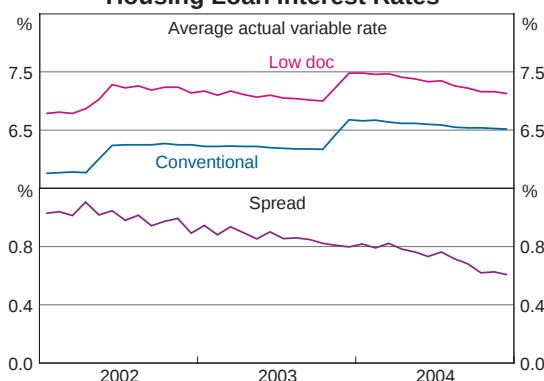
Aside from the self-verification, low-doc loans provided by banks are otherwise ‘prime’ in the sense that they are subject to banks’ usual lending criteria. This contrasts with some non-bank lenders that also offer low-doc loans to borrowers with impaired credit histories or other high-risk characteristics – types of so-called ‘non conforming’ loans.²

Because of the higher risk of low-doc loans, lenders have typically charged a higher interest rate on these loans than on their conventional loans. However, as competition in the low-doc market has intensified, these spreads have been declining. Over the past three years, the difference between the average advertised interest rate on low-doc loans and standard variable interest rates on conventional home loans has fallen by around one percentage point, to very low levels. However, taking into account that the actual interest rates paid on conventional home loans are often significantly lower than the advertised standard variable interest rate, the spread between actual rates paid on low-doc and conventional loans is wider, with the available evidence suggesting it was a little over ½ of a percentage point as at the end of 2004. Nonetheless, this spread appears to have roughly halved over the past few years (Graph B1).

¹ Recent investigations by the Australian Taxation Office (ATO) have revealed that, for a significant proportion of low-doc borrowers, income declared to the lender exceeded that declared to the ATO.

² See Box C in the March 2005 Financial Stability Review for a discussion of non-conforming housing loans.

Graph B1
Housing Loan Interest Rates*



* The spread is calculated as a weighted average of the spread between rates paid on securitised low-doc and conventional loans for a sample of lenders. The low-doc actual rate is estimated by adding the spread to the estimated average actual rate paid on all conventional loans.

Sources: ABS; RBA

Lenders have also increased the maximum size of low-doc loans that they are willing to provide. When low-doc loans were first introduced, the maximum allowable loan size was generally around \$500 000 but these limits have since been increased, contributing to an increase in average actual loan sizes. Recent estimates based on securitised loans suggest that new low-doc loans are on average around 30 per cent larger than conventional loans.

As competition has picked up, lenders have also increased the maximum loan-to-valuation ratios (LVR) they allow on low-doc loans.

While many lenders initially restricted the loan to between 60 per cent and 75 per cent of the property value, most lenders now allow borrowers to take out a loan with an LVR of 80 per cent, with some even allowing LVRs as high as 95 per cent. As a result, the average initial LVR on securitised low-doc loans has increased over the past few years, both in absolute terms and relative to LVRs on conventional loans.

The reduction in the interest-rate premium on low-doc loans, together with increases in maximum loan sizes and LVRs, raises the possibility that some lenders may not be adequately factoring in the higher risk of default of these loans. The arrears rate for securitised low-doc loans is currently around three times higher than for conventional loans. Even if estimates of the expected loss rate on low-doc loans take account of this higher arrears rate, they may still understate the risks involved because low-doc loans have only existed during the past few years of economic expansion, so their quality has not been tested during a period of weaker activity. This risk is heightened by the fact that lenders know little about the characteristics of low-doc borrowers, specifically how many have overstated their income to obtain larger loans.

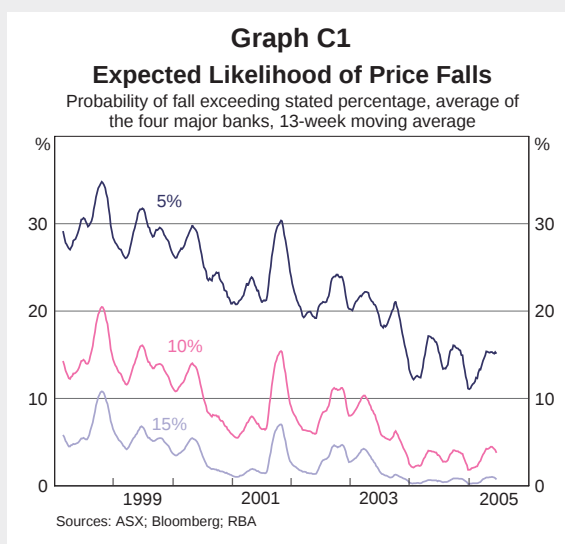
Box C: Options Markets and the Expected Volatility of Bank Share Prices

As options markets have developed over time, options prices have increasingly been used to derive the market's assessment of the future volatility of a range of asset prices, including share prices. From a financial stability perspective, the expected volatility of bank share prices is of particular interest. Given that fairly liquid markets now exist for options over the share prices of the major Australian banks, the market's assessment of the probability of large movements in these prices can be estimated.¹

A useful way of presenting the results is to show the probability of large share price movements over some horizon. This is done in Graph C1, which shows the implied probability of falls in excess of 5, 10 and 15 per cent over a 45-day period, averaged over the four major banks. As an illustration, options prices suggest that, in 2004, the probability of a fall in bank share prices in excess of 10 per cent over a 45-day period averaged 3 per cent.

The results suggest that the perceived probabilities of large falls in bank share prices have trended down since at least 1998. Moreover, although some analysts have recently questioned whether banks can sustain their current high rates of return, the probabilities have not risen materially. One interpretation of these results is that, in general, the market has a reasonable degree of confidence that the strong performance of banks over recent years is likely to continue, at least in the short term.

Another feature of the analysis is that the general decline in the probability of large falls has, on a number of occasions, been interrupted by significant increases in expected volatility. The most noticeable example is over the second half of 2001, which was associated with the terrorist attacks in the United States, the failure of Ansett and the revelation of large losses by a US subsidiary of the National Australia Bank. Interestingly, these events tended to be associated



¹ Some techniques for doing this are discussed in Clews, R, N Panigirtzoglou and J Proudman (2000), 'Recent developments in extracting information from options markets', Bank of England Quarterly Bulletin, February, pp 50-60. The techniques used in this Box require a number of important assumptions, including: no transaction costs; no restrictions on short-selling securities; lognormally distributed share returns outside the range of prices covered by option strikes; and risk neutral investors.

with increases in the expected probability of large moves in both directions. This reflects the fact that once a share price has fallen in response to bad news, opinions can become strongly divided as to whether the size of the fall was appropriate, with potential for opinions to change quickly as additional news comes to hand.

3. Developments in the Financial System Infrastructure

As foreshadowed in the previous *Review*, later this year Australia will participate in the Financial Sector Assessment Program (FSAP) conducted by the International Monetary Fund (IMF) and World Bank.

A core element in this process will be an assessment of Australia's compliance with a number of internationally accepted standards and codes relating to financial infrastructure. Standards and codes in 12 broad areas are considered by the IMF to be relevant for its work. In Australia's case, the IMF has selected four of these for detailed assessment. These are:

- the Basel Committee's *Core Principles for Effective Banking Supervision*;
- the International Association of Insurance Supervisors' (IAIS) *Insurance Core Principles*;
- the International Organisation of Securities Commissions' (IOSCO) *Objectives and Principles of Securities Regulation*; and
- the Committee on Payment and Settlement Systems' (CPSS) *Core Principles for Systemically Important Payment Systems*.

In addition, a less formal assessment will be undertaken of the CPSS-IOSCO Joint Task Force's *Recommendations for Securities Settlement Systems* and *Recommendations for Central Counterparties*. A separate assessment is being undertaken of Australia's compliance with the recommendations of the Financial Action Task Force, a specialist inter-governmental body, on *Anti-Money Laundering and Combating the Financing of Terrorism*.

A second element of the FSAP process will be stress testing the capacity of Australian banks to withstand significant unexpected events. This exercise will be co-ordinated by the Reserve Bank and involve the IMF, APRA, the Australian Treasury and a number of financial institutions.

The IMF has already made a brief background visit to Australia to discuss the nature of the assessment. The full 'mission' visits, comprising IMF staff and experts drawn from peer-group countries, will take place in December 2005 and in March/April 2006, with the aim of producing a final report to coincide with the conclusion of the regular IMF Article IV Consultation in mid 2006. The Australian Treasury is co-ordinating the work associated with the overall process, with participation by APRA, ASIC, the Reserve Bank and private financial institutions.

Consistent with its policy responsibilities for the stability and efficiency of Australia's payments system and the stability aspects of clearing and settlement systems, the Reserve Bank will play an important role in the assessment process for systemically important payment systems, securities settlement systems and central counterparties. These areas are discussed in further detail below.

3.1 Core Principles for Systemically Important Payment Systems

There is only one payment system in Australia that is likely to be assessed against the Core Principles for Systemically Important Payment Systems – that is, the Reserve Bank Information and Transfer System (RITS). This system is owned and operated by the Reserve Bank and stands at the centre of the Australian payments system. It is a real-time gross settlement (RTGS) system, with individual interbank payment obligations being settled across Exchange Settlement accounts held by each bank at the Reserve Bank. The system is also used for the settlement of deferred net clearing obligations. The reliability of RITS is essential to the smooth functioning of the Australian payments system and the stability of the financial system more generally.

Payments through RITS on an RTGS basis arise from three sources: the High Value Clearing System (HVCS), Austraclear, and cash transfers between RITS participants. The HVCS allows participants to send large-value payment instructions to the RTGS system using the global SWIFT network. HVCS payments make up around 70 per cent of RTGS payments by value, and close to 90 per cent by volume. Austraclear is a depository and settlement system for Australian debt securities. Interbank payment obligations arising from Austraclear are settled in real time in RITS, with securities being transferred in Austraclear at the time the payments are made. These payments account for around a quarter of all RTGS payments by value, and roughly 10 per cent by volume. Cash transfers between RITS participants are generally associated with money market transactions and account for only a small share of total RTGS payments.⁴

Payments in the cheque, direct entry, debit and credit card, and ATM systems are also settled in RITS, but as a batch on a deferred net basis at 9.00 am on the day after payment instructions are exchanged. Interbank payment obligations arising from ASX equity settlements (in the CHESS settlement system) also settle daily on a deferred net basis, but in a separate batch.

Around 90 per cent of interbank settlements by value occur on an RTGS basis in RITS, with the remainder being settled on a deferred net basis. On an average day, there are around 23 000 RTGS transactions, with a total value of around \$135 billion.

In preparation for the FSAP assessment, the Reserve Bank recently conducted a self-assessment of RITS against the CPSS Core Principles. These principles cover a variety of elements relevant to the safety and efficiency of a payment system (see Box D). In addition, the CPSS has outlined four responsibilities of the central bank in applying the Core Principles. While assessments of whether a system complies fully with some of the Core Principles are inevitably subjective, the Bank's view is that RITS performs well against the Core Principles, complying with all nine principles that are considered applicable, along with the four responsibilities of the central bank.⁵

This positive self-assessment of RITS largely reflects two factors. The first is that Australia has established a sound legal framework for payment systems, based on the 1998 amendments to the *Reserve Bank Act 1959*, the *Payment Systems (Regulation) Act 1998* and the *Payment Systems and Netting Act 1998*. The *Payment Systems and Netting Act* has been particularly important in ensuring the legal robustness of settlement in RITS. The Act allows the Reserve

⁴ More details on this can be found in Bullock, M, N McMillan and S Weston (2004), 'The Australian High-Value Payments System', Financial Stability Review, March.

⁵ Core Principle V – Settlement in Multilateral Netting Systems – is not applicable since RITS is not a multilateral netting system.

Bank to approve RTGS payment systems, giving legal certainty for payments made on the day of appointment of an external administrator. In the absence of an approval, the so-called ‘zero hour’ rule (whereby an insolvency is deemed to have occurred immediately after the preceding midnight) could result in RTGS payments made on the day of insolvency being overturned. The legislation also gives legal certainty to multilateral netting arrangements that are approved by the Reserve Bank, including arrangements that settle in the 9.00 am batch in RITS.

The second factor is Australia’s adoption of best practice for high-value payment systems with the implementation of the RTGS system in 1998. In doing so, Australia was able to learn from RTGS systems that had been introduced previously in other countries when considering the design features of its own system. As a consequence, Australia’s system is reliable, sound and liquidity efficient.

While in the Bank’s view RITS complies with the Core Principles, the outside perspective involved in the FSAP process may provide some useful insights on current arrangements.

3.2 Recommendations for Securities Settlement Systems and Central Counterparties

As mentioned, the IMF will also be undertaking an informal assessment of securities settlement systems and central counterparties as part of the FSAP. This will include the securities settlement systems and central counterparties operated by the Australian Stock Exchange (ASX) and Sydney Futures Exchange (SFE). The role of a securities settlement system is to maintain a record of title to securities and ensure the final transfer of securities from the seller to the buyer and funds from the buyer to the seller. Such systems are not counterparties to the trades they record. In contrast, central counterparties interpose themselves between the two parties to a trade and become the buyer to every seller and the seller to every buyer, and as a result take on the same risks as any other market participant. This allows some netting of obligations and centralisation of credit-risk management, but it also results in concentration of credit risk with the central counterparty.

The smooth operation of securities settlement and central counterparty functions is essential to the stability of Australia’s financial system. Turnover in wholesale securities and derivatives markets is large and the failure of transactions to settle on schedule – or worse, the failure of a central counterparty – could have serious flow-on effects on participants.

While the template for the IMF’s assessment of these systems will be the CPSS-IOSCO recommendations, the Reserve Bank has had in place its own standards (the Financial Stability Standards for Central Counterparties and Securities Settlement Facilities) since May 2003. These derive from the Reserve Bank’s power to set standards under section 827D(1) of the *Corporations Act 2001* to ensure that licensed clearing and settlement facilities conduct their affairs in a manner that contributes to the stability of the financial system. The objective of the standards is to ensure that licensees identify and properly control the risks associated with the operation of the system in question. There is considerable overlap between the CPSS-IOSCO recommendations and the Financial Stability Standards, although the latter focus on stability matters given the Bank’s mandate under the *Corporations Act*.

The Bank monitors compliance with the Financial Stability Standards on an ongoing basis and prepares a formal report to the Parliamentary Secretary to the Treasurer once a year. Its current assessment is that both the securities settlement facilities and central counterparties operated by the ASX and SFE meet these standards. Nonetheless, as with the FSAP assessment of RITS, it is likely that the process of external assessment as part of the FSAP may provide another useful perspective on the Australian systems.

3.3 Update on the New Basel Capital Framework

Preparations for the implementation of the new Basel Capital Framework are proceeding, both at the global level and domestically. The new Framework is scheduled for implementation in Australia from 1 January 2008 and will have significant implications for the way that some authorised deposit-taking institutions (ADIs) calculate their minimum capital requirements. While the majority of Australian banks, building societies and credit unions will use the more straightforward standardised approaches, the larger banks are likely to use the more advanced approaches, subject to satisfying APRA's accreditation process.

Internationally, one concern is the possibility that the overall level of capital in the global banking system might decline significantly as a result of the new Framework, which would be counter to its original intention. Moreover, at the national level, regulators are unlikely to be comfortable with outcomes in their own jurisdictions which significantly lower aggregate capital requirements from current levels. To address these concerns, the Basel Committee has proposed adjusting capital requirements with a scaling factor calibrated on the basis of quantitative impact studies conducted by a number of countries. One complication of such an adjustment, however, is that capital requirements may be influenced by the position in the business cycle. This concern was highlighted by a recent quantitative impact study by US authorities, which found that, under the new arrangements, there was both the potential for an unexpectedly sharp drop in aggregate capital requirements and a very wide dispersion of capital levels for individual banks. One possible explanation for the fall in aggregate requirements is that the US economy has improved since earlier studies were undertaken, causing measures of credit risk, and thus capital requirements, to decline relative to current levels. It is also possible that the results have been influenced by shortcomings in data quality, the design of the quantitative study, and the design of the new Basel Framework itself. US authorities are continuing to analyse the results of the study, with further details expected later this year.

Partly in response, the Basel Committee has decided on further field testing of the new Framework via a fifth quantitative impact study (QIS 5). Most countries participating in QIS 5, including Australia, will gather data from financial institutions in late 2005. These data will then be used to assess prospective capital charges and, if need be, help recalibrate the new Framework to ensure that aggregate capital requirements do not change substantially on implementation.

Implementation in Australia

Over the past six months, APRA has released draft prudential standards covering the standardised approaches to credit risk and operational risk. The draft standard for the more complicated internal ratings-based (IRB) approach to credit risk has also been released, and APRA is aiming

to make the draft standard for the advanced approach to operational risk available later this year. Further details on these draft standards are available on APRA's website.

APRA has gone to considerable effort to ensure that the revised prudential standards are appropriately tailored to the risks of lending for residential property, which accounts for over half of banks' total lending in Australia. The approach APRA is adopting for banks using the standardised approach is more risk-sensitive than the approach developed by the Basel Committee. In particular, APRA is proposing to make capital requirements on residential mortgages a function of three factors: loan-to-valuation ratios (LVR), whether it is mortgage insured, and whether it is a 'standard' or 'non-standard' loan (Table 12). Non-standard loans are mainly 'low doc' mortgages which involve an element of self-verification in the loan application process. While these new arrangements will see the capital requirements for credit risk on many housing loans decline, the minimum requirements will increase on more risky loans.

Table 12: Owner-occupied Residential Mortgage Risk Weights
Per cent

LVR	Loans with Mortgage Insurance				Loans without Mortgage Insurance			
	Standard		Non-standard ^(a)		Standard		Non-standard ^(a)	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
<60	50	35	50	35	50	35	50	50
60-80	50	35	50	50	50	35	100	75
80-90	50	35	50	75	100	50	100	100
90-100	50	50	50	75	100	75	100	100
>100	50	75	50	100	100	100	100	100

(a) Non-standard loans are mostly low-doc loans.
Source: APRA

APRA will also be using its national discretion to maintain the risk weight for non-housing lending to the household sector at 100 per cent under the standardised approach rather than the 75 per cent weight proposed by the Basel Committee. In APRA's view, the lower risk weight is inappropriate for Australian ADIs using the standardised approach, given that it was designed for institutions with portfolios that are more diversified in both product and geographic terms than those of many Australian ADIs.

3.4 Insurance Industry Reform

APRA has continued to implement reforms relating to the insurance industry in Australia, building on the recommendations of the HHH Royal Commission. Of particular note are the initiatives relating to so-called financial reinsurance – arrangements under which payouts made by the reinsurer to the insurer are eventually refunded (partly or in full) so that the transfer of risk is incomplete. Such arrangements often amount to little more than a loan by the reinsurer to the insurer, but they have not always been reported as such, helping the insurer to conceal losses and misrepresent capital levels. Financial reinsurance transactions featured prominently in events leading up to the failure of HHH, and more recently have been investigated by regulators in Australia and overseas.

In May, APRA issued new draft prudential standards to ensure greater transparency and accountability in financial reinsurance. Under the standards, reinsurance arrangements must be adequately documented and side letters – agreements governing aspects of a reinsurance deal that do not feature in the official documentation – must be clearly disclosed. In addition, reinsurance arrangements will be subject to greater auditor and peer scrutiny, and senior executives and approved auditors will need to provide personal attestations that disclosures to APRA reflect the true state of a company's finances. APRA may then use this additional information to determine whether financial reinsurance deals are to be classified as either reinsurance or financing for the purposes of calculating an insurer's minimum capital requirement and for reporting financial data. The final standards are due to be released early in 2006.

Internationally, US authorities are considering tighter and more nationally uniform regulation of financial reinsurance; several investigations into specific violations of the existing disclosure rules are also underway. In the United Kingdom, the Financial Services Authority recently issued strict directives regarding the use and reporting of financial reinsurance arrangements by regulated institutions. Also, the German Federal Financial Supervisory Authority is informally investigating a number of insurers and reinsurers believed to have misused financial reinsurance.

In other initiatives relating to insurance, APRA recently proposed rules that would help protect insurance subsidiaries from financial difficulties arising elsewhere in the conglomerate to which they belong. A key feature of these proposals is that the insurance entity is 'ring fenced' – that is, that the conglomerate be prevented from siphoning capital from its insurance subsidiary to other companies in the group. This ring-fencing will apply to both supervised and unsupervised entities within domestic conglomerates, and to insurers owned by foreign groups. The new standards are expected to be in place by 2007.

Finally, the Insurance Council of Australia (ICA) released a new code of conduct in July for general insurers. This code, developed by the insurance industry over recent years, targets general insurers' performance standards and their relationships with policyholders. Prepared in consultation with industry bodies and consumer groups, the code will promote accountability and transparency on products and fees, and will also encourage faster claims processing. The new standards will be adopted by all ICA member organisations – which service around 90 per cent of the total domestic general insurance market – and are expected to become effective by mid 2006.

3.5 Framework for Governance

In May, APRA released draft prudential standards concerning arrangements for the boards of most of the institutions that it regulates.

The proposed standards are based on the Australian Stock Exchange's *Principles of Good Corporate Governance* for listed companies and set out requirements for board size, director independence and shareholder representation. A notable aim of the proposed standards is that boards of APRA-regulated institutions have access to independent expertise. With the exception of certain types of subsidiaries, boards are expected to have a majority of independent non-executive directors and have an independent non-executive director as chairperson. It is also

proposed that boards have a policy on their renewal, establish a Board Audit Committee and a Board Risk Committee, and ensure that their institutions have an internal audit function.

An essential component of the corporate governance framework more broadly is a requirement that people in positions of responsibility are competent and trustworthy. To this end, APRA has recently issued revised draft ‘fit and proper’ standards which will apply to most APRA-regulated institutions. APRA will require that institutions ensure that individuals in positions of responsibility – directors, senior managers, auditors and actuaries – meet minimum standards of fitness and propriety. For instance, institutions will be required to formulate a written ‘fit and proper’ policy, encourage and reasonably protect whistleblowers, and inform APRA of changes to the persons in positions of responsibility. Although the onus for ensuring that persons are fit and proper falls on the institutions, APRA will reserve the power to disqualify or remove individuals if an institution does not take remedial action when needed. Final prudential standards on corporate governance and ‘fit and proper’ requirements are expected to be released in late 2005 or early 2006.

3.6 Business Continuity Management

An ongoing risk to financial institutions is the prospect of critical infrastructure failures, or disruptions to external operating environments. Computer system failures, blackouts, or systemic disruptions to public transport are among the most obvious examples of this type of operational risk. Interest in managing this risk has increased significantly over recent years in the wake of terrorist attacks in the United States in 2001 and more recently in the United Kingdom. Although financial systems in those countries proved to be resilient, many individual institutions throughout the world now perceive themselves to be at greater risk than was previously the case and have devoted more resources to identifying and mitigating the risks.

Regulators have encouraged this response. In Australia, an inter-agency taskforce is developing procedures to better protect critical national infrastructure against the threat of terrorism, with the initiative embracing a number of major financial institutions. As part of the Government’s Trusted Information Sharing Network for Critical Infrastructure Protection, the Reserve Bank is Deputy Chair of the Banking and Finance Infrastructure Assurance Advisory Group. The purpose of this group is to facilitate information sharing among representatives from the owners and operators of critical financial system infrastructure and to develop strategies to mitigate risks to that infrastructure.

APRA has also recently released a new standard for business continuity management for authorised deposit-taking institutions (ADIs) and general insurers. This standard takes a whole-of-business approach to ensuring that critical business functions can be maintained or restored in the event of disruption. Under the standard, institutions will need to undertake both risk assessments and business impact analyses, and have crisis management procedures in place. The standard requires that these matters be addressed in an actively maintained business continuity plan, which should be fully integrated into the overall risk management plan of each institution. Boards will have responsibility for testing these plans and for ensuring that they are current, comprehensive, and appropriately disseminated.

ADIs have until April 2006 to meet the new standard. In the interim, they will need to report on their compliance and to outline in detail any remedial measures that they need to undertake. APRA anticipates releasing similar standards on business continuity management for life insurers in the first half of 2006.

Box D: Core Principles for Systemically Important Payment Systems

- I. The system should have a well-founded legal basis under all relevant jurisdictions.
- II. The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.
- III. The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.
- IV. The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.
- V. A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.
- VI. Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.
- VII. The system should ensure a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.
- VIII. The system should provide a means of making payments which is practical for its users and efficient for the economy.
- IX. The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
- X. The system's governance arrangements should be effective, accountable and transparent.

Responsibilities of the central bank in applying the Core Principles

- A. The central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.
- B. The central bank should ensure that the systems it operates comply with the Core Principles.
- C. The central bank should oversee compliance with the Core Principles by systems it does not operate and it should have the ability to carry out this oversight.
- D. The central bank, in promoting payment system safety and efficiency through the Core Principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities.

Collateralised Debt Obligations in Australia¹

Introduction

Collateralised debt obligations (CDOs) are securities that are exposed to the credit risk of a number of corporate borrowers. In the simplest form of a CDO, this credit risk exposure is generated in the same way as for any asset-backed security (ABS): the CDO is backed by outright holdings of corporate debt, such as corporate bonds and corporate loans. Increasingly, however, the exposure to corporate credit risk is synthesised through the use of credit derivatives. Unlike other forms of ABS, where the collateral pools usually consist of loans with broadly similar characteristics, CDO reference pools are typically quite heterogeneous, with exposures to a variety of borrower types and credit ratings and across a number of countries. A CDO will usually have exposures to between 50 and 200 bonds or large corporate loans, or up to 2 000 loans to small and medium-sized businesses.

CDOs are important instruments in the financial system since they facilitate the transfer of credit risk between financial market participants.² CDO issuance has increased significantly in recent years, with more complex structures evolving in response to demands of investors and issuers. While the growth of CDOs has allowed credit risk to be spread across a broader range of financial market participants, the increasing complexity of some deals has at times made it difficult for issuers and investors to properly price risk.

CDO Structures

The simplest forms of CDOs are known as ‘cash’ or ‘vanilla’ CDOs, and are similar to other forms of ABS. A special purpose vehicle buys loans and securities from financial institutions and other market participants, and funds these acquisitions by selling securities to investors. The manager of the CDO vehicle will usually deduct fees and expenses from the interest income received from the assets in the collateral pool, with the remainder used to make regular coupon payments to investors. The term to maturity of the loans and bonds in the collateral pool will determine the maturity of the CDO securities sold to investors.

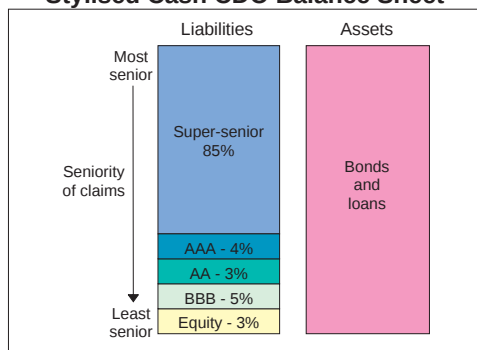
Like other forms of structured finance, the claims issued against the collateral pool are usually sold in tranches with differing degrees of credit support – that is, protection from losses should there be any defaults on the underlying loans or bonds. This is most commonly achieved by subordinating some of the tranches, whereby the most senior tranche has first legal claim on the CDO assets, with the priority of claims decreasing down to the most junior tranche (which is typically an unrated ‘equity’ tranche that is frequently retained by the issuer). An alternative form

¹ This article was prepared by the Securities Markets Section of Domestic Markets Department.

² For more discussion of credit risk transfer markets, see Hall, K and E Stuart (2003), ‘Credit Risk Transfer Markets: An Australian Perspective’, Reserve Bank of Australia Bulletin, May.

Figure 1

Stylised Cash CDO Balance Sheet



of credit support is to assign different priorities amongst investors' claims on the principal repayments received by the CDO over its lifetime. In this arrangement, as the value of the CDO's collateral pool reduces as the underlying debts mature, these debt repayments are used to pay back the senior tranche investors' principal. Only when all of the senior tranche has been fully retired will repayments on less senior tranches begin.

The size of each tranche relative to the value of the collateral pool will determine the degree of protection given to more senior tranche holders. An example of a cash CDO vehicle's balance sheet is shown in Figure 1. In this example, the size of the equity tranche is equivalent to 3 per cent of the CDO vehicle's assets, while the size of the next most junior tranche – the BBB-rated tranche – is equivalent to 5 per cent of assets. This means that the BBB-rated tranche is protected against the first 3 per cent of losses in the asset portfolio, but bears the full risk of the next 5 per cent of losses. If defaults by borrowers amount to 4 per cent of the collateral pool, the equity tranche will be wiped out and holders of the BBB-rated tranche will absorb the remaining 1 per cent of losses – that is, 20 per cent of their investment will be lost.

As one would expect, the credit rating assigned to a particular tranche by rating agencies can be increased (decreased) by increasing (decreasing) the amount of credit support provided by more junior tranches. Underlying the ratings given to tranches, however, is the rating agency's assessment of the likelihood of default of individual securities in the collateral pool. If these securities, on average, have a relatively low credit rating, then this will lower the weighted-average credit rating of the tranches. Credit ratings are also very sensitive to the estimated default correlation on the underlying claims that comprise the collateral pool – higher default correlation will weigh down the overall credit rating. Estimating the extent of this correlation is difficult, and rating agencies use methodologies that rely on assumptions about correlations of defaults within and across industry sectors, as well as information on specific company-to-company exposures. Where a collateral pool has a higher estimated default correlation or lower average credit quality, highly rated tranches can still be issued, but these will require greater levels of credit support than if the collateral pool had a lower default correlation or higher average credit quality.

Comparing the credit rating of a CDO tranche with the rating of a conventional bond is complicated by the fact that the respective investors' loss burdens will not have the same profile. Some rating agencies have dealt with this problem by defining equal ratings to mean the same ability to make *full* payments of interest and principal – that is, the rating is determined by the likelihood of whether the security will bear *any* loss, known as the 'probability of first dollar of loss'. But, as noted above, once a tranche incurs its first dollar of loss, it bears the burden of *all*

further losses until its value is wiped out. In this sense, a tranche of a CDO that is rated, say, BBB is more risky than a BBB-rated conventional security.

While cash CDOs comprised the bulk of issuance during the early part of the CDO market's development, issuers are increasingly making use of credit derivatives to create 'synthetic' CDOs, also known as 'credit linked notes'. Rather than directly holding a pool of corporate debt as collateral, an equivalent credit risk exposure is created by entering into credit default swaps (CDS). Typically, the CDO vehicle invests the funds it has raised in bank deposits or highly rated securities. Additional return, and risk, is then generated by the vehicle entering into a series of CDS contracts whereby it receives 'insurance' premia from counterparties in return for agreeing to pay compensation in the event of a default (or some other credit event) by the specified corporate borrowers, or other 'reference entity'. The premia will be larger where the reference entity is considered to have greater credit risk. In the normal course of events, income from the return on the relatively safe investment plus the CDS premia is used to make interest payments to CDO investors. In the event of a corporate default, the CDO vehicle uses part or all of its funds (at the investors' expense) to compensate its swap counterparty.

A key advantage of synthetic structures over cash structures is that it is often faster and cheaper to assemble a portfolio of CDS for a particular reference pool of borrowers than to purchase the equivalent portfolio of bonds or loans. CDS contracts can also be tailored to the desired timing and currency denomination of cashflows. An additional advantage of synthetic structures is that issuers need not sell CDO tranches for the full amount of the underlying credit exposure. Since no outright purchases of assets have been undertaken, funds will only need to be raised to the extent that there is a need to fund provisions against the notional exposure agreed to in the CDS contracts. In contrast, since an issuer of a cash CDO has made outright purchases of bonds and loans, it must raise funds to the full amount of the collateral pool.

More recently, some issuers have offered 'CDO-squareds', which are CDOs that have reference pools consisting of tranches from other CDOs. Default risk on a given tranche of a CDO-squared depends on the seniority of the CDO-squared tranche, and the seniority of the CDO tranches included in the reference pool. It also depends on the level and correlation of defaults within and between the underlying CDOs' reference pools. Estimating these correlations can be even more difficult than for other CDOs, and it is possible that issuers of CDO-squareds may therefore underestimate the risks they continue to bear, with some of their offerings consequently being underpriced. The Appendix gives more information on these and other types of CDOs.

Trends in Issuance

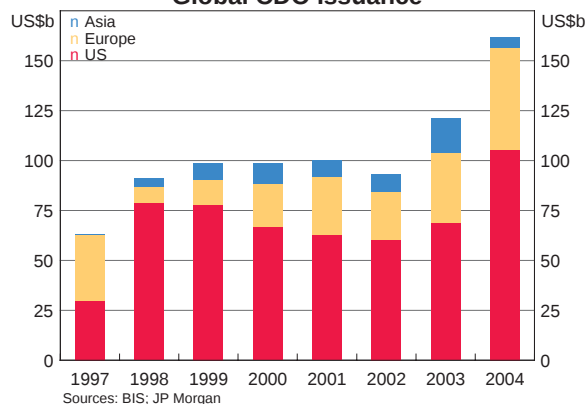
Issuance of CDOs has increased rapidly both globally and in Australia over the past few years. Globally, US\$160 billion of CDO tranches were issued in 2004, up from an annual average of less than US\$100 billion between 1998 and 2002 (Graph 1).³ This strong growth was driven by increased issuance in the United States and Europe.

The Australian CDO market has been slower to develop than overseas markets. Between 1998 and 2002, total issuance of CDOs was only \$2 billion, most of which was in the form of cash CDOs issued by domestic and non-resident banks to help manage their credit risk (Graph 2).

³ Global and Australian issuance figures refer to funded CDO tranches, and exclude the unfunded tranches of synthetic CDOs.

Graph 1

Global CDO Issuance

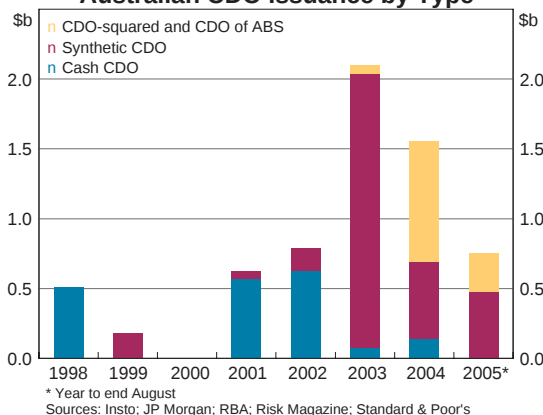


Since then issuance of CDOs has been substantially higher, with around \$4½ billion of CDOs issued over this period. At end August 2005, outstandings of publicly offered Australian dollar CDOs stood at around \$5.7 billion.⁴

The majority of Australian CDOs have been issued at maturities of between 3 and 7 years. Credit exposures mostly consist of corporate debt, with bonds accounting for 55 per cent of all exposures and loans accounting for 25 per cent. The remaining 20 per cent of exposures consists of other CDOs or ABS. Although domestic banks were instrumental in initiating the Australian CDO market, accounting for 55 per cent of CDO issuance until 2001, more recently their market share has declined; since 2004 they have accounted for only 15 per cent of issuance, with overseas institutions accounting for the remainder.

Graph 2

Australian CDO Issuance by Type



Synthetic CDOs have accounted for the bulk of new offerings since the end of 2002. Part of this growth has been driven by the increasing

recognition of the advantages of synthetic structures discussed above. As well, the relatively rapid growth of the domestic CDO market has made it increasingly difficult to assemble sufficiently distinctive pools from within the Australian corporate debt market. As a result of this, issuers have been using synthetic structures to access offshore credit exposures more readily, with Australian debt having come to comprise a relatively small share of domestic CDO exposures: over the past year and a half, it has accounted for only 10 per cent of newly issued CDOs' credit exposures (Graph 3).

CDO Investors

Purchasers of Australian CDOs include large fund managers, middle-market investors, and retail investors. Market liaison suggests that since 2002 around 20 per cent of new issuance has been taken up by large fund managers, which is a relatively small share in comparison to overseas

⁴ These figures exclude private deals, such as bilateral transactions of tailored CDO-like securities that have been undertaken by large institutions for the purposes of diversifying the credit exposures of their balance sheets.

markets. These managers are divided into two broad groups: high-yield bond funds, which typically buy the equity and lower-rated tranches; and standard bond funds, which buy the higher-rated tranches. These investors tend to view CDOs as just another type of corporate debt security.

Middle-market investors account for the largest share of the market, having purchased around 65 per cent of issues since 2002. This market segment consists of local governments, university and charity endowment funds, and high net worth individuals, as well as smaller boutique fund managers. Liaison with market participants indicates that within this segment local governments are quite prominent – partial data suggest that, in aggregate, CDOs comprise around 10 to 15 per cent of total local government financial assets, with some councils' holdings substantially higher.

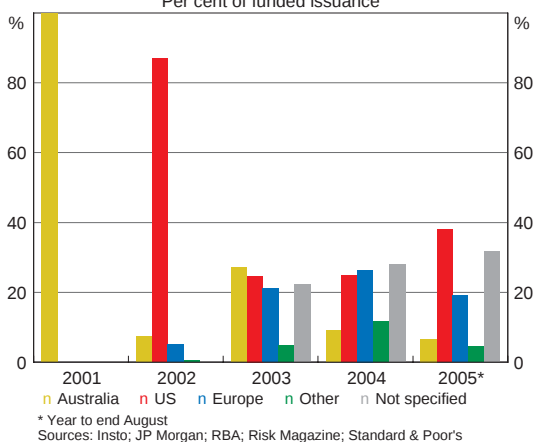
Retail investors have also been an important source of demand for CDOs in Australia. Whereas early issues of CDOs were sold only to institutional investors, since 2002 retail investors have purchased around 15 per cent, by value, of newly issued CDOs. The retail share of the market in Australia is high compared to some overseas markets, perhaps reflecting the relative scarcity of high-yield money market funds in Australia compared with overseas managed fund markets. This perhaps also accounts for some of the strength in demand from middle-market investors.

Retail CDOs have been offered to investors through prospectus subscriptions, with most securities being listed on the Australian Stock Exchange (ASX). These prospectuses tend to emphasise that their reference portfolios contain a diversified selection of higher-rated and lower-rated names, the implication perhaps being that the higher-rated borrowers will balance out the lower-rated borrowers. In reality, the range of credit risk is at least as important as its average, since any defaults by lower-rated borrowers will reduce the credit support of each tranche, and potentially result in losses to investors.

Over the past few years, retail offerings have had a somewhat lower average credit rating than wholesale offerings – only one retail CDO offering since 2002 has been rated AAA, while more than half were rated BBB or lower. In contrast, over this period almost a third of the value of CDO offerings sold to middle-market investors and large fund managers were rated AAA, and only a tenth were rated BBB or lower (Graph 4). Recent retail offerings have, however, had higher credit ratings than earlier offerings.

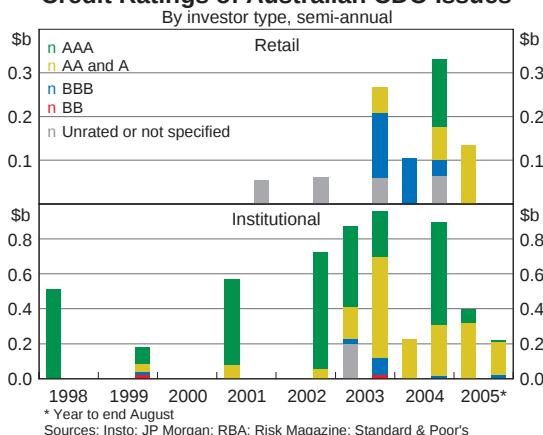
In response to investor concerns following rating downgrades on earlier retail offerings, issuers of some more recent offerings have put a cap on the losses that will be borne by investors

Graph 3
Domicile of Australian CDO
Credit Exposures
Per cent of funded issuance



Graph 4

Credit Ratings of Australian CDO Issues



principal is invested in a highly rated tranche, with the remainder invested in a riskier tranche (often the first-loss tranche). The investment in the highly rated tranche accumulates interest over the life of the CDO, so that at maturity the full principal amount should be able to be repaid, while income from the investment in the lower-rated tranche is used to make coupon payments. Combo notes are usually described as having the same rating as that given to their principal tranche, even though the stream of coupon payments is subject to higher risk.

CDO Ratings Performance

Given the increasing international content of domestic CDO reference pools, it is not surprising that the ratings performance of Australian CDOs has largely followed that of the global CDO

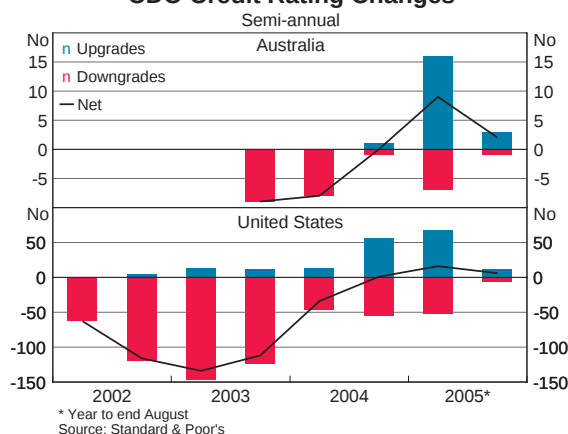
due to any one borrower defaulting. As well, some issues have included a degree of capital protection, which has ranged from an explicit capital guarantee to a more general aim of capital stability. An issuer can provide a capital guarantee by purchasing some form of insurance from a highly rated financial institution, although investors will still ultimately be exposed to the credit risk of that institution. Alternatively, capital stability can be generated by structuring the CDO as a 'combo note', where most of the

market (Graph 5). Downgrades outnumbered upgrades in late 2003 and early 2004, but this trend was reversed in late 2004 with falling default rates and generally strong corporate prospects.

These offsetting movements have resulted in little net change in the credit ratings of outstanding Australian CDOs. Ninety per cent of both institutional and retail offerings are currently rated in the same major category as when they were first issued. Of the remaining 10 per cent, roughly equal numbers are currently rated higher or lower than their original ratings.

Graph 5

CDO Credit Rating Changes

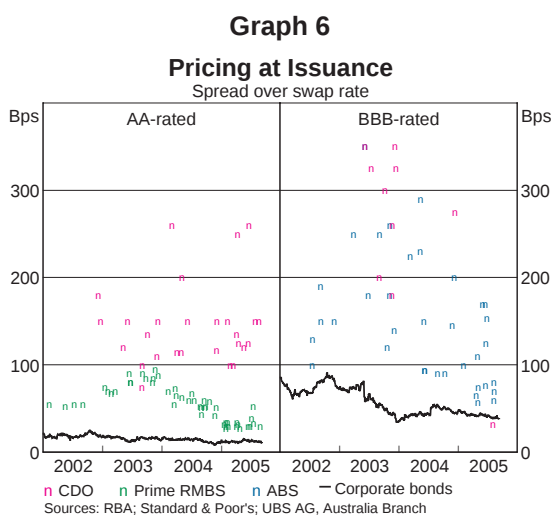


The increasingly international nature of domestic CDO reference portfolios also means that Australian investors have greater exposures to corporate downgrades and defaults that occur in overseas markets. The default of the Italian company Parmalat in late 2003 contributed to the rating downgrades of many CDOs in Australia, as well as overseas, around this period. More recently, the rating downgrades earlier this year of the US companies General Motors and Ford – two of the largest corporate borrowers in the world – had some ramifications for CDO equity tranches, though other tranches were largely unchanged.

These latter events also highlighted the difficulties of modelling correlation behaviour within and between CDO pools, with incorrect correlation assumptions resulting in a brief period of high volatility in global credit markets in May following the initial rating downgrades of these companies by Standard & Poor's and Fitch (Moody's announced downgrades in August). Prior to these announcements, some market participants had assumed that any downgrades of these companies would be positively correlated with downgrades of other corporate borrowers, thereby affecting the price of both equity tranches and the next most junior tranche. This expectation formed the basis of trading strategies implemented by a number of hedge funds and investment banks. In the event, however, the downgrades of General Motors and Ford were not accompanied by a rash of downgrades across the corporate sector, with the consequence that only equity tranches of CDOs were affected. As a result, market participants that had positioned themselves to profit from expected co-movements instead sustained losses, though many other CDO holders were little affected by events.

CDO Primary and Secondary Market Pricing

The yields at which CDOs have been issued in the Australian market have, for the most part, been higher than for similarly rated securities. Over the past year AA-rated CDO tranches have been issued at spreads of between 100 and 250 basis points above swap rates (Graph 6). In contrast, AA-rated tranches of residential mortgage-backed securities (RMBS) have been issued at around 50 basis points over swap rates in the past year, though these tranches have additional credit enhancement by being backed by lenders mortgage insurance which bears the first losses should household borrowers default.⁵ For BBB-rated securities, spreads have also been wider for CDO tranches than for other ABS tranches, though the pricing of these is much more variable, due in part



⁵ For more information on the influences of lenders mortgage insurance and other factors on the credit quality and pricing of RMBS tranches, see Bailey, K, M Davies and L Dixon Smith (2004), 'Asset Securitisation in Australia', Financial Stability Review, September.

to the greater variability of their asset pools. Spreads on conventional corporate bonds have been much narrower than for structured finance tranches for both AA-rated and BBB-rated securities.

Secondary market trading of CDOs is much less developed in Australia than in overseas markets. At present there are very few market-makers for these securities, though a number of institutions are prepared to transact on a best-efforts basis. There is some price transparency for retail CDOs that are listed on the ASX, although trading volumes are usually quite low. Prices for individual issues have varied over the past year but, in aggregate, CDO spreads have declined in the secondary market, in line with the broader fixed income market.

Some of the pricing differential between CDOs and conventional securities would be expected, given the differences in the structural characteristics of these securities. As discussed earlier, credit ratings tend to indicate the likelihood of the first dollar of loss, rather than the expected total loss on the investment. The wider spreads are also partly explained by the illiquid secondary market for CDOs, with investors requiring a premium to hold securities that could be difficult to sell at a later date.

Conclusions

In general, the growth in CDO issuance in Australia is supportive of financial stability to the extent that it has allowed credit risk to be spread across a range of investors, rather than concentrated on the balance sheets of a small number of domestic financial institutions. With total outstandings of \$5.7 billion, the Australian CDO market is currently not large enough to be of systemic importance to the financial sector. However, the available evidence suggests that CDOs constitute a reasonable proportion of some investors' financial assets, and the increased issuance of CDOs does raise a number of issues. Most notably, some investors, in seeking higher returns in a low-interest rate environment, may be underestimating the risks of these securities.

One issue for Australian investors, and the financial system more generally, is that the proportion of Australian debt in the reference pools of domestically issued CDOs has fallen to quite low levels over the past few years. This has meant that the major drivers of the risk characteristics of CDOs held by domestic investors may not be credit events related to the Australian financial system. While it is necessary for non-resident borrowers to be included in domestically issued CDOs to ensure that the reference pools are well diversified, to the extent that overseas CDOs do not incorporate an offsetting amount of domestic corporate debt, the Australian financial system has been a net recipient of global credit risk.

Another issue for Australia is that retail investors have tended to buy lower-rated CDO tranches than have their institutional peers, potentially leaving them more exposed to losses if the global economy were to suffer a period of economic stress. Also, the growing complexity of CDO structures has increased the difficulty of calculating risk based on the characteristics of the collateral pool, with some evidence of difficulties in pricing as a result.

Appendix – Types of CDOs

CLO – Collateralised Loan Obligation

A CDO in which most of the reference pool is comprised of corporate loans.

CBO – Collateralised Bond Obligation

A CDO in which most of the reference pool is comprised of corporate bonds.

CDO of ABS

A CDO in which most of the reference pool is comprised of tranches of asset-backed securities.

CDO-squared

A CDO in which most of the reference pool is comprised of tranches of other CDOs, which are usually synthetic. The figure below shows a CDO-squared transaction that has been divided into six tranches, and is referencing a portfolio of equal holdings of 10 tranches of other CDOs (each of which is exposed to losses from 5 per cent up to 10 per cent of the assets of their respective CDO pools). In this example, none of the CDO-squared's tranches will incur losses even if each of the 10 underlying CDOs incurs losses of 5 per cent. But if each of the underlying CDOs incurs another 1 per cent of losses, this will see one-fifth of the CDO-squared's portfolio lost, which will wipe out the equity tranche and all of the rated tranches except for 20 per cent of the AAA-rated tranche. More generally, the rated tranches of CDO-squared transactions start incurring losses later than the CDOs that comprise their reference portfolio, since the CDO-squared's own equity tranche gives even the lowest-rated tranche some protection. However, further defaults in the underlying pool can wipe out tranches of the CDO-squared much more rapidly than for standard CDOs.

Stylised CDO-squared Balance Sheet

