# FINANCIAL STABILITY REVIEW

**September 2004**

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# Overview

As has been the case for some years now, the Australian financial system remains in good shape, with recent developments generally being favourable from a financial stability perspective. The continuing expansion of the Australian economy, in particular, is providing financial intermediaries with a robust business environment. The banking system continues to record strong profitability, partly as a result of very low bad debts expense, and the insurance industry has benefited from better underwriting results and a pick-up in investment returns.

A notable development over the course of 2004 has been a turnaround in the housing market and a slowing in household credit growth. After house prices increased by around 20 per cent in 2003, and at an average annual rate of 13 per cent over the previous four years, prices have declined a little in 2004. Similarly, household credit growth has slowed from an annualised rate of 21 per cent over the second half of 2003, to 16 per cent over the latest six months.

These are welcome outcomes from a financial stability perspective. By mid last year, the Bank had come to the view that further significant increases in house prices, relative to income, would increase the prospect of costly adjustments at some point in the future. In particular, had the trends in 2003 continued into 2004, household balance sheets would undoubtedly be more vulnerable to a change in economic circumstances than is now the case.

In contrast to the early 1990s when house prices fell, and as discussed in the August *Statement on Monetary Policy,* the adjustment on this occasion has taken place against the backdrop of a strong economy and an unemployment rate at around 20-year lows. While it is still early days, the decline in house prices appears to have had little effect on households' perceptions of the health of their personal finances.

Despite the favourable outcomes to date, risks remain – although these relate more to the macroeconomy than to the financial system. Household credit continues to grow strongly, notwithstanding the recent slowing. And standard measures of financial vulnerability of the household sector, including the ratios of debt, house prices and interest payments to income, have recently reached record highs. A pronounced fall in house prices or a deterioration in economic conditions could prompt a broad reassessment by the household sector of the structure of its balance sheet, leading to a sharp fall in credit growth and a period of unusually weak consumption. In the other direction, there is a risk that the continued strong growth of the economy and favourable labour market conditions could again reignite the housing market, increasing the potential for a difficult adjustment in the future. How things evolve in this area warrants close attention in the period ahead.

The expansion of household sector balance sheets over recent years has led to an increase in the riskiness of banks' mortgage portfolios. Wider access by households to credit, the development of new loan products and rapid growth in lending to investors have contributed to an increase in credit risk in these portfolios, notwithstanding the very low level of problem

loans currently. Overall, however, it remains difficult to envisage scenarios in which problems with banks' housing loans could cause major difficulties for the Australian financial system. As discussed in the previous *Financial Stability Review*, this assessment is supported by an extensive stress-test exercise conducted by APRA last year. In addition, banks can derive comfort from their business loan portfolios, where credit quality is generally high. Business profitability is good, gearing has declined and interest payments as a share of profits are around the lowest level for many years.

The change in the housing market is, nevertheless, posing some challenges for banks and other lenders. As growth in housing credit slows, growth in lenders' balance sheets and earnings is also likely to ease. This is leading to an increase in competition in some product areas as banks seek out, or protect, sources of earnings growth. In this environment it will be important that pricing is commensurate with risk.

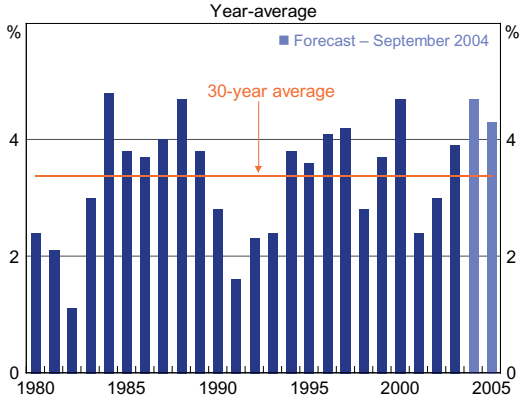
Looking overseas, the condition of the international banking system has improved recently, assisted by a stronger world economy. This, however, does not mean that the global situation is without risk. Geopolitical factors of the kind surfacing periodically in world oil markets are obviously one shadow over financial markets. Another is the capacity of market participants to handle the tightening of monetary policy that is now underway in the United States. The concern here is that investors who have borrowed heavily on the assumption of continuing low interest rates may need to unwind their positions quickly – a turn of events that could lead to an abrupt repricing of financial assets and, potentially, market instability. To date, however, the adjustment to tightenings in the United States, and elsewhere, has been benign. These market risks are less pronounced in Australia, partly reflecting the fact that interest rates were never cut to very low levels here – although, of course, it is impossible for local markets to be quarantined from overseas events.

# 1. The Macroeconomic and Financial Environment

## 1.1 The Global Environment

The global economy has strengthened further through 2004, and is providing a supportive environment for the Australian financial system and the Australian economy. Improved conditions are evident in most major regions. The recovery in the United States appears to be well established, conditions in Japan are the brightest in over a decade, and economic activity in the euro area is gradually gaining momentum. Growth also remains strong in most Asian countries, notwithstanding some slowing in China. Overall, forecasts compiled by Consensus Economics are for above-average growth in world GDP in both 2004 and 2005 (Graph 1).

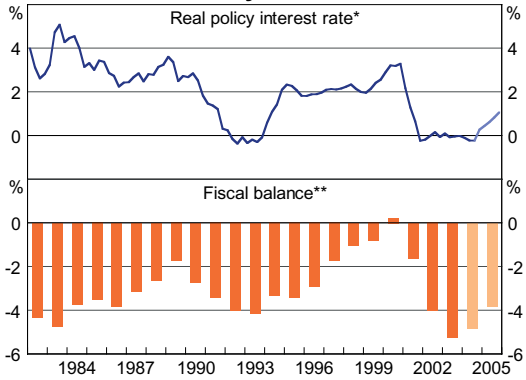
**Graph 1**
**World GDP Growth**
Year-average




Sources: Data – IMF; forecasts – Consensus Economics

The improvement in the global economy partly reflects substantial policy stimulus. Policy rates in key economies remain at or near 40-year lows and budget deficits in the G3 countries – the US, Japan and Germany – are high by historical standards (Graph 2).

**Graph 2**
**G3 Policy Indicators**

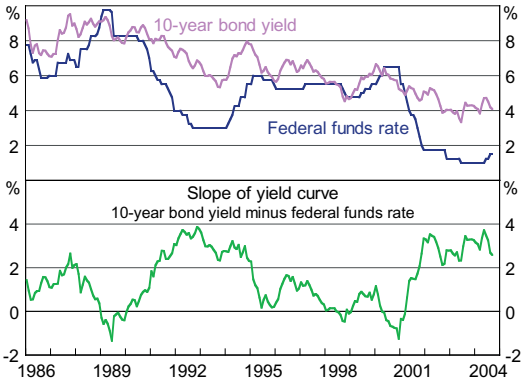



* Expectations based on futures market prices and unchanged core inflation
** IMF projections for 2004 and 2005
Sources: IMF; RBA; Thomson Financial

As discussed in the previous *Financial Stability Review*, this period of low interest rates and low volatility in financial markets has been associated with a general decline in risk premia and an increase in risk appetites as investors chase higher yields. Relatively steep yield curves in some countries have created incentives for investors to participate in 'carry trades', in which short-term borrowings are used to finance longer-term, more risky assets (Graph 3). Moreover,

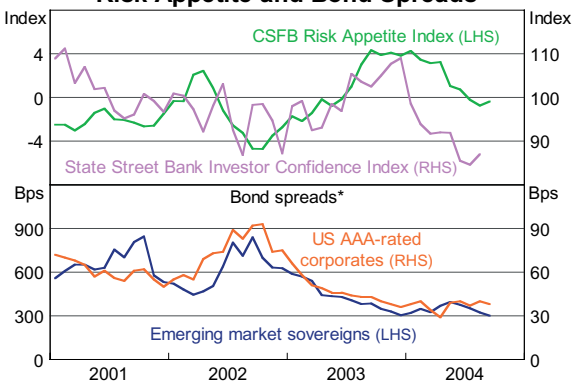
some institutions have been prepared to accept more risk in an effort to ensure that earnings on their assets do not fall below promised rates of return on their liabilities. Another manifestation of the general increase in risk appetite is that net private capital flows into emerging markets increased in 2003 to be at their highest level since 1996. There has also been a greater willingness of the largest international banks to take on market risk, with the total value at risk estimated to have risen by around 50 per cent in the past two years. While there are some signs that the tolerance for risk has declined a little since the start of this year, bond spreads have remained largely unchanged (Graph 4).

**Graph 3**
**US Interest Rates**




Sources: Bloomberg; US Federal Reserve

**Graph 4**
**Risk Appetite and Bond Spreads**




* Spreads to US government securities
Sources: Bloomberg; Credit Suisse First Boston; RBA; State Street Bank

In the United States, the process of removing some of the monetary stimulus commenced in June, with the federal funds rate raised by a cumulative 50 basis points to mid September. The reaction of financial markets to the increase has been measured. Some unwinding of carry trades occurred in anticipation of the tightening in June and volatility has remained low in both bond and equity markets.

This experience stands in contrast to the tightening cycle that started in February 1994, which saw a rapid change in interest-rate expectations and a significant sell-off in the bond market. Within eight weeks of the 1994 tightening, yields on long-term bonds had increased by almost 100 basis points, whereas this time, yields fell by less than 50 basis points over the same interval (Graph 5). Similarly, the share market has fared much better in 2004 than it did in 1994, when the S&P 500 Index fell by 9 per cent within two months of the initial tightening. In the current episode, the share market is down only 1 per cent since the Federal Reserve first tightened.

In part, the recent benign outcomes reflect the Fed's communication strategy, which has carefully telegraphed the tightening of monetary policy. Despite this, a risk remains that the trajectory of interest rate increases will turn out to be sharper than currently expected, particularly if economic growth or inflation were to surprise on the upside. In such an environment, there is the potential for some market instability, as investors simultaneously attempt to unwind the leveraged positions built up over the low-interest-rate period. In the bond

market, in particular, the potential for exaggerated moves in yields may have increased over recent years due to the extensive use of this market for the hedging of interest-rate risk associated with US mortgage-backed securities. Similarly, as hedge funds have become more important in price setting in global financial markets, the potential for them to contribute to market instability has also increased.

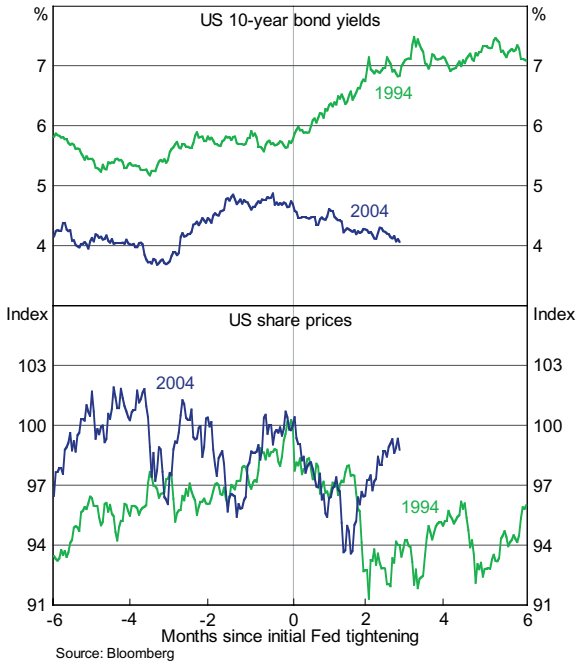
Currency markets have been relatively stable this year following large swings over recent years. While concerns remain regarding the historically large US current account deficit, the US dollar, on a trade-weighted basis, has been relatively steady of late. After appreciating strongly in 2002 and 2003, the Australian dollar has depreciated by around 8 per cent since March, broadly reflecting market expectations of movements in relative short-term interest rates (Graph 6).

Not surprisingly, the combination of better economic conditions, low interest rates and relatively stable financial markets has been good for the global banking system. The largest international banks have been delivering higher returns reflecting stronger demand for credit, sustained improvement in asset quality and good trading income. Global investment banks have experienced a pick-up in fee income in the first half of 2004, supported by stronger debt and equity issuance as well as resurgent mergers and acquisitions activity. Conditions in the weaker Japanese and German banking systems have also improved over the past year and a half, as balance sheets have been restructured on the back of stronger corporate profitability and declining bad debts expense. Reflecting the better

**Graph 5**

**Market Movements and Fed Tightening**

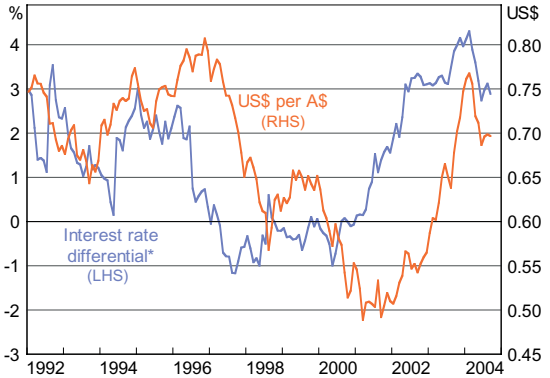
1994 and 2004




Source: Bloomberg

**Graph 6**

**Australian Dollar and Interest Rate Differential**



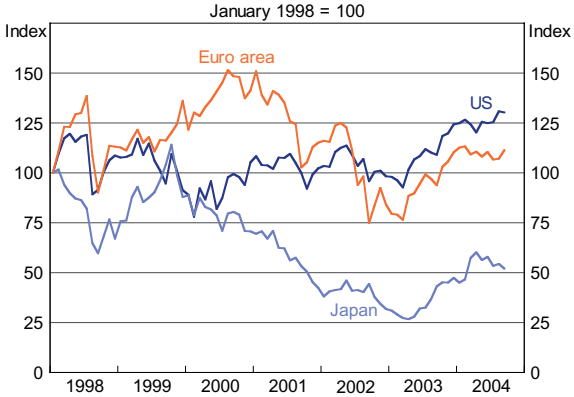

* Yield spread between 90-day Australian bank bill futures and 90-day Eurodollar futures for contracts three quarters ahead

Sources: Bloomberg; RBA

**Graph 7**

**Bank Share Price Indices**

January 1998 = 100




Source: Bloomberg

environment, bank share prices have tended to increase over the past year and a half, after falling in 2001 and 2002 (Graph 7).

The global insurance sector is also benefiting from a stronger world economy, higher share prices and the positive impact of higher long-term yields on the discounted value of their liabilities. Non-life insurers are profiting from rising premium revenue and a low incidence of large losses, although the life industry is still in the process of rebuilding its capital base, particularly in Europe. Reinsurers have also improved their financial positions over the past year, reflecting greater underwriting discipline and a below-average incidence of natural catastrophes.

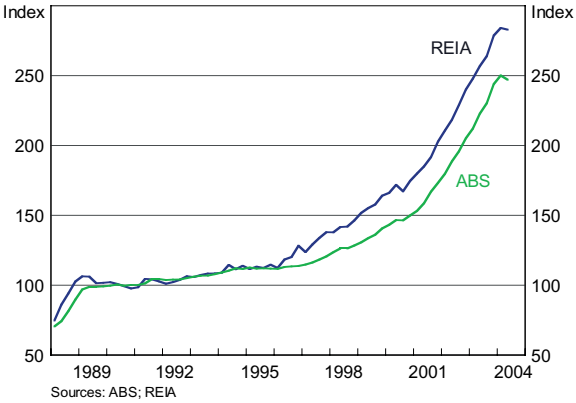
## 1.2 Australia

Recent developments in Australia have been favourable from a financial stability perspective. The economy has continued to grow strongly, expanding by 4.1 per cent over the year to the June quarter, and the unemployment rate is around 20-year lows. Consumer confidence remains high and businesses are optimistic about the future.

**Graph 8**

**Established House Prices**

1990 = 100




Sources: ABS; REIA

Perhaps the most notable development over the past six months has been a small decline in house prices. This comes after prices rose by around 20 per cent in 2003 and doubled over the six years to end 2003 (Graph 8). The recent turnaround is more pronounced than expected, but it is a welcome development, reducing the probability of a much larger and more costly correction at some point in the future.

### Household Sector

The changed conditions in the housing market can be clearly seen by comparing house price movements over the two halves of 2003/04 (Table 1). While the precise numbers differ, all four main measures of national house prices show a marked slowing in growth over the first half of 2004, and all recorded a decline in the June quarter. Similarly, the four series show a fall in prices

**Table 1: House Prices**
Percentage change over half-year

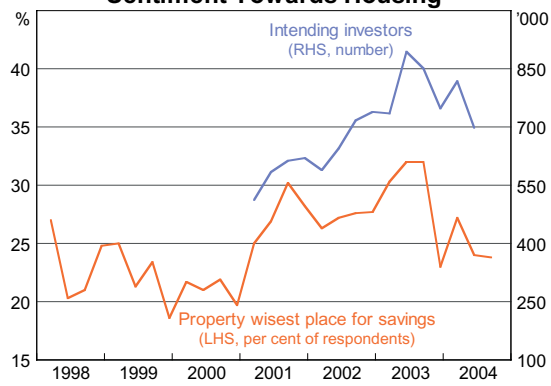
| | ABS | | APM[a] | | CBA | | REIA | |
|---|---|---|---|---|---|---|---|---|
| | 2003II | 2004I | 2003II | 2004I | 2003II | 2004I | 2003II | 2004I |
| Sydney | 7.6 | -2.1 | 16.3 | -6.0 | 12.0 | -9.2 | 7.5 | 4.0 |
| Melbourne | 5.9 | -0.3 | 12.5 | -8.8 | 13.6 | -8.0 | 3.3 | -3.5 |
| Brisbane | 19.2 | 7.8 | 22.7 | 2.3 | 21.0 | -0.8 | 21.1 | 0.0 |
| Adelaide | 10.7 | 5.6 | 9.1 | 7.1 | 13.5 | -3.5 | 9.1 | 4.2 |
| Perth | 10.9 | 3.3 | 8.7 | 2.0 | 11.9 | 2.2 | 12.4 | 1.7 |
| Canberra | 12.3 | 0.7 | 10.5 | 0.7 | 30.6 | 0.2 | 8.9 | 8.9 |
| Australia | 9.5 | 1.3 | 14.7 | -4.0 | 14.0 | -6.5 | 8.5 | 1.5 |

(a) Preliminary.
Sources: ABS; APM; CBA; REIA

in Melbourne over the first half of 2004, and three of the four show a decline in prices in Sydney. In the other capital cities, prices have continued to increase, but at a much slower pace than over previous years. On a year-ended basis, the various measures are all showing average nationwide increases of around 10 per cent or less.

The slowdown in the housing market has been associated with some revision in the household sector's attitudes towards property investment. The Melbourne Institute and Westpac Survey shows a fall in the proportion of respondents reporting that property is the wisest place for their savings (Graph 9). Similarly, survey evidence suggests that the number of people planning to purchase an investment property over the next year has declined a little from the peak reached in mid 2003. This is supported by the Bank's liaison, which suggests that there has been a significant decline in interest in off-the-plan purchases by investors. This change in sentiment is a pleasing development, particularly given the unrealistic expectations of future price increases that had developed in some parts of the market in recent years.

**Graph 9**
**Sentiment Towards Housing**



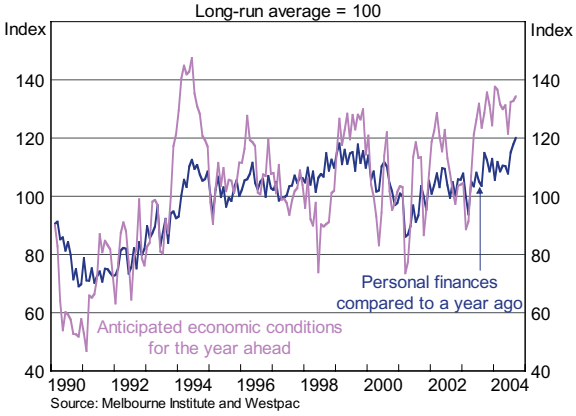
Sources: Melbourne Institute and Westpac; Wizard Home Loans and Nielsen Media Research

The change in the housing market and sentiment towards residential property investment has had little effect on households' perceptions of the health of their personal finances, or their views about future economic conditions. Households continue to report that their personal finances are in very good shape and that they are optimistic about the future (Graph 10).

**Graph 10**

**Consumer Sentiment**

Long-run average = 100




Source: Melbourne Institute and Westpac

**Graph 11**

**Household Credit***

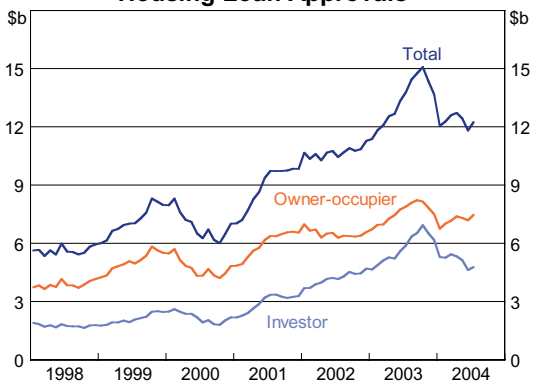
Six-month-ended annualised growth


* Includes securitised loans

Source: RBA

**Graph 12**

**Housing Loan Approvals***




* Excluding refinancing of owner-occupier loans and approvals for new construction by investors.

Source: ABS

As growth in house prices has slowed, the pace of household credit growth has also declined. This is now more evident than it was a few months ago, particularly after recent revisions to the data. Growth in household credit peaked in the final months of 2003, at much the same time as the peak in house prices. On a six-month-ended annualised basis, household credit is currently growing at around 16 per cent, down from 21 per cent late last year (Graph 11).

The turnaround is most pronounced in the growth rate of credit to investors. Over the past six months, investor housing credit has increased at an annualised rate of around 20 per cent, compared with a rate of more than 30 per cent over the second half of 2003. Given the recent fall in investor loan approvals, a further decline appears to be in prospect over coming months (Graph 12). As noted above, there has been some reassessment of the desirability of residential property investment. A stronger equity market may have played a role here. Also, the Australian Taxation Office announced in June that it will be subjecting deductions associated with property investments to greater scrutiny, and the NSW Government has introduced a vendor duty on the sale of investment properties. While there have been some reports of investors not being able, or willing, to settle off-the-plan apartment purchases, this does not appear to have become a widespread phenomenon.

Non-housing components of household credit continue to grow at slower rates than housing-related credit. Over the year to July, other personal credit, including credit card debt, increased by 13½ per cent.

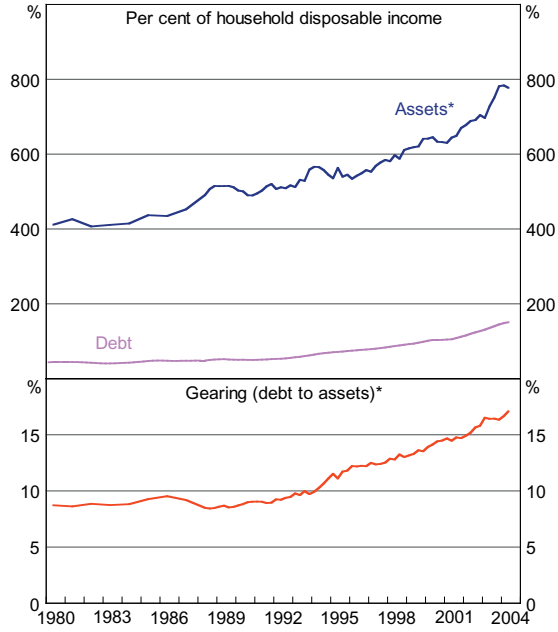
While overall household credit growth has slowed, it remains strong by historical standards. The current level of housing loan approvals points to some further slowing in household credit growth over coming months, although additional declines in approvals are likely to be required if growth is to return to rates more consistent with that in household disposable income.

The combination of still strong credit growth and a decline in house prices has seen household gearing increase over the past six months (Graph 13). The ratio of household debt to household assets currently stands at around 17 per cent, and has increased steadily from around 9 per cent in 1990. The relatively mild increase in gearing, despite strong growth in debt, reflects the large appreciation in house prices.

One way the household sector is accessing equity in the housing stock is through refinancing of existing mortgages. Since end 1999, refinancing of owner-occupier mortgages has grown at an average rate of almost 30 per cent per year, and currently accounts for around one quarter of total owner-occupier loan commitments (Graph 14). The total volume of refinancing is likely to be higher than this, as the ABS data do not capture owner-occupier loans refinanced with the same institution or refinanced investor loans. Liaison with the major banks suggests that such refinancing is common.

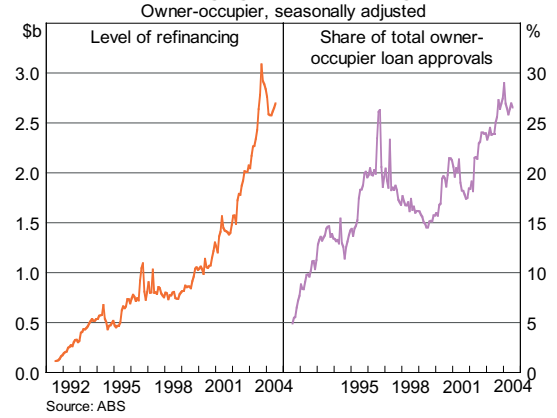
In part, the high rate of refinancing reflects the competitive nature of the mortgage market. By shopping around, often with the

**Graph 13**
**Household Assets and Debt**




* Includes financial assets of unincorporated enterprises; data for June 2004 are estimates.
Sources: ABS; RBA

**Graph 14**
**Mortgage Refinancing**
Owner-occupier, seasonally adjusted



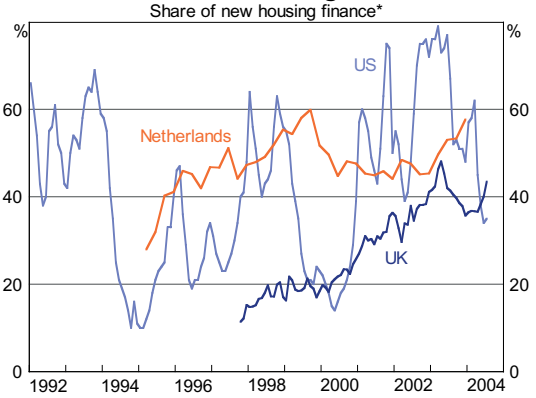

Source: ABS

**Table 2: Reasons for refinancing 1997-1999**
Per cent of households refinancing[(a)]

| | |
|---|---|
| Better interest rate | 23.3 |
| Better loan conditions | 25.1 |
| Extension of loan period | 5.1 |
| Home renovation | 9.5 |
| Other purchase (e.g. car, holiday) | 21.0 |
| Debt consolidation | 15.2 |
| Business-related reasons | 7.5 |
| Other reasons | 17.4 |

(a) Respondents allowed to cite multiple reasons.
Source: ABS

**Graph 15**
**Refinancing**
Share of new housing finance*




* Netherlands data are share of new housing loans by number; UK data are share of new housing loan approvals; US data are share of housing loan applications
Sources: Bank of England; Freddie Mac; Statistics Netherlands

assistance of a mortgage broker, borrowers can sometimes find a loan with a lower interest rate or more attractive features. Refinancing is also often associated with an increase in the size of the outstanding debt, with the average size of a refinanced loan typically larger than that of a new loan originated three or more years earlier. In terms of purpose, an ABS survey for the period 1997-99 found that 21 per cent of refinancing households cited consumption spending as a reason for doing so, a finding broadly supported by more recent liaison with banks (Table 2). Home improvements also appear to be an important use of funds accessed through refinancing.

Similar trends have also been observed in other countries that have experienced strong growth in housing debt and house prices, including the Netherlands, UK and US (Graph 15). As in Australia, mortgage refinancing in these countries has been associated with an increase in loan size, and with a significant part of the additional funds being spent on consumption and home improvements.[1]

With household credit in Australia continuing to expand at a strong pace, the ratio of interest payments to household disposable income has increased further over the past six months, although it fell marginally in the June quarter as a result of a large increase in disposable income flowing from higher government payments. This ratio currently stands at 9.3 per cent, slightly above the peak in the late 1980s (Graph 16). The bulk of these interest payments is associated with residential mortgages, rather than consumer debt.

Despite the historically high level of interest payments as a share of disposable income, there are few signs of financial stress among households. The share of housing loans for which repayments are overdue is extremely low (see the following chapter). Spreads on issues of

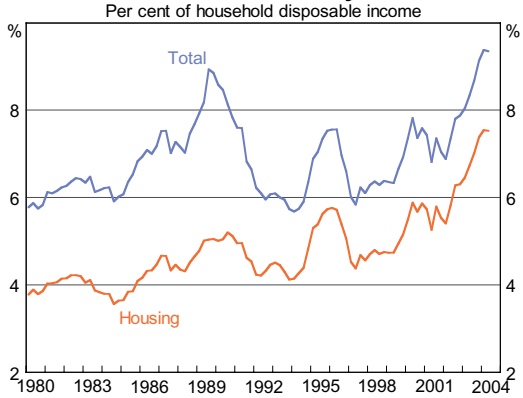
1 *In the US, the majority of mortgages have fixed interest rates and favourable refinancing terms, making it attractive to refinance when long-term interest rates fall.*

mortgage-backed securities have contracted over the past year, suggesting that investors in these securities perceive a reduced likelihood of problems in the household sector. (This is explored further in the article 'Asset Securitisation in Australia'.) Similarly, current readings from credit card data, which can potentially be used as a leading indicator of stress in the household sector, are benign (see Box A). The number of personal administrations has also fallen over the past year and, as reported above, consumer confidence remains high.

**Graph 16**

**Household Interest Payments***

Per cent of household disposable income




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

## *Assessment of vulnerabilities*

Overall, the household sector is currently experiencing favourable financial conditions. While debt levels have risen significantly over the past decade, households appear to be having relatively little difficulty meeting the higher level of interest payments. The sector is currently benefiting from a favourable labour market and solid returns on financial assets.

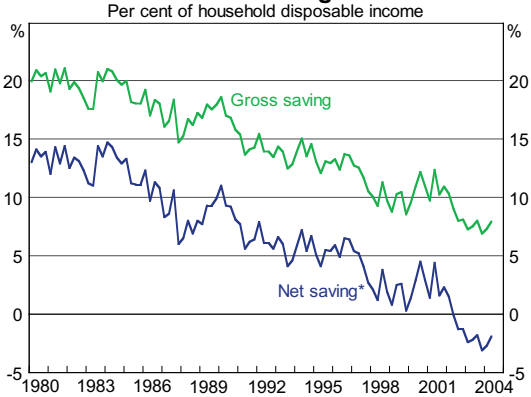
In this relatively benign environment, one risk has been that household indebtedness and house prices would increase to levels that would ultimately prove unsustainable. During 2003, the rate of increase in both household credit and house prices accelerated from an already fast pace, raising a concern that some households were making spending decisions based on unrealistic assessments of future returns and the associated risks. From a stability perspective, the risk has been that, at some point in the future, the household sector would need to adjust its balance sheet, reining in spending to reduce debt levels and servicing burdens. If this were to occur, consumption could weaken, reversing the pattern of recent years whereby consumption growth has outstripped that of income. In an environment in which the economy was slowing for other reasons, this type of balance-sheet adjustment could make for a more extended downturn.

The strong growth in consumption over recent years is reflected in the steady decline in the saving ratio. Using the gross measure, which excludes items such as depreciation of the dwelling stock, the ratio has fallen from 13 per cent in 1995 to 8 per cent in 2004 (Graph 17). On a net basis the ratio is -2 per cent. Strong spending is also suggested by the willingness of the household sector to borrow against its equity in the housing stock – a phenomenon known as housing equity withdrawal. Prior to the late 1990s, the usual pattern was for the household sector to inject equity into housing, but since that time, households have borrowed more against their houses than they have spent building and renovating them (Graph 18). While households have used the extra borrowing for a variety of purposes, one of these is to finance consumption. That a turnaround in these trends after a period of rising housing prices and credit can adversely affect consumption and economic growth is confirmed by the recent experience in the Netherlands (see Box B).

**Graph 17**

**Household Saving Ratios**

Per cent of household disposable income



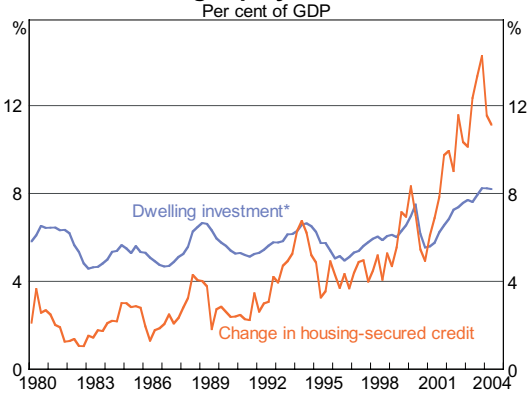

* Excludes consumption of fixed capital, which is primarily depreciation of dwellings.

Source: ABS

**Graph 18**

**Housing Equity Withdrawal**

Per cent of GDP




* Includes ownership transfer costs.

Sources: ABS; RBA

Given the possibility of such an outcome in Australia, recent developments, especially the modest decline in house prices and the slowing in household credit growth, have been favourable from a financial stability perspective. If 2004 had seen a repeat of 2003, with house prices increasing by around 20 per cent and credit growth accelerating, the risk of an uncomfortable correction in household finances would have been somewhat higher than is now the case. While the possibility of a fall in house prices was viewed with trepidation by some commentators, the adjustment to date has been orderly and without noticeable adverse side effects. Importantly, it has taken place against the backdrop of a strong economy and a high level of consumer confidence.

Recent developments have, of course, not eliminated the risk of the household sector reducing spending in order to restructure its balance sheet. A number of financial ratios – including debt to disposable income, interest payments to disposable income, and house prices to disposable income – are at, or near, record high levels. As noted in the previous *Financial Stability Review* and in the Reserve Bank's *Submission to the Productivity Commission Inquiry on First Home Ownership*, the change in household balance sheets is partly explained by structural factors. Foremost amongst these is the decline in nominal interest rates that has accompanied lower inflation. A second is financial deregulation and innovation which, amongst other things, has allowed households to take advantage of the tax treatment of investor housing. And a third is the reduction in the volatility of both interest rates and the economy, with lower volatility providing households with the confidence to take on larger debt levels and higher servicing burdens.

From the perspective of assessing risk, a difficulty has been in knowing exactly how much of the change in the key financial ratios is explained by these structural factors. Notwithstanding this difficulty, by 2003 it seemed apparent that the increase in house prices was probably at the top end of the range that could be explained by the reduction in interest rates, and that further

significant increases risked pushing prices to unsustainable levels. Despite this, for much of the year prices continued to rise strongly, with demand by investors particularly robust.

While the trajectory of house prices has now clearly changed, and household credit growth has slowed, risks remain in both directions. A deterioration in the economic climate, or a further and significant change in investors' attitudes, could see a more pronounced fall in house prices with consumers adjusting spending to reduce debt levels. Alternatively, the housing market could again race ahead on the basis of continuing high levels of consumer confidence and solid growth in employment and income. While this would likely add further strength to consumption in the short term, it could increase the probability of difficulties further down the track.

## Business Sector

Conditions in the business sector have remained very positive in 2004. Profitability and trading conditions are strong, and gearing and interest burdens are low.

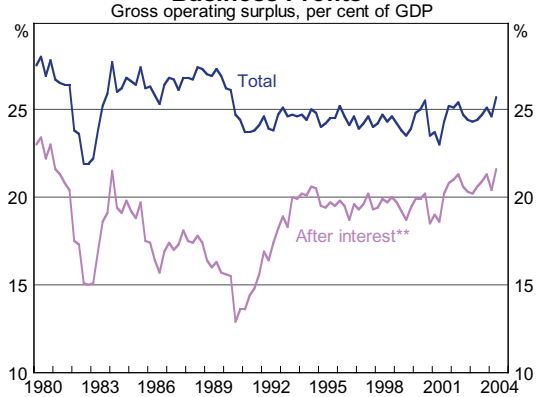
Business sector profits, as measured by gross operating surplus (GOS), increased by more than 14 per cent over the year to the June quarter. As a share of GDP, profits are at the highest level since mid 1990, while on an after-interest basis, they are at the highest level since 1981 (Graph 19).

In the strong profit environment, businesses have relied more on internal than external funding for some years now – a sharp contrast with the second half of the 1980s. Over the year to June 2004, new internal funding represented around 60 per cent of new business finance (Graph 20). Business credit continues to grow relatively slowly, up by 6 per cent on an annualised basis over the six months to July. Net equity raisings have moderated over recent months after being reasonably strong late last year and into this year.

**Graph 19**

**Business Profits***

Gross operating surplus, per cent of GDP

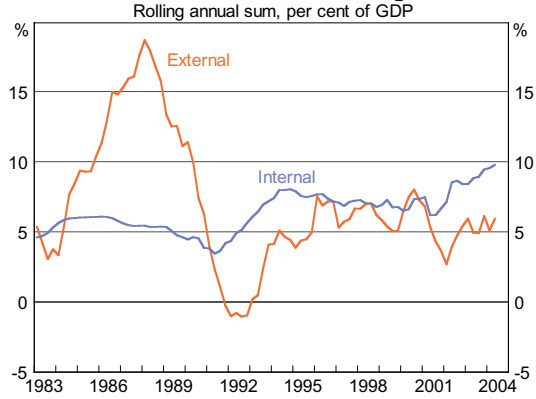



* For corporates and unincorporates and adjusted for privatisations.
** Excludes gross interest payments.
Source: ABS

**Graph 20**

**New Business Funding**

Rolling annual sum, per cent of GDP

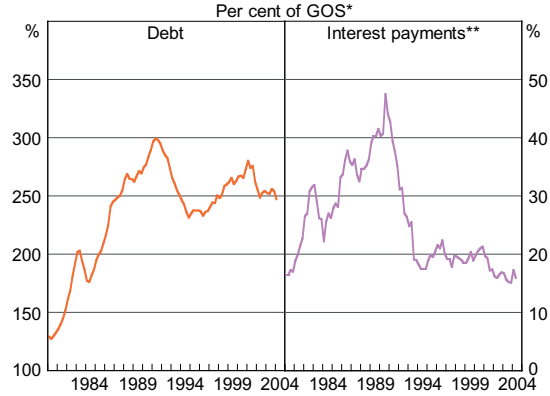



Sources: ABS; ASX; RBA

## Graph 21

**Business Sector Finances**

Per cent of GOS*

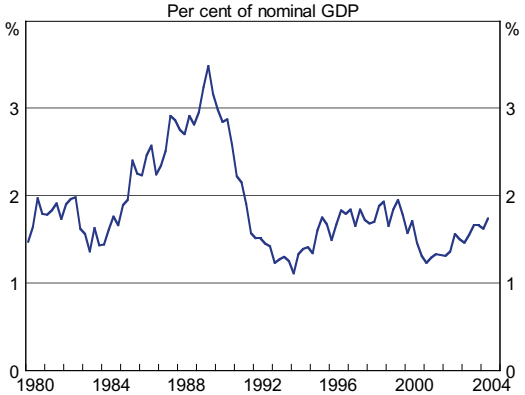



* GOS includes gross mixed income of unincorporated enterprises.
** Includes the imputed financial intermediation service charge.
Sources: ABS; RBA

## Graph 22

**Non-residential Construction**

Per cent of nominal GDP

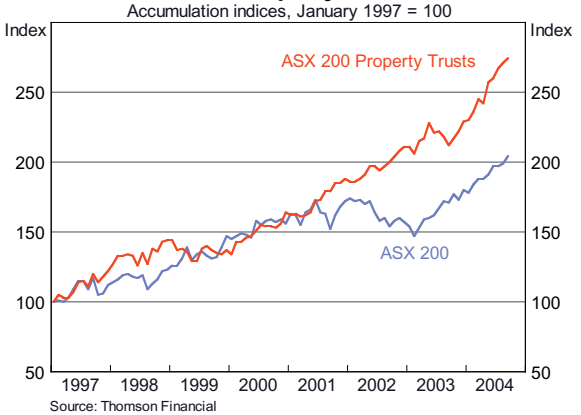



Source: ABS

## Graph 23

**Listed Property Trusts**

Accumulation indices, January 1997 = 100




Source: Thomson Financial

Reflecting the limited use of debt finance, measures of indebtedness have declined to low levels and are well below those experienced during the episode of corporate stress in the late 1980s and early 1990s (Graph 21). The combination of low gearing and relatively low interest rates means that the interest burden is at the lowest level for a number of decades.

In the past, difficulties in the commercial property markets have been a significant cause of problems in the corporate sector. At the moment, however, there are few signs of the major imbalances that characterised these markets at the end of the 1980s. In contrast to the over-building that characterised that episode, particularly of office space, the commercial property construction cycle has since been far more moderate (Graph 22).

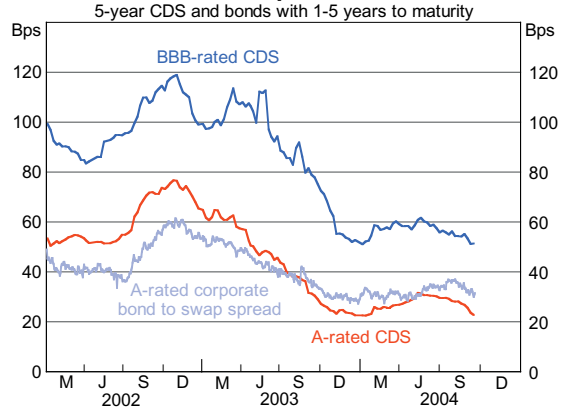
Although there has been recent downward pressure on prices and rents in the office property market, those for retail and industrial properties appear to have picked up. Partly reflecting this, listed property trusts (LPTs) have continued to perform strongly. Gains in the ASX 200 Property Trusts Accumulation Index, which comprises capital and income returns, have continued to outpace the broader market (Graph 23). The growth of the LPT sector over recent years has been useful, not only by providing an observable market-based indicator of conditions in the commercial property sector, but also by providing

an alternative to banks for the financing of commercial property.

### *Assessment of vulnerabilities*

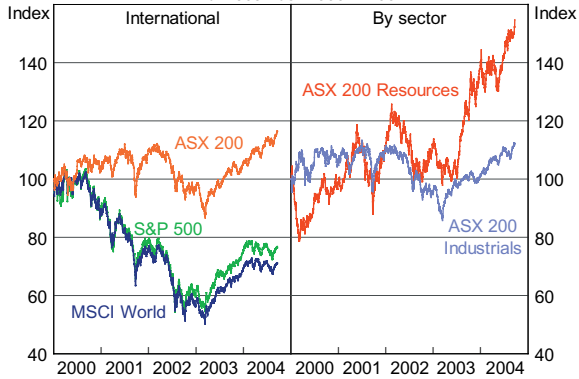
The strength of the business sector is a positive for financial stability. Business surveys report that the majority of firms expect trading conditions and profitability to remain above long-run averages. Forecasts collected by Consensus Economics show expected growth in corporate sector GOS of around 11 per cent for 2004 and 6 per cent for 2005. Financial markets also see a benign outlook for the corporate sector. Measures of corporate credit risk, including credit default swap (CDS) premia and corporate bond spreads, remain at low levels, despite increasing slightly this year (Graph 24).

**Graph 24**
**Indicators of Corporate Credit Risk**
5-year CDS and bonds with 1-5 years to maturity




Sources: AFMA; Bloomberg; RBA; Reuters; UBS Australia Ltd

**Graph 25**
**Share Price Indices**
End December 1999 = 100




Sources: Bloomberg; Thomson Financial

Movements in the share market also reflect a sanguine outlook. The ASX 200 Index increased by around 6 per cent over the past six months, while most key overseas markets were flat or slightly lower (Graph 25). Since 2000, the Australian share market has considerably outperformed international markets and is the only one among major countries to be currently around record levels. Share prices of resource companies have risen particularly strongly in recent times, largely reflecting the market's assessment that international demand will remain firm and continue to underpin commodity prices, particularly if the Chinese economy remains strong. Uncertainty, as measured by the implied volatility of equity prices, also remains at low levels.

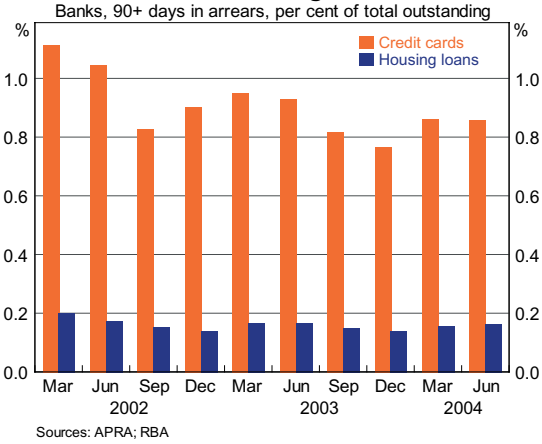
One risk to this generally favourable outlook is related to developments in the household sector. If there were to be a period of balance-sheet restructuring by households, leading to an episode of weak economic growth, conditions in the business sector would obviously be less favourable than is now the case. There is, however, little risk that balance-sheet considerations in the business sector would adversely impinge on business decisions as they did in the early 1990s.

# Box A: Credit Card Indicators

Outstanding debt on credit cards accounts for about 3 per cent of the total debt owed by the household sector. Given this relatively small share, the current level of credit card debt is not a prime concern for the stability of the financial system. However, understanding developments in the credit card market is important, as around 70 per cent of households hold at least one card, and changes in patterns of credit card use may provide early signs of financial stress in the household sector.[1] Indeed, financial institutions often use data on credit card arrears, cash advances and repayments to assess the credit risk of individual borrowers.

Consistent aggregate data on *credit card loans past due* are only available from 2002. According to these data, collected by APRA, around 0.85 per cent of total credit card loans by value are to borrowers who have not met their minimum repayment for 90 days or more (Graph A1). This ratio has fallen slightly over the past couple of years, although not surprisingly, it is considerably higher than the arrears rate for housing loans. While international comparisons are difficult, the quality of credit card portfolios in Australia appears high relative to that in a number of other countries.

**Graph A1**
**Credit Card and Housing Loans Past Due**
Banks, 90+ days in arrears, per cent of total outstanding




Sources: APRA; RBA

Another potentially useful indicator of household financial stress is the rate of growth in *credit card cash advances*. Given that such advances are relatively expensive, it might be expected that this way of obtaining cash is used more frequently when households are in financial difficulties and other avenues of obtaining cash have been exhausted. Even though the economy grew strongly and financial conditions for many households improved over the second half of the 1990s, growth in aggregate cash advances averaged 16 per cent per annum (Graph A2). In part, this reflected strong growth in the number of cards on issue, although the average amount drawn per card also increased steadily. Since then, however, the growth rate of aggregate cash advances has slowed, and the average amount drawn per account has stabilised.

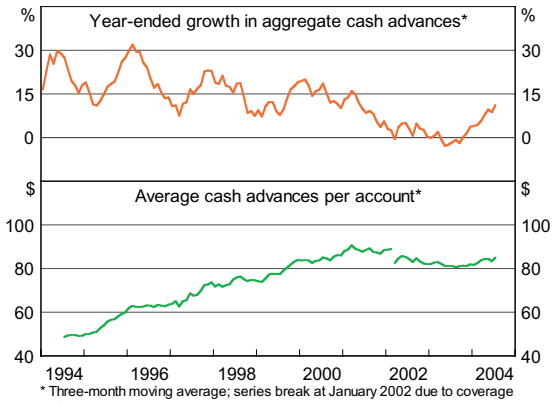
*Credit card repayment activity* might also convey information on financial pressures in the household sector. According to data collected by the Reserve Bank, the ratio of monthly

1 *Credit card data and trends in credit card usage are discussed in Reserve Bank of Australia (2003), 'The Changing Australian Retail Payments Landscape', Reserve Bank of Australia* Bulletin, *July, pp 1-9.*

repayments to outstanding balances increased steadily over the second half of the 1990s, although this ratio has levelled off over the past few years (Graph A3). The increase in the 1990s is partly explained by the growth of credit cards as a payment instrument, although the generally favourable financial conditions facing the household sector may have also played a role. Another measure of repayment activity is provided by the proportion of cardholders that usually pay off at least one credit card each month. According to survey data collected by Roy Morgan Research Australia, this proportion also trended higher over the 1990s, before levelling off in recent years.

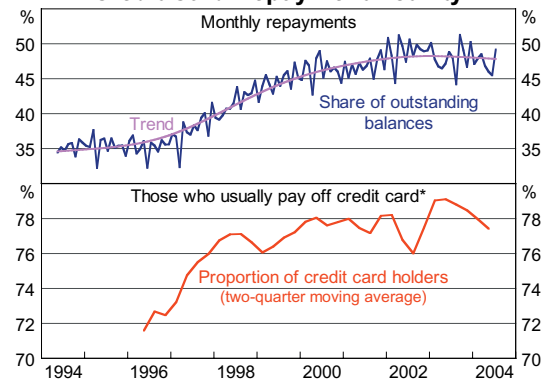
Overall, while structural change in the credit card market over the past decade complicates analysis of the various indicators, the available data are consistent with low levels of financial stress in the Australian household sector.

**Graph A2**
**Credit Card Cash Advances**




* Three-month moving average; series break at January 2002 due to coverage changes
Source: RBA

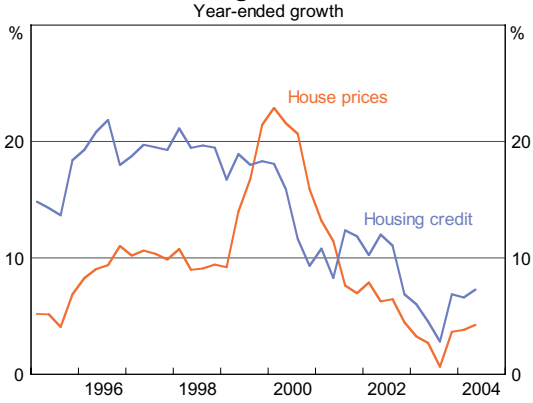
**Graph A3**
**Credit Card Repayment Activity**




* Those aged 18+ who usually pay off at least one major credit card each month
Sources: RBA; Roy Morgan Research Australia

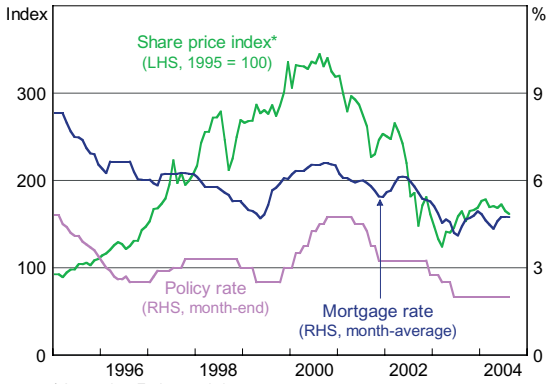
# Box B: The Housing Market Slowdown in the Netherlands

**Graph B1**
**Dutch Housing Market Indicators**
Year-ended growth




Sources: BIS; DNB

**Graph B2**
**Dutch Financial Indicators**




* Amsterdam Exchanges Index
Sources: Bloomberg; DNB; ECB; Thomson Financial

Developments in household balance sheets in the Netherlands during the second half of the 1990s share similarities with recent experience in Australia. In the period from 1995 to 2000, housing credit and house prices rose strongly, reflecting a combination of low interest rates, financial innovation, an extended period of strong economic growth and favourable tax treatment for owner-occupier loans. In 2000, year-ended growth in house prices peaked at more than 20 per cent and housing credit growth slowed noticeably. Subsequently, the growth rate in house prices has declined significantly, although prices have not fallen (Graph B1).

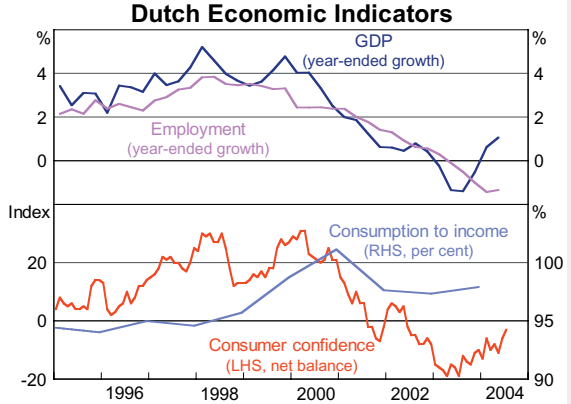
The housing market slowdown was associated with a combination of financial and macroeconomic developments. Dutch mortgage rates, which are predominantly fixed, rose sharply from June 1999, reflecting developments in global bond markets and anticipated monetary policy tightening. In November 1999, the European Central Bank raised the policy rate by 50 basis points, the first part of a cumulative 225 basis point tightening (Graph B2).

Weakness in the share market, which gathered pace in 2001, also appears to have weighed on the housing market. In particular, the popularity of equity-linked mortgage products is likely to have generated a procyclical influence of equity prices on the Dutch housing market, encouraging additional borrowing when equity prices rise and discouraging borrowing when

equity prices fall. Surveys commissioned by De Nederlandsche Bank indicate that equity-linked mortgages accounted for 48 per cent of mortgages taken out in 2001-02, up from 19 per cent in 1991-95.[1]

Tax reform also played a role in dampening the housing market. In particular, the benefits of mortgage interest deductibility were reduced in 2001 through limits on the eligibility of deductions and a reduction in marginal income tax rates.

**Graph B3**
**Dutch Economic Indicators**




Sources: Statistics Netherlands; Thomson Financial

The turnaround in the housing and credit markets was associated with a marked slowing in the pace of economic activity (Graph B3). GDP growth slowed across Europe, with several countries, including Germany, falling into recession. The deceleration was especially pronounced in the Netherlands, which went from being one of the fastest growing economies in Europe, to one of the weakest over 2003. The slowing was particularly evident in household consumption. Over the period from 1995 to 2000, Dutch real consumption grew at an average annual rate of 4 per cent, underpinned by strong growth in housing assets, debt and consumer confidence. In contrast, in the following three years, real consumption fell. The shift is reflected in the household saving ratio, which after falling by 7½ percentage points between 1995 and 2000, has subsequently risen by 4½ percentage points.

The large turnaround in GDP and consumption growth can be partly explained by the dynamics of the house price cycle. Research suggests that housing-secured borrowing used for purposes such as home improvement and consumption boosted GDP growth by around 1 percentage point in each of 1999 and 2000, and subtracted around ½ a percentage point from growth in each of 2001 and 2002.[2]

The effect of recent developments is clearly evident on financial institutions. After growing strongly for a number of years, the revenue of the banking system declined in 2001 and 2002, partly due to the sharp slowing in credit growth (Table B1). Bad debt costs also increased over these two years, with total provisioning expenses in 2002 almost three times that in 2000. Much of the increase, however, was related to the deterioration in the quality of business loan

1 *De Nederlandsche Bank (2003)*, Quarterly Bulletin, *June, p 14.*

2 *van Els, PJA, WA van den End and MCJ van Rooij (2003), 'Financial Behaviour of Dutch Households: Analysis of the DNB Household Survey 2003', De Nederlandsche Bank, Research Memorandum WO no. 744/Meb-Series no. 2003-09.*

portfolios, rather than mortgage portfolios. As economic conditions have improved over the past year, revenue growth has again picked up and bad debts expense has fallen. Notwithstanding these fluctuations, Dutch banks have remained highly profitable.

**Table B1: Dutch Banking Sector**

€ billion, unless otherwise indicated

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| Revenue | 31.8 | 38.3 | 45.1 | 44.8 | 44.3 | 45.8 |
| Provisioning expenses | 2.6 | 2.1 | 1.8 | 3.6 | 5.1 | 3.6 |
| Operating profit before tax | 6.7 | 10.1 | 12.1 | 9.5 | 8.1 | 11.4 |
| Return on equity (per cent)[(a)] | 14.3 | 17.8 | 17.3 | 15.2 | 11.6 | 15.3 |

(a) Before tax and outside equity interests.

Source: DNB

# 2. Financial Intermediaries

The continuing expansion of the Australian economy is providing financial intermediaries with a strong business environment. The banking system remains highly profitable and well capitalised, and problem loans are at their lowest levels for many years. The health of the insurance sector has also improved recently, with better underwriting results and from higher investment returns generated by a strong share market.

It needs to be recognised, however, that a number of these measures of performance and financial strength reflect developments in the past. Looking forward, a return to more sustainable rates of credit growth is likely to see slower growth in banks' earnings, particularly in an environment in which interest margins are likely to be further compressed. More normal rates of bad debts expense, should they occur, would also put some downward pressure on profitability. Notwithstanding these potential pressures on earnings, the banking system remains highly resilient and well placed to deal with future developments. Similarly, while a return to more usual claims levels would put pressure on insurers' profitability, the recent strengthening of their balance sheets means that they are better placed to withstand such a development than has been the case for a while.

## 2.1 Deposit-taking Institutions

### Profitability

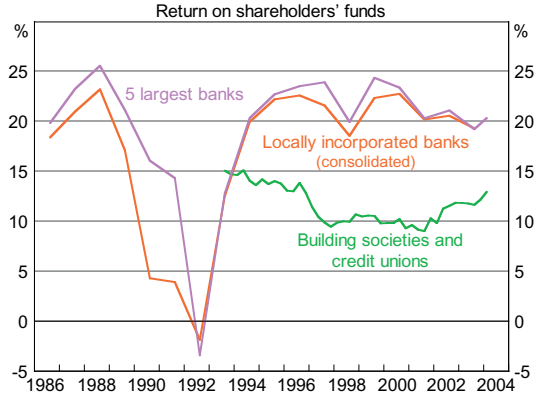
In the most recent half year, the five largest banks earned, in aggregate, an annualised before-tax return on equity of 20.3 per cent (14.3 per cent after tax). This is the latest in a run of impressive results starting in the mid 1990s (Graph 26). Over this period, the before-tax return on equity has been sustained at around 20 per cent despite a significant decline in average interest margins. To a large extent this reflects the success that banks have had in driving down costs. Over the past five years, for example, reductions in costs increased the annual return on equity by more than 10 percentage points, which has more than offset the effect of declining interest margins (Graph 27). Profitability has also been sustained by historically low levels of problem loans.

Measured as a return on assets, the profits of Australian banks are well above those earned by European banks, although in line with the largest banks in the United States (Table 3). The before-tax

**Graph 26**

**Profit Before Tax**

Return on shareholders' funds

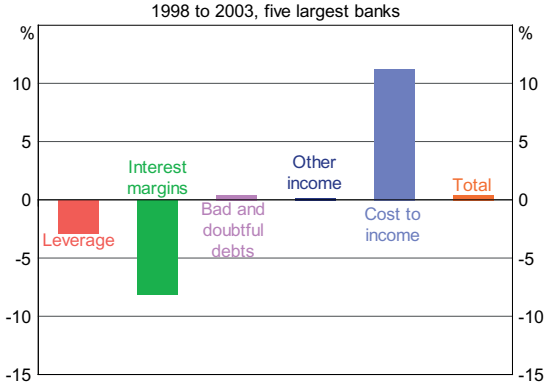



Sources: APRA; banks' annual reports

**Graph 27**

**Contribution to Change in Return on Equity**

1998 to 2003, five largest banks




Sources: Banks' annual reports; RBA

return on equity, however, is similar to that in a number of other countries, reflecting the fact that the large Australian banks tend to be less highly geared than banks elsewhere.[2] Profits in Australia have tended to be more stable over the past decade than in most other countries.

The latest half-year results for Australian banks show that the pressure on margins evident for at least a decade has continued (Graph 28). A number of structural factors have contributed to this. The first is the shift in the composition of the banks' loan books towards housing lending, which, on average, earns a lower margin than unsecured personal lending and business lending. In the early 1990s, less than a third of banks' total loans were housing loans; today the figure is over 50 per cent (Graph 29).

The second is that margins on a variety of loan products have narrowed. In particular, ongoing strong competition within the home loan market, spurred initially by mortgage managers, has compressed home loan margins. The standard home loan rate is now 1.8 percentage points above the cash rate, compared with over 4 percentage points in 1992. Average margins on business loans have also declined, partly due to an increase in the share of business lending secured by residential property (which carries lower risk premia).

**Table 3: Bank Return on Assets and Equity[(a)]**

Before-tax earnings, per cent

| | Return on assets | | Return on equity | |
|---|---|---|---|---|
| | 2003 | 2004 | 2003 | 2004 |
| Australia | 1.4 | 1.5 | 19.4 | 20.3 |
| Canada | 1.0 | 1.1 | 19.4 | 22.9 |
| France | 0.7 | 0.7 | 15.3 | 19.6 |
| Germany | -0.2 | 0.4 | -7.1 | 12.8 |
| Japan | -0.8 | 0.1 | -27.9 | 3.2 |
| Netherlands | 0.8 | 0.8 | 20.3 | 23.0 |
| UK | 1.2 | 1.3 | 20.4 | 21.1 |
| US | 2.0 | 1.5 | 26.2 | 19.8 |

(a) Full-year results for 2003; annualised latest half-year results for 2004. Based on the 5, 5, 3, 4, 6, 3, 5 and 6 largest banks in Australia, Canada, France, Germany, Japan, the Netherlands, UK and US, respectively.

Sources: Banks' annual reports and half-yearly profit statements; RBA

2 *Unlike regulatory capital measures, the simple equity-to-asset ratios focus on shareholder funds rather than a broader measure of capital. They also use aggregate assets rather than risk-weighted assets.*

The third is a decline in the share of banks' liabilities accounted for by low-cost retail deposits. Over the past decade, households have placed more of their savings with non-deposit-taking intermediaries, particularly managed funds, while at the same time they have significantly increased their demand for funds from banks, mainly for housing. As a result, banks have increased their recourse to wholesale markets, particularly offshore, to fund the growth in their assets (Graph 30).

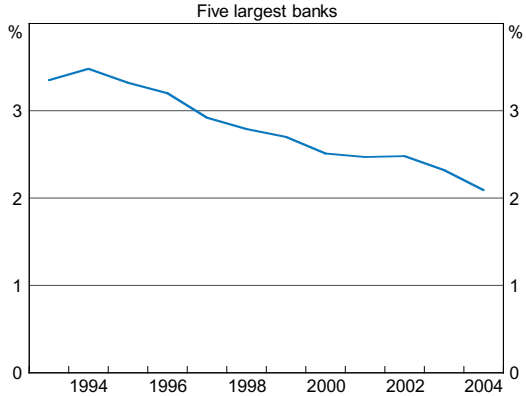
The fourth is an increase in competition in the retail deposit market. As in many other areas of banking, an important catalyst for this has been the entry of new players and the expansion of institutions with very small market shares. In particular, competition has been spurred by the introduction of high-yielding internet-based deposit accounts by a number of foreign-owned banks. While the market share of these banks remains quite small, the larger banks have responded with more competitive retail offerings, particularly for customers prepared to conduct their banking electronically (Graph 31).

In addition to these structural developments, there has been pressure on margins this year from a cyclical steepening of the short-term yield curve as financial markets priced in increases in the cash rate. This reflects the fact that banks' variable lending rates are typically priced as a constant margin over the cash rate, whereas funding costs move more closely in line with bank bill rates.

**Graph 28**

**Banks' Average Interest Spread***

Five largest banks

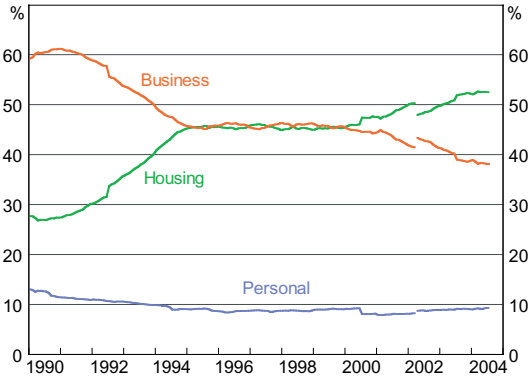



* Average interest rate received less average interest rate paid; annual data, except for 2004 which is latest half year.
Sources: Banks' annual reports; RBA

**Graph 29**

**Bank Credit***

Per cent of total bank credit

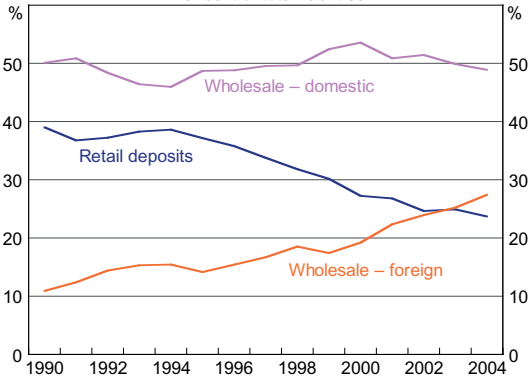



* All banks (domestic operations, on-balance sheet); excludes securitised loans; breaks in series due to change in reporting forms in March 2002.
Source: APRA

**Graph 30**

**Banks' Liabilities***

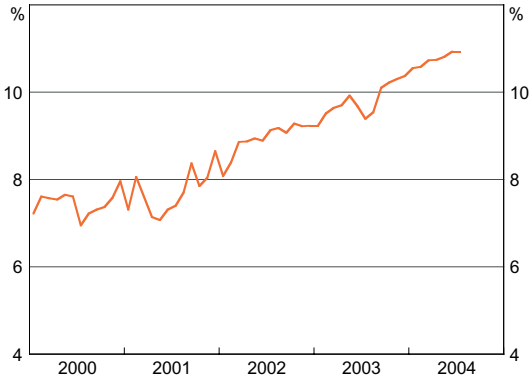
Per cent of total liabilities




* All banks (domestic operations, on-balance sheet)
Source: APRA

**Graph 31**

**Foreign Banks' Share of Deposits***




* Excludes deposits placed by government and financial entities. Series backcast to adjust for the change in reporting forms in 2002.
Source: APRA

Looking ahead, further pressure on margins is expected. As housing credit growth has slowed, there have been signs of more intense competition in a range of banking markets, including mortgages, business lending and transaction deposit accounts. Indeed, a number of financial institutions have indicated that the biggest risk they face at present is that of 'irrational competition'. In this environment, and with the banking system adjusting to slower growth in balance sheets, it will be important for financial institutions to ensure pricing remains commensurate with risk.

As a result of the decline in margins, net interest income fell slightly as a share of assets over the latest half year (Table 4). This was partly offset by strong growth in non-interest income. Some of this reflected one-off factors, in particular National Australia Bank's sale of its stakes in AMP and St George Bank. But growth in non-interest income was also supported by growth in

**Table 4: Half-yearly Profit Results**

Five largest banks, consolidated, latest half year[a]

| | 2003 Per cent of average assets[b] | 2004 Per cent of average assets[b] | 2004 $b |
|---|---|---|---|
| **Income** | | | |
| Net interest income | 2.0 | 1.9 | 12.0 |
| Before tax profits from wealth management[c] | 0.2 | 0.2 | 1.4 |
| Other non-interest income[d] | 1.2 | 1.2 | 7.4 |
| **Expenses** | | | |
| Operating expenses | 1.7 | 1.7 | 10.3 |
| Bad and doubtful debts | 0.2 | 0.2 | 1.0 |
| Goodwill amortisation and revaluations | 0.1 | 0.1 | 0.4 |
| **Profit**[e] | | | |
| Net profit before tax | 1.4 | 1.5 | 9.1 |
| Net profit after tax | 1.0 | 1.1 | 6.6 |

(a) The six months to March 2004 for the ANZ Banking Group, National Australia Bank, St George Bank and Westpac Banking Corporation, and the six months to June 2004 for the Commonwealth Bank of Australia.
(b) Annualised half-yearly results.
(c) Includes revaluations.
(d) Includes National Australia Bank's profits from the sale of stakes in AMP and St George Bank, foreign exchange options trading losses and the reversal of HomeSide provisions.
(e) Before outside equity interests.

Sources: Banks' half-yearly profit statements; RBA

loan fees (on the back of ongoing loan growth) and trading income. Growth in other fees and commissions was relatively subdued.

As has been the case for some years now, banks' costs grew more slowly than their assets over the latest reporting period, with underlying costs up 6 per cent. While growth in staff costs (which account for half of all operating expenses) and building occupancy costs remains subdued, expenditure on information technology has outpaced asset growth by a considerable margin.

## Capital Adequacy

The Australian banks remain well capitalised. Over the past year, the regulatory capital ratio for locally incorporated banks has edged up slightly to 10.6 per cent, although it remains within the relatively narrow range seen since the mid 1990s (Graph 32). The recent increase is largely due to the National Australia Bank, which issued $2.6 billion in subordinated debt (included in Tier 2 capital) in early 2004 to meet the higher capital adequacy requirements imposed by APRA following the bank's foreign exchange options trading losses.

In the face of consistently strong profits over recent years, share buybacks by banks have largely offset their equity issuance (Graph 33). The domestically listed banks' buybacks amounted to $6.3 billion between mid 2000 and end 2003, to leave net issuance at just $0.8 billion (excluding ANZ's rights issue used to finance its acquisition of the National Bank of New Zealand). So far this year, the banks have conducted buybacks of $1.3 billion, leaving net issuance of $1.7 billion.

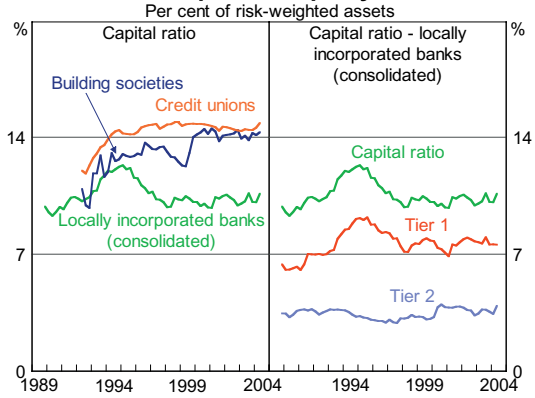
## Asset Quality

The asset quality of Australian banks is currently particularly strong. At end June, impaired assets accounted for only 0.33 per cent of banks' on-balance sheet assets – the lowest level in at least a decade (Graph 34). This is also a very low level by international standards. In the housing loan portfolio, the impaired assets ratio is lower still, with 0.16 per cent of housing loans in arrears by 90 days or longer (see Box C).

**Graph 32**

**Capital Adequacy**

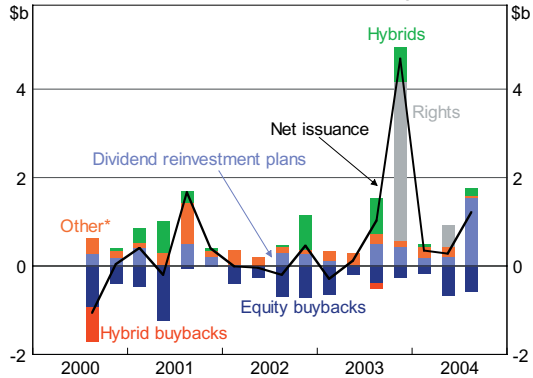
Per cent of risk-weighted assets




Source: APRA

**Graph 33**

**Australian Banks' Domestic Equity Issuance**



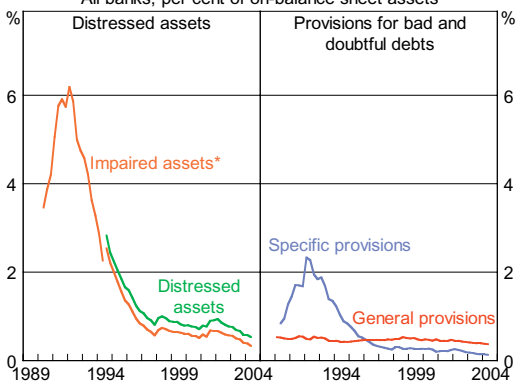

* Includes bonus issues, calls, employee share schemes, placements, exercised options and convertible notes.

Source: ASX

**Graph 34**

**Asset Quality**

All banks, per cent of on-balance sheet assets




* Break in series due to change in reporting forms.
Source: APRA

One issue that has attracted attention recently has been the level of banks' provisions. Not surprisingly, given the further decline in impaired assets, specific provisions (relative to on-balance sheet assets) have fallen to very low levels. But general provisions – which are held to cover the likelihood that some loans not currently recognised as impaired will default in the future – are also relatively low. In part, this reflects the adoption of dynamic provisioning models by the major banks, under which through-the-cycle loss estimates for various types of loans are used to determine the appropriate level of general provisions. Because housing loans have low loss estimates, they attract lower rates of general provisions than other loans. So, as the share of housing loans has increased, general provisions have fallen. Declines in expected losses for some types of business loans have also contributed to the reduction in general provisions.

Nonetheless, despite the very low level of impaired housing loans, the overall riskiness of banks' mortgage portfolios has increased over recent years. One reason for this has been the surge in lending to investors. While historically such loans have had only slightly higher average default rates than loans to owner-occupiers, going forward the differences could be more significant. This is particularly likely given the increase in the number of investor households, low rental yields and higher debt-servicing burdens.

Another reason for the increase in risk is the growth in loan products designed to ease access to finance for those who in the past were not easily able to borrow. Amongst these products, 'low-doc' loans have grown particularly strongly recently, albeit from a very low base. These loans are tailored to borrowers who are not able to provide the documentary proof of income or savings history normally required by lenders. According to industry sources, they have accounted for around one fifth of the loans underlying mortgage-backed securities issued so far this year. They are also more likely than the average mortgage to be interest-only loans. The growth in the mortgage broking industry also may have contributed to greater overall risk by making it easier for borrowers to refinance their loans and, in so doing, increase the value of their debt (see Box D).

These changes in the mortgage market, together with the changes in the structure of household balance sheets discussed in the *Macroeconomic and Financial Environment* chapter, mean that average default rates calculated from previous cycles may not be a good guide to future default rates. But as discussed in the previous *Financial Stability Review*, stress testing by APRA suggests that mortgage default rates would have to be many times higher than in the worst years in the past to cause major difficulties for the banks.

One potential vulnerability is the reliance of the Australian banks on a small number of mortgage insurers. The three largest insurers (one of which is no longer writing any new business) account for around 80 per cent of the total value of outstanding policies. The other 20 per cent is mostly written by captive insurers, who provide insurance only to the banks that own them. Around one fifth of all outstanding bank-originated home loans have been directly insured, reflecting banks' credit risk policies requiring insurance for high risk loans, including those with high loan-to-valuation ratios. In addition, most securitised loans are insured on a portfolio basis and these loans account for about 10 per cent of all bank-originated home loans. Although the mortgage insurers operating in the Australian market have a strong credit standing (carrying an average credit rating of AA), it is not as strong as the government backing provided in overseas markets. A major downturn in the housing market, in which mortgage default rates increased markedly, could result in difficulties for the industry. Accordingly, APRA has recently released proposals for an improved capital framework for mortgage insurers.

In contrast to mortgage portfolios, the creditworthiness of the banks' business loan books has probably strengthened over recent years. As discussed in the previous chapter, corporate profitability is high, gearing and interest burdens are low, and the business outlook remains favourable. According to the loan grades the four major banks allocate to their business loans for internal management purposes, about three quarters of corporate and business loans are assessed as being of investment grade quality, i.e. rated BBB or better.

The traditional source of problems in the business loan portfolio has been commercial property lending. On this front, credit risks currently look to be quite low. At present, the credit quality of the domestic commercial property portfolio is strong, with impaired assets at 0.4 per cent of outstanding exposures, near the lowest levels seen in the past decade (Table 5). The impaired asset ratio for loans to residential property developers is only slightly higher, although a slowing in the residential property market might be expected to affect the credit quality of this part of the portfolio.

Over the past two years, the growth in the banks' domestic commercial property exposures has been a little faster than overall business credit, with the latest available data showing growth of 11 per cent over the year to March.

**Table 5: Banks' Australian Commercial Property Exposures**
All banks, per cent, March 2004

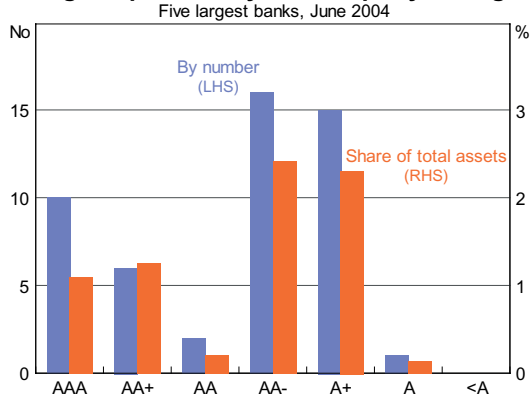
| Type of exposure | Growth Year to March 2004 | Share of total commercial lending | Impaired assets Share of commercial property exposures |
|---|---|---|---|
| Office | 22 | 10 | 0.1 |
| Retail | 8 | 7 | 0.1 |
| Industrial | 8 | 4 | 0.1 |
| Residential | 7 | 11 | 0.6 |
| Tourism and leisure | 5 | 2 | 1.7 |
| Other | 10 | 4 | 0.6 |
| **Total** | **11** | 37 | **0.4** |

Source: APRA

**Graph 35**

**Large Exposures by Counterparty Ratings***

Five largest banks, June 2004




* Standard & Poor's (or equivalent) ratings of counterparties to banks' 10 largest exposures

Sources: APRA; Bloomberg; Fitch; Moody's; Standard & Poor's

Based on their reported large exposures, the concentration of the banks' credit exposures remains low compared with the levels seen in the late 1980s.[3] In addition, the large exposures tend to be to highly rated counterparties (Graph 35). For the five largest banks, 98 per cent of their large exposures are to entities rated A+ or higher. This reflects the fact that, by value, one third of their large exposures are to government entities, with exposures to financial institutions accounting for a further 46 per cent of the total.

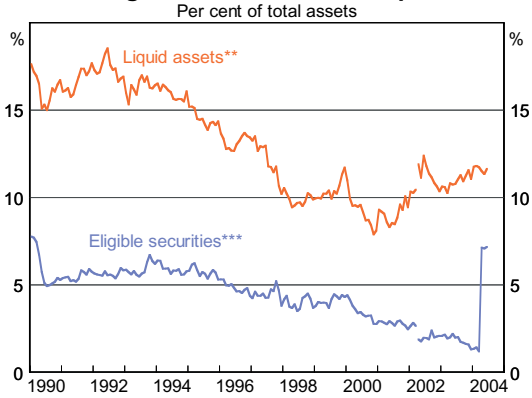
## Liquidity Risk

Just as capital is a vital line of defence, the bank's liquidity is also important from a stability perspective. Traditionally, a key focus has been banks' holdings of liquid assets – that is, assets that can be readily converted into cash to meet the redemption of liabilities. The most liquid are assets that can be sold to the Reserve Bank in its daily open market operations (so-called 'eligible securities'). In addition, banks hold a range of other assets with a high degree of liquidity, including deposits at other financial institutions. Over the second half of the 1990s, overall holdings of liquid assets (as a share of total assets) declined markedly, although they have since stabilised, averaging just over 11 per cent of total assets since March 2002 (Graph 36). For the most part, the decline during the 1990s is attributable to a decline in banks' holdings of government bonds.

**Graph 36**

**Banks' Eligible Securities and Liquid Assets***

Per cent of total assets




* Series break in March 2002 due to change in reporting requirements.

** Includes Australian notes and coin, short-term balances due from financial institutions, government securities and short-term securities issued by ADIs.

*** Until 1997, includes only Commonwealth Government securities; from July 1997 includes certain State/Territory central borrowing authorities' securities; from March 2004 includes certain bank bills and certificates of deposit.

Source: APRA

An important factor explaining this decline is the fall in the stock of government bonds on issue. In response to this fall, the Reserve Bank has broadened the range of assets that it accepts as eligible securities (Graph 37). In July 1997, the Bank began to accept securities issued by State and Territory governments, and in October 2000 it began to accept Australian

*3 Australian banks are required to report to APRA their 10 largest exposures and any additional exposures greater than 10 per cent of their capital base.*

dollar securities issued by certain supranational organisations (such as the Asian Development Bank). More recently, in March this year, it added bank bills and certificates of deposit issued by highly rated Australian banks to the list of eligible securities. As a result, the share of banks' assets that qualified as eligible securities rose from 1 to 7 per cent.

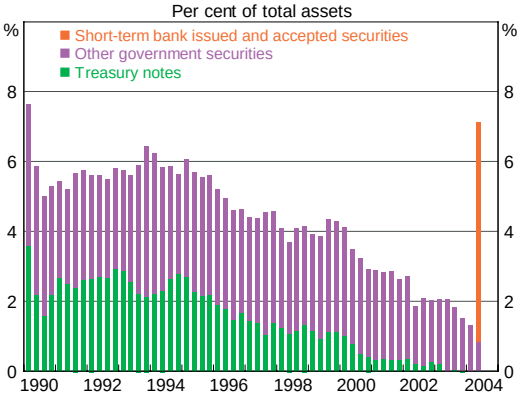
Banks have responded to the decline in the stock of government bonds on issue by increasing their holdings of bonds issued by other counterparties (Graph 38). Nevertheless, Australian banks' holdings of bonds remain low by international standards.

More broadly, banks' liquidity management approaches and financial market innovation have considerably reduced the usefulness of simple liquid asset ratios in the assessment of liquidity. As a result, APRA allows those banks that have sufficiently sophisticated and robust liquidity measurement techniques to apply a scenario-based approach requiring them to demonstrate they would be able to continue to meet their payments for five business days under adverse conditions. One facility that a major bank could draw upon under such conditions is the Interbank Deposit Agreement. Under this agreement, if one of the four major banks is experiencing liquidity problems, the others are required to deposit equal amounts of up to $2 billion each for a month with that bank. At the end of the month, the recipient of the funds may choose to repay the deposits either in cash or by the assignment of mortgages. Of course, the Interbank Deposit Agreement is not designed for a systemic event, in which the major banks simultaneously experience liquidity pressures.

**Graph 37**

**Banks' Eligible Securities***

Per cent of total assets



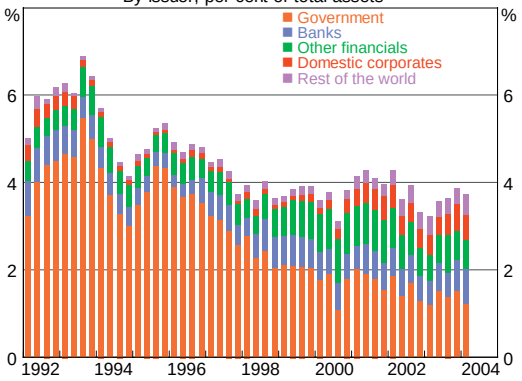

* Series break in March 2002 due to change in reporting requirements. Until 1997 includes only Commonwealth Government securities; from July 1997 includes certain State/Territory central borrowing authorities' securities; from March 2004 includes certain bank bills and certificates of deposit.

Source: APRA

**Graph 38**

**Australian Banks' Bond Holdings***

By issuer, per cent of total assets**




* Securities with more than one year to maturity

** Excludes non-financial assets

Source: ABS

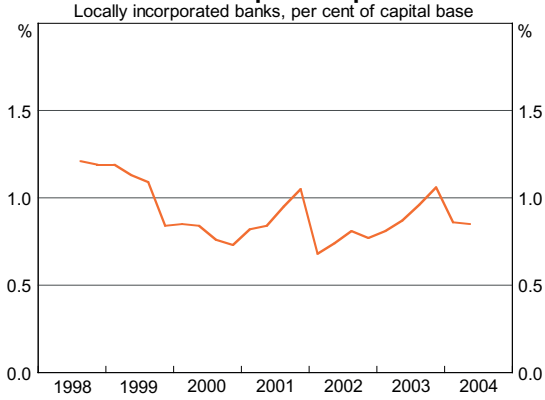
## Market Risk

Excluding the expansion and subsequent wind-back of National Australia Bank's foreign exchange options trading, the banks' aggregate market risk exposure (measured on the basis

## Graph 39

**Market Risk Capital Requirement***

Locally incorporated banks, per cent of capital base




* Excludes the effect of National Australia Bank's use of the standardised model from March 2004.

Source: APRA

**Table 6: Market Risk[(a)]**

Per cent of shareholders' funds

| | |
|---|---|
| Australia | 0.06 |
| Canada | 0.09 |
| France | 0.11 |
| Germany | 0.40 |
| Netherlands | 0.17 |
| Switzerland | 0.30 |
| UK | 0.08 |
| US | 0.18 |

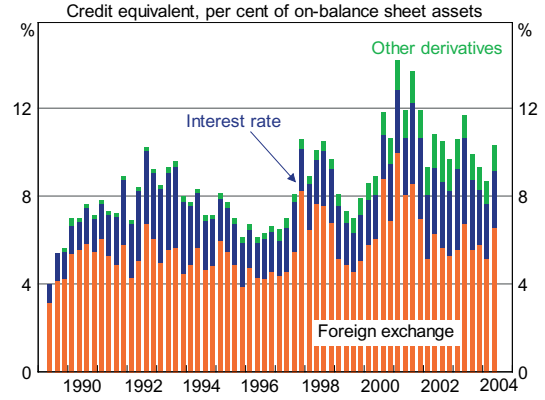
(a) Value at risk (VaR) calculated using a 99 per cent confidence interval and one-day holding period. Based on exposures reported by the 4, 5, 3, 4, 3, 2, 5 and 10 largest banks in Australia, Canada, France, Germany, the Netherlands, Switzerland, UK and US respectively that reported VaR in their recent financial statements.

Sources: Banks' annual reports; RBA

## Graph 40

**Banks' Off-balance Sheet Business**

Credit equivalent, per cent of on-balance sheet assets




Source: APRA

used in the capital adequacy standards) has been broadly stable in recent years (Graph 39). With assessed market risk standing at just 1 per cent of risk-weighted assets, the banks' market risk exposures are small relative to the credit risk they carry. These exposures are also quite low by international standards (Table 6).

Derivatives transactions are an important part of the banks' traded market activities. Although the market value of banks' derivatives exposures picked up in the June quarter, these exposures have remained fairly steady relative to the banks' on-balance sheet assets in recent years (Graph 40).

## Market-based Measures of Bank Risk

While financial markets continue to regard the banks as having low credit risk, they have scaled back their expectations of future profitability. Bank share prices have fallen by around 7 per cent over the past six months and are roughly unchanged from their level a year ago (Graph 41). In contrast, the overall market has risen by 6 per cent over the past six months. Notwithstanding the banks' recent strong earnings results, the slowdown in the housing market and pressure on interest margins have weighed on the share market's assessment of future prospects. Despite this, the expected future volatility of banks' share prices (as implied by options market valuations) remains low (Graph 42).

Similarly, bond-market participants assess bank credit risk as low. After rising sharply in May, the credit default swap premium for the four major banks (which represents the cost of insuring against the risk that a bank defaults on its bonds) has steadily declined to be at its lowest level in two years (Graph 43).

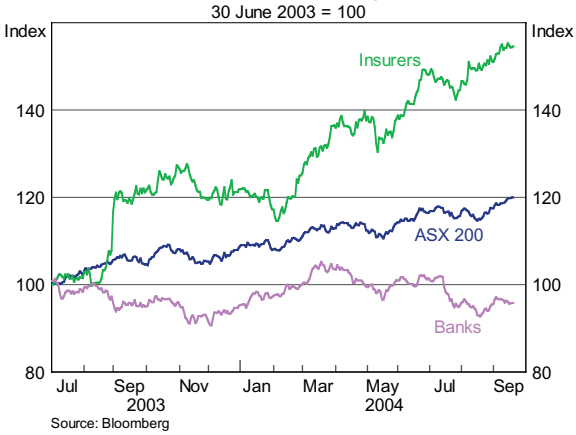
The banks' credit ratings have generally remained stable over the past six months, with two banks having had ratings upgrades. In March, Fitch upgraded Bank of Queensland's financial strength rating from C to B/C. In the past two months AMP Bank has had its long-term credit rating upgraded by Standard & Poor's and Moody's in line with the upgrading of the overall group (Table 7). Adelaide Bank, BankWest and Bendigo Bank remain on positive outlook from Standard & Poor's. Moody's has Arab Bank on a positive outlook and Adelaide Bank under review for possible upgrade. By international standards, the Australian banks enjoy high financial strength ratings (which, unlike long-term credit ratings, do not take account of likely external support) although they are slightly below those of a number of the major banks in the main industrialised countries (Table 8).

## 2.2 Insurers

While the banks' recent results follow a decade of consistently strong profitability, insurers' recent favourable profit results represent a

**Graph 41**

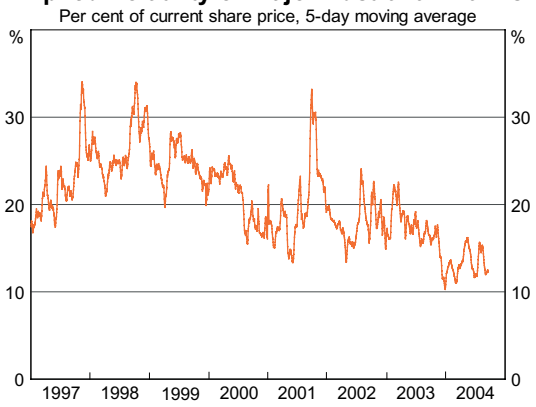
**Financial Sector Equity Prices**




Source: Bloomberg

**Graph 42**

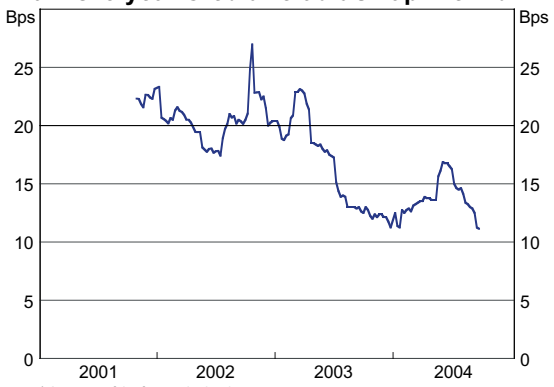
**Implied Volatility of Major Australian Banks***




*Average of the four major banks
Source: Bloomberg

**Graph 43**

**Banks' 5-year Credit Default Swap Premium***




* Average of the four major banks
Sources: AFMA; Bloomberg; Reuters

**Table 7: Australian Banks' Ratings**
August 2004

| | Long-Term Credit Rating | | | Financial Strength Rating | |
|---|---|---|---|---|---|
| | Standard & Poor's | Moody's | Fitch | Moody's | Fitch |
| Adelaide Bank | BBB | Baa2 | na | C- | na |
| AMP Bank | A- | A3 | na | D | na |
| Arab Bank | na | Baa3 | BBB+ | D | C/D |
| ANZ Banking Group | AA- | Aa3 | AA- | B | B |
| Bank of Queensland | BBB | Baa3 | BBB | C- | B/C |
| BankWest | A | A1 | na | C | na |
| Bendigo Bank | BBB | na | BBB+ | na | B/C |
| Commonwealth Bank of Australia | AA- | Aa3 | AA | B | A/B |
| ING Bank (Australia) | AA- | Aa2 | na | na | na |
| Macquarie Bank | A | A2 | A+ | C+ | A/B |
| National Australia Bank | AA- | Aa3 | AA | B | B |
| St George Bank | A | A2 | A+ | C+ | B |
| Suncorp-Metway | A | A2 | A | C+ | na |
| Westpac Banking Corporation | AA- | Aa3 | AA- | B | B |

Sources: Bloomberg; Fitch; Moody's; Standard & Poor's

marked recovery from prior years' weakness. This recovery has been aided by firmer underwriting conditions and stronger share markets. Nevertheless, uncertainties remain. In particular, a return of claim severity and frequency to levels more in line with historical averages and an end to the recent rises in premium rates could weaken insurers' underwriting results.

**Table 8: Moody's Weighted-average Bank Financial Strength Index[(a)]**
May 2004

| | |
|---|---|
| Australia | 72.5 |
| Canada | 75.0 |
| France | 71.2 |
| Germany | 46.7 |
| Hong Kong | 62.3 |
| Japan | 12.0 |
| Malaysia | 36.8 |
| Netherlands | 84.2 |
| Singapore | 74.7 |
| UK | 83.3 |
| US | 75.0 |

(a) Constructed according to a numerical scale assigned to Moody's weighted-average bank ratings by country. Zero and 100 indicate lowest and highest possible average ratings, respectively.

Sources: IMF; Moody's

## General Insurers

The general insurance industry has enjoyed much better conditions over the past couple of years, with many of the major insurers recently posting strong results. Industry consolidation (the number of authorised insurers has fallen by one third in the past five years) and ongoing consumer demand for insurance have seen a steady rise in premia and sales volumes in recent years. Over the past few months, however, there have

been some signs that strengthening competition is beginning to see growth in premium rates slow. For example, a recent JP Morgan and Deloitte survey found that commercial premium rates had fallen by 5 per cent over the year to June 2004, with sharp declines being observed in the property and commercial vehicle classes.

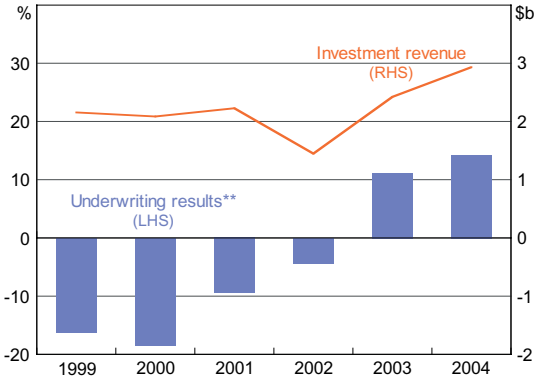
A greater focus on cost control and more stringent policy terms and conditions have also contributed to improved profitability. This is reflected in underwriting profits, which have improved noticeably. In 2002/03, underwriting results were positive for the first time in more than a decade and they rose further in 2003/04 (Graph 44). Changes to professional indemnity laws are likely to reduce claims costs in the future.

Investment revenue has also recovered strongly following weakness in 2002. Over the past few years, general insurers have rebalanced their investment portfolios towards interest-bearing instruments, reducing their exposure to share markets (Graph 45). Currently, interest-bearing instruments account for 60 per cent of general insurers' holdings of financial assets, up from just above 50 per cent in the late 1990s. Conversely, equity holdings, which represented around 40 per cent of financial assets in 1999, have fallen to 30 per cent.

The more benign operating conditions in 2004 have facilitated balance sheet consolidation. General insurers' aggregate capital base is around 14 per cent above its level in mid 2003 and more than twice the minimum regulatory requirement.

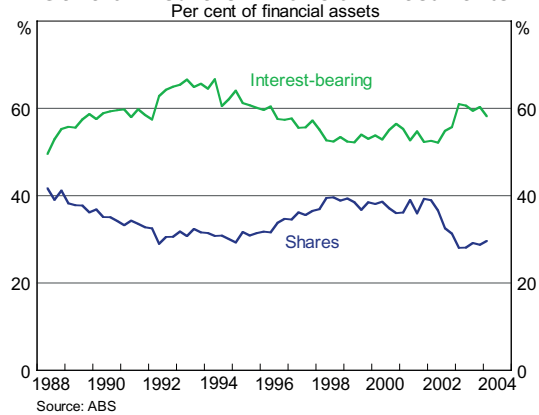
Global reinsurers, which take on some of the risk incurred by the domestic general insurers, have also benefited from a more benign claims environment over the past few years. Their combined ratio (underwriting and claims expenses relative to premium revenue) has improved significantly since 2001, moving below 100 per cent in 2003 (Graph 46). The industry has also experienced a broad tightening of underwriting terms and conditions. In particular, there has been a widespread increase in terrorism exclusions, use of narrower

**Graph 44**
**Performance Indicators for General Insurers***




* Data reflect year to June. 2004 data are year to March.
** Net premium revenue minus underwriting and claims expenses as a per cent of net premiums
Source: APRA

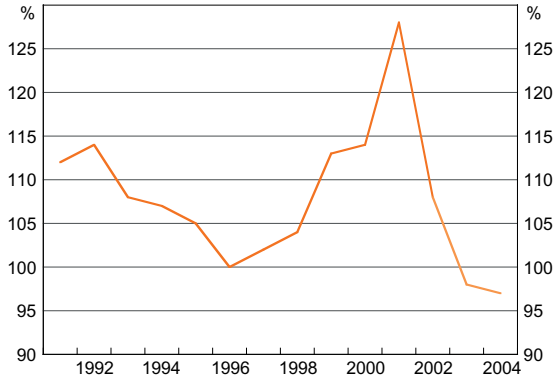
**Graph 45**
**General Insurers' Financial Investments**
Per cent of financial assets




Source: ABS

**Graph 46**

**Global Reinsurance Combined Ratio***




* Figures for 2003 and 2004 are estimates by UBS Warburg.
Source: UBS Warburg

definitions of natural catastrophe events and a reduction of exposures to contingent business interruption.

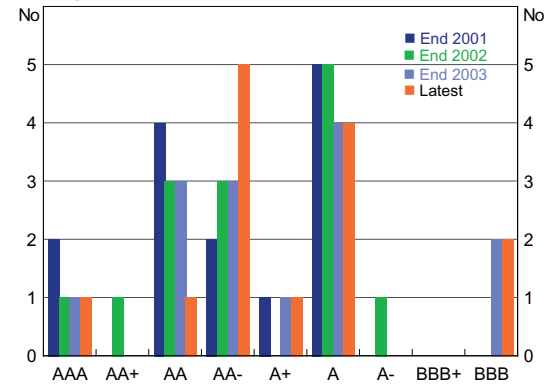
The reinsurance industry has also sought to mitigate risk through greater business diversification. As further growth in core property and casualty lines becomes harder to achieve, reinsurers have started to increase their exposure to other business lines, particularly direct insurance and life reinsurance. Geographic diversification has also increased, with many reinsurers seeking higher exposure to Asian and European markets.

## Life Insurers

The life insurance industry has continued to recover from the low point that it reached in the first half of 2003. In particular, following the demerger with its loss-making UK operations, AMP has returned to profitability. More broadly, the share market recovery has contributed to an improvement in domestic insurers' investment revenue.

**Graph 47**

**Ratings Distribution of Domestic Life Insurers***




* Includes life reinsurers.
Source: Standard & Poor's

The general improvement in conditions has seen life insurers' balance sheets strengthen. Capital adequacy ratios remain around the highs of recent years and the solvency ratio (which measures the capital available to meet claims if the insurer is closed to new business) has risen further. Consistent with this, the sector's credit ratings have stabilised. Since end 2003, there have been just two downgrades by Standard & Poor's, both of which reflected changes in the rating of the foreign parent institution rather than any deterioration in the financial health of the domestic insurer (Graph 47). In contrast, in 2002 and 2003, Standard & Poor's downgraded five of the 14 rated domestic life insurers and reinsurers (often more than once), while none was upgraded.

## 2.3 Superannuation

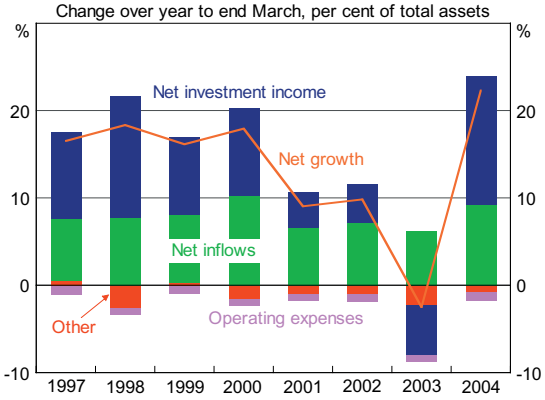
Superannuation assets (excluding the balance of life office statutory funds) increased by over 22 per cent to $579 billion in the year to March 2004 – the largest annual percentage increase in ten years (Graph 48). Including statutory funds, the growth rate was 18 per cent. Superannuation assets now amount to 75 per cent of GDP, and comprise almost half of households' total financial assets.

Both net inflows and net investment income, but mainly the latter, have contributed to recent growth. Net inflows over the year to March were strong, amounting to 9 per cent of total assets, 3 percentage points above the previous year. Additionally, after declining from a peak of 42 per cent in 2000, the proportion of discretionary member contributions has stabilised at around 30 per cent of total superannuation inflows (Graph 49). Reflecting life offices' role in the provision of retirement savings products, around one fifth of the total inflow arises from assets being transferred into superannuation funds from life offices. This inflow is ultimately sourced from a mix of employer and discretionary member contributions.

**Graph 48**

**Growth in Superannuation Assets***

Change over year to end March, per cent of total assets

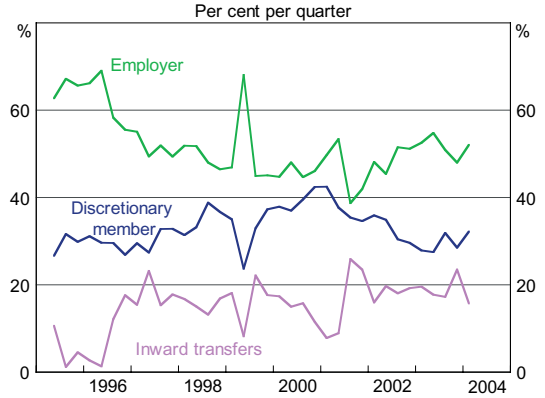



* Excludes the balance of statutory funds.
Source: APRA

**Graph 49**

**Components of Superannuation Inflows***

Per cent per quarter




* Inward transfers comprise monies flowing from Life Offices to funds supervised directly under the SIS Act. Employer contributions include 'salary sacrifice' arrangements.
Source: APRA

After losses in the year to March 2003, strong performance in underlying investment markets has led to a rebound in superannuation funds' investment income. This saw net investment income contribute 15 percentage points to the overall growth in funds' assets.

In the past financial year, superannuation funds recorded strong investment returns, largely due to the performance of share and property markets (Table 9). According to InTech Financial Services, 'growth' funds (i.e. funds that invest a significant proportion of their assets in shares) earned a median return of around 14 per cent in the year to end June 2004. Conservative, or capital stable, funds produced median returns of around 7 per cent in the same period. These are the best financial-year ended median returns for seven years.

**Table 9: Asset Class Returns**
Per cent to end June 2004

| | 1 year | 3 years | 7 years |
|---|---|---|---|
| Australian shares | 22 | 4 | 7 |
| International shares (foreign currency risk unhedged) | 19 | -9 | 4 |
| International shares (foreign currency risk hedged) | 20 | -3 | 3 |
| Australian listed property | 17 | 15 | 12 |
| Australian bonds | 2 | 6 | 6 |
| International bonds (foreign currency risk hedged) | 3 | 8 | 8 |
| Cash | 5 | 5 | 5 |

Source: InTech Financial Services

Of the various types of superannuation funds, 'do-it-yourself' (DIY) funds have grown the fastest over the past few years. They now account for almost a quarter of total superannuation assets, up from 14 per cent in 1999, with fund membership increasing at almost twice the overall industry rate over the same period.

APRA data show that, on average, DIY funds have performed well compared to the other types of superannuation funds. Over the five years to March 2004, they earned an average annual return of 5.8 per cent, compared with 3.9 per cent earned by all other types of funds.

DIY funds differ from the rest of the industry in three main ways. First, the average DIY member balance of $250 000 is far larger than the industry average of $22 000. Second, a much higher share of DIY funds' assets is invested directly rather than with an investment manager or life office (Table 10). This means that the members retain day-to-day control over their investments. Third, DIY funds invest relatively little in overseas assets, compared with the rest of the industry, instead investing more heavily in domestic shares and trusts than other funds. Additionally, DIY funds typically exhibit high investment concentrations; over 50 per cent of DIY funds have more than 70 per cent of their assets in one asset class.

**Table 10: Superannuation Funds: Manner of Investment and Asset Allocation**
Per cent of total, June 2002

| | DIY funds[(a)] | All funds |
|---|---|---|
| *Manner of investment* | | |
| Directly invested | 92 | 33 |
| Held with investment managers | 7 | 37 |
| Placed with life offices | 1 | 30 |
| *Asset allocation* | | |
| Domestic shares and trusts | 59 | 44 |
| Land and buildings | 10 | 6 |
| Cash, term deposits and interest-bearing securities | 24 | 28 |
| Assets overseas | 3 | 19 |
| Other | 4 | 3 |

(a) Includes only ATO-regulated funds, which comprise around 97 per cent of total DIY fund assets.
Sources: APRA; ATO

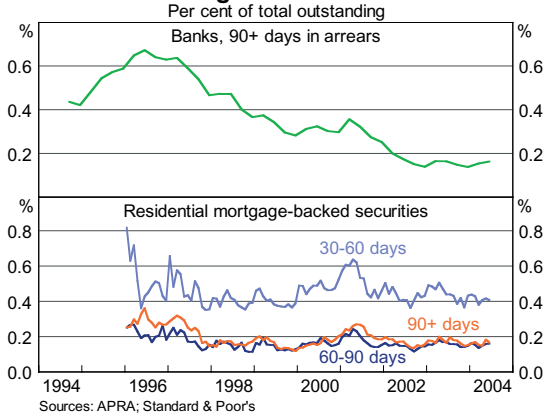
# Box C: Measures of Housing Loan Quality

Two commonly used measures of housing loan quality are housing loans past due and claims on mortgage insurers. Both measures show that Australian mortgages have historically been of very high credit quality.

*Housing loans past due* data measure the share of housing loans, by value, for which payments are overdue. The most representative series, compiled by APRA, covers banks' housing loans for which payments are late by 90 days or more. Data on loans past due are also available from rating agencies for the home loans underlying residential mortgage-backed securities (RMBS). RMBS currently account for around 20 per cent of outstanding housing loans, up from less than 5 per cent in the mid 1990s.[1]

Aggregate data from APRA are available from the mid 1990s, over which time the environment for housing loans has been highly favourable. Since 1994, the ratio of bank housing loans past due to total housing loans has averaged 0.38 per cent, although over the past couple of years, the ratio has been less than half this level (Graph C1). The ratio for RMBS housing loans 90 days or more in arrears is currently at a similarly low level, although there is less evidence of a downward trend in the series over the 1990s. This largely reflects the requirement that only housing loans free of payment difficulties are used for new RMBS issues. The RMBS data also show that the ratio of loans 30 to 60 days in arrears is higher than the ratio of loans more than 60 days overdue, suggesting that many households overcome their initial debt-servicing difficulties.

**Graph C1**
**Housing Loans Past Due**
Per cent of total outstanding




Sources: APRA; Standard & Poor's

Banks do not automatically foreclose on housing loans with payments in arrears. In recent years it has not been uncommon for write offs to be less than a tenth of housing loans 90 days or more past due, as lenders work with customers to overcome difficulties. In a less benign environment, the write-off rate could be considerably higher.

*Claims on mortgage insurers* are a narrower measure than housing loans past due, as claims are primarily triggered when there is both an inability to service the debt and insufficient

1 *Battellino, R (2004), 'Some Comments on Securitisation', Reserve Bank of Australia* Bulletin, *August, pp 62-67.*

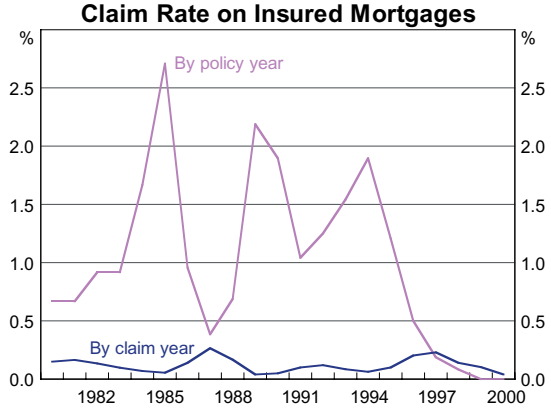
collateral. The extent to which loans past due result in insurance claims varies with economic conditions: partial industry data suggest that the share of insured mortgages 90 days or more past due that become insurance claims each year has varied between 5 per cent and 30 per cent over the past decade.

Historically, the subset of mortgages that is covered by lenders' mortgage insurance may not be representative of the banks' mortgage portfolio as a whole. This reflects the tendency for banks to require mortgage insurance only for higher-risk loans, most notably those with high loan-to-valuation ratios. Over recent times, however, the pool of insured mortgages is likely to have become more representative, as loans are often insured prior to being securitised.

Claims data, which in the past have been provided by the Insurance Council of Australia, are available on two bases. The first is the claim rate by *policy year*. This measures the proportion of loans written in any given year on which a claim is eventually made. The second is the claim rate by *claim year*. This measures the share of insured loans in any given year on which there is a claim in that year. This latter measure is more useful when analysing the quality of overall outstanding mortgages through time. Unfortunately, data have not been published for either measure since 2000. For the two decades to then, on average, around 1 per cent of insured mortgages ultimately defaulted (Graph C2). In any given year, the share of insured mortgages that defaulted has averaged around 0.1 per cent, with the worst year being 1987 when 0.27 per cent of total insured loans recorded a claim.

**Graph C2**

**Claim Rate on Insured Mortgages**




Source: Insurance Council of Australia

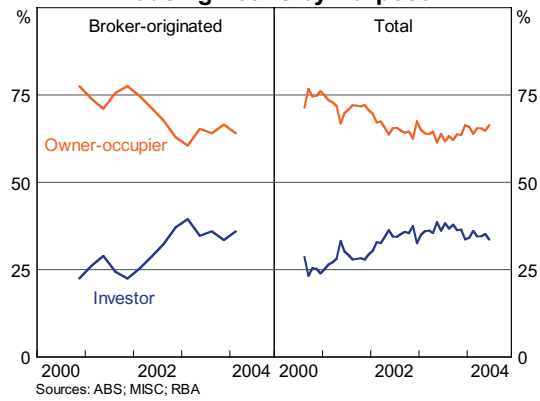
# Box D: The Characteristics of Loans Originated by Mortgage Brokers

Most Australians approach a lender directly when they wish to take out a home loan. However, an increasing number are choosing to arrange their loan through a mortgage broker – an intermediary that deals with a number of lending institutions. In 2003, around one quarter of all new home loans were sourced in this way.

The characteristics of loans originated by brokers are similar to lender-originated loans in many respects. For instance, investor loans make up a similar share of broker-originated loans and of all loans; in the March quarter 2004, investor loans accounted for 36 per cent of loans in each case (Graph D1).[1] The average size is also similar, although in the past broker-originated owner-occupier loans have tended to be larger than the market average (Graph D2).[2] The reduction in this difference may reflect growing customer awareness of brokers, resulting in brokers arranging loans for a broader cross-section of borrowers than previously.

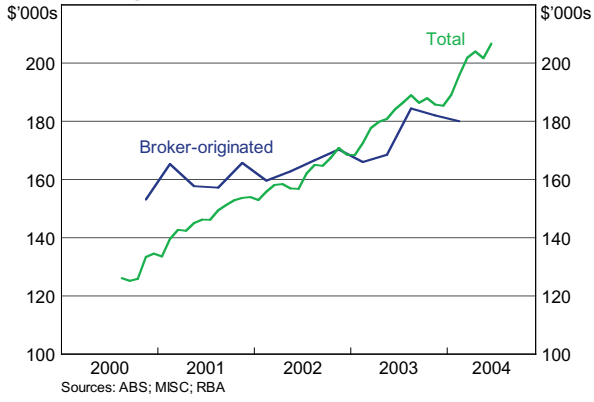
One point of difference is the prevalence of refinancing, with refinanced loans accounting for a larger share of broker-originated loans than of lender-originated loans. For example, in the March quarter, 33 per cent of broker-originated loans were used to refinance existing

**Graph D1**
**Housing Loans by Purpose**




Sources: ABS; MISC; RBA

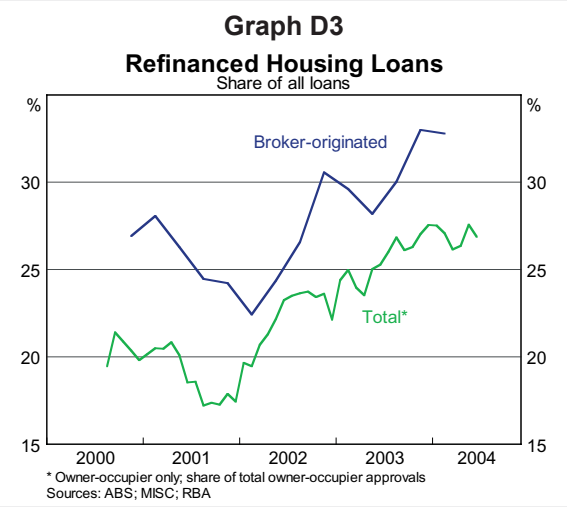
**Graph D2**
**Average Owner-occupier New Loan Size**




Sources: ABS; MISC; RBA

1 *Market Intelligence Strategy Centre (MISC) data on broker-originated loans refers to loan settlements, whereas ABS data on all lending refers to loan approvals. There is typically a few months lag between when a loan is approved and when it is settled. Unlike the data presented in* The Macroeconomic and Financial Environment, *the data shown here are not seasonally adjusted.*

2 *Market-wide average loan size data are unavailable for investment loans.*




loans, while 27 per cent of all loans were used for this purpose (Graph D3).

The higher proportion of refinanced loans is consistent with brokers' commission arrangements. Brokers typically receive upfront commissions from lenders for each loan they originate. In addition, most lenders also pay an ongoing or 'trailing' commission to brokers over the life of the loan. However, these trailing commissions are typically small relative to upfront commissions, so brokers have some incentive to encourage borrowers to periodically refinance with a different lender.

Given the strength of the household sector in recent years and the low aggregate mortgage default rates, it is difficult to identify any differences in default rates between mortgages originated through brokers and those originated directly. The higher rate of refinancing has mixed implications for the riskiness of broker-originated loans. On one hand, it allows borrowers to rearrange their debt on more advantageous terms; on the other, refinancing may provide an opportunity for households to increase the size of their mortgage and thus their total debt. One sign that brokers may be dealing with more vulnerable customers comes from the lenders themselves. A 2002 APRA survey of authorised deposit-taking institutions' use of brokers found that lenders tend to reject a higher proportion of loan applications sourced from brokers than other loan applications.[3]

3 *Chanthivong A, A Coleman and N Esho (2003)*, Report on Broker-Originated Lending, *APRA, January.*

# 3. Developments in the Financial System Infrastructure

A prerequisite for a stable financial system is sound financial infrastructure – the regulatory, accounting and legal framework that supports the day-to-day operations of financial intermediaries and markets. Over the past six months, agreement has been reached internationally on the implementation of two important initiatives to reinforce this infrastructure: the new Basel Capital Framework, which will enhance the prudential oversight of the international banking system; and the International Financial Reporting Standards, which will improve the transparency and comparability of financial statements across countries. Taken together, these initiatives have the potential to provide market participants with better measures of risks within the financial system and the scope to better manage those risks. Nonetheless, they are complex changes and, as discussed below, raise some challenging issues.

## 3.1 The New Basel Capital Framework

The new Framework, developed by the Basel Committee on Banking Supervision, was finalised in June and will be available for implementation internationally from the end of 2006. It represents a major advance on the current Accord, established in 1988, providing a significantly more risk-sensitive approach to the setting of regulatory capital requirements for banks – a part of the new Framework that is usually referred to as 'Pillar 1'. The new Framework also aims to reinforce the supervisory review process – the dialogue between prudential supervisors and banks on the adequacy of their capital and on their overall approach to risk management ('Pillar 2') – and to strengthen market discipline by enhancing the transparency of banks' financial reporting ('Pillar 3').[4] The three Pillars are intended to be mutually reinforcing. At this stage in the implementation process, however, it is the new arrangements for calculating capital requirements that are commanding most attention.

Under the new Framework, a bank must hold capital equal to at least 8 per cent of its risk-weighted assets – a core requirement that remains unchanged from the current Accord. However, the means by which various assets are risk weighted has been overhauled with potentially far-reaching implications for the regulatory capital requirements of individual institutions and, by extension, for the financial system as a whole.

In calculating capital requirements under the new Framework, a bank must have regard to three business risks – credit risk, market risk and operational risk. The approach to measuring market risk – the risk of trading losses – is unchanged from the current Accord, while that for operational risk – covering losses resulting from events such as fraud and technology failure – has been formally incorporated into the capital adequacy framework for the first time. The measurement of credit risk – the risk of losses arising from default by customers or counterparties

4 *In Australia, the principles of the Basel Accord are applied by APRA to all authorised deposit-taking institutions (ADIs).*

and by far the largest risk for most banks – has been considerably reworked to provide more risk sensitivity.

The new Framework provides banks with three options for measuring credit risk, with the choice depending largely on the sophistication of a bank's risk management systems. The simplest option is the standardised approach, which is conceptually similar to the current Accord: a bank allocates a risk weight to each of its assets (and off-balance sheet positions) to produce a sum of risk-weighted values against which it must hold capital. Under the current Accord there are, however, only a very limited number of risk weights that apply and these depend largely on the type of borrower (i.e. sovereigns, banks and corporates). An advantage of the standardised approach under the new Framework is that it will allow banks to refine these weights by reference to the risk assessments available from external credit rating agencies. For example, while the current Accord provides only a single risk weight of 100 per cent for corporate lending, the standardised approach will see corporate borrowers assigned to one of four categories based on their credit ratings, with risk weights of 20, 50, 100, and 150 per cent. Of course, not all borrowers have a credit rating, in which case the existing 100 per cent weight will continue to apply.

The more innovative part of Pillar 1 is the provision of two internal ratings-based (IRB) options for calculating regulatory capital. These will allow banks to rely, for the first time, on their own estimates of credit risk to determine the amount of capital they are required to hold. In the case of the 'foundation' IRB approach, banks will need to estimate the probability of default for each borrower with other determinants of credit risk, including the likely loss given default, provided by the supervisor. In the 'advanced' IRB approach, banks can use their own estimates of both probability of default and loss given default to determine the capital requirement.

## Implications of the New Framework for the Financial System

The new Framework will obviously influence the behaviour of individual banks, but it will also have some important implications for the financial system as a whole. A welcome initiative, for example, is the incentive created by the new Framework for banks to invest in advanced risk management systems. Capital requirements under Pillar 1 are such that banks adopting an IRB approach to measuring their credit risk should, for a given risk profile, generate some capital savings over those that adopt the standardised approach. Ultimately, an improvement in risk management should promote the stability of both individual institutions and the system as a whole.

In a similar vein, more relevant and timely disclosure of information about the risks that financial institutions are incurring should promote more effective market discipline. To the extent that problems are identified and dealt with at an earlier stage by both the market and prudential supervisors, improved disclosure can assist in ensuring that problems do not develop to the point where serious difficulties are inevitable.

In addition, by aligning regulatory capital more closely with underlying risks, the new Framework should enhance not only the stability of the financial system, but also its efficiency. In particular, it should reduce the incentives for financial institutions to develop structures specifically to arbitrage differences between regulatory capital requirements and their own

internal assessment of the appropriate level of capital. Risk-based capital requirements may also prove helpful in encouraging more risk-based pricing.

Other implications of the new Framework are less clear from a stability perspective. Two issues in particular have stood out in recent debates. The first is the prospect of some quite sizeable falls in regulatory capital for some lines of business, notably lending for housing. And the second is the issue of 'procyclicality' – the potential for the new Framework to amplify swings in the economy by making bank credit more easily available in economic expansions, and more difficult to obtain in contractions.

## Potential to Lower the Amount of Regulatory Capital

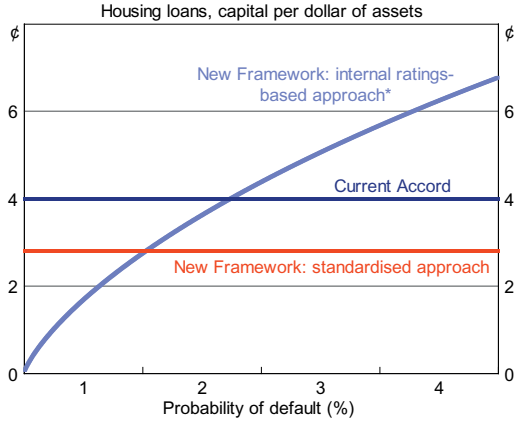
The intention of the Basel Committee is that the new Framework should not lower the overall amount of capital in the banking system. The Framework will, however, significantly change the capital requirements on specific lines of business. In the Australian context, changes in the capital requirements on residential property loans are particularly important, given that these loans account for over half of banks' total loans.

Under the standardised approach, it is proposed that the risk weight applying to residential property loans will drop from 50 per cent to 35 per cent; or in other words, the minimum capital requirement on housing loans will drop from 4 cents in the dollar to 2.8 cents in the dollar (Graph 50). Under the IRB approach, the fall can be significantly larger, although the outcome will depend upon the estimates of probability of default and the loss given default. According to data from the Insurance Council of Australia, the average annual claim rate over the past couple of decades on insured mortgages has been less than 0.2 per cent (see Box C in the previous chapter). Under the foundation IRB approach, a residential mortgage with a probability of default of 0.2 per cent would generate a capital requirement of just 0.6 cents in the dollar (assuming a loss given default of 25 per cent), which is less than one sixth of the current requirement.

These calculations suggest there is scope for a considerable reduction in minimum capital requirements on residential mortgages. Any reduction, however, may be offset by higher requirements elsewhere. Banks will need to allocate capital against operational risk under the new Framework and there is scope under Pillar 2 for supervisors to require capital to be held against other risks, such as interest-rate risk.

Two other factors are likely to limit any decline in the amount of capital that banks hold. The first factor is the assessment of banks by rating agencies, and financial markets more generally. One reason that Australian banks enjoy relatively

**Graph 50**
**Regulatory Capital Requirement**
Housing loans, capital per dollar of assets




* Using a loss given default of 25 per cent
Source: RBA

high credit ratings is that they are well capitalised. If they were to reduce the amount of capital they hold, or expand their assets without a commensurate increase in capital, their ratings would likely suffer, irrespective of how their regulatory capital ratios evolve. The second factor is that the new Framework is to be phased in gradually. Until at least 2010 there will be a floor under any capital reductions. In 2008 for example, the capital requirements for banks that use either IRB approach cannot be lower than 90 per cent of the requirement calculated under the current Accord.

## Procyclicality

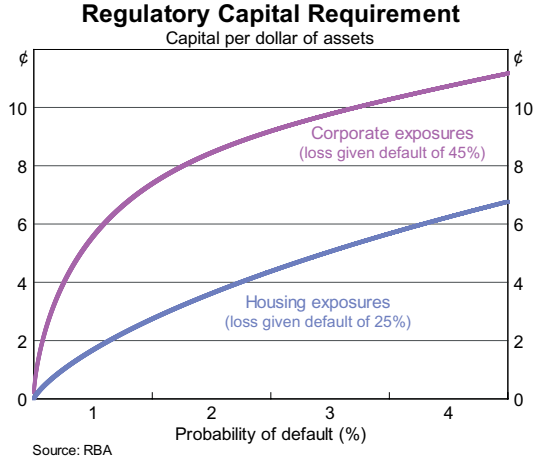
One aspect of the new Framework that has been the subject of considerable discussion among central banks and banking regulators is its potential to influence the amount of bank lending through the course of an economic cycle – a characteristic usually described as 'procyclicality'. At issue is the potential for capital requirements to fall in good economic times and to increase in bad times, and how any such changes are likely to affect the evolution of the economy.

If during an economic downturn banks reassess the probability of default in an upward direction, capital requirements will inevitably increase. Under the foundation IRB approach, for example, if a corporate borrower was downgraded from A to A- (which is equivalent to an increase in the probability of default from, say, 0.18 to 0.31 per cent) the capital requirement on loans to that borrower would increase from 3.2 cents in the dollar to 4.4 cents in the dollar (Graph 51).[5] The standardised approach would deliver a similar outcome. For residential mortgages, increases in probabilities of default would also lead to an increase in capital requirements, but of a smaller magnitude than for business loans.

Since raising capital during a downturn can be costly, banks faced with an increase in their capital requirements may choose to wind back their lending instead – a decision which may exacerbate the slowdown. In an economic upturn, the process has the potential to work in reverse.

**Graph 51**

**Regulatory Capital Requirement**




Source: RBA

One factor that may limit movements in capital requirements over the economic cycle is the use of through-the-cycle ratings. In this regard, the Basel Committee's preference is that ratings represent a bank's assessment of the borrower's ability to repay in weak (as well as strong) economic conditions. Such an assessment should not usually change a great deal over the course of a business cycle. Similarly, the standardised approach is predicated on the assumption that rating agencies take into account the

*5 Based on average default rates for external ratings, and a loss-given-default estimate of 45 per cent.*

riskiness of borrowers across a complete cycle, rather than at any particular point in time. Under Pillar 2, supervisors are also being encouraged to take into account the business cycle when assessing the adequacy of a bank's capital.

In addition, to the extent that banks operate with capital ratios above the regulatory minimum in good times, they will have scope to accommodate higher capital requirements in poorer times, without having to raise new capital or unnecessarily cut back their lending. Rating agencies will play some role in ensuring that such buffers are retained.

## 3.2 International Accounting Standards

The International Accounting Standards Board has been working for some years to develop a single set of global accounting standards to improve transparency and international comparability in financial statements. Australia will be one of the first countries to implement a full set of International Financial Reporting Standards, which will apply for reporting purposes from 1 January 2005.

The new standards encourage the use of 'fair value' – broadly speaking the use of market values net of transaction costs – for measuring assets and liabilities, particularly financial instruments. This is especially important given the extensive use of derivative contracts by financial intermediaries, which are sometimes recorded off-balance sheet at historical cost – an approach that has led to a misalignment in some countries between the information contained in financial statements and the risk profile of financial intermediaries. While, in principle, fair value could apply to all financial instruments, the new standards are essentially confined to instruments held for trading and assets available for sale.

### Implications for the Financial System

The new standards have been generally welcomed as an important step towards a more resilient international financial system. Accounting standards that are mutually acceptable and compatible across borders should help to promote investor confidence in financial statements and, by doing so, foster deeper, more liquid markets in financial instruments.

Nevertheless, the introduction of the new standards is not without some challenges for financial intermediaries and their regulators. The new standards are likely to generate some additional volatility in financial statements as changes in fair value feed through to reported earnings and capital. The extent of this volatility may be mitigated to some extent by the application of hedge accounting rules within the standards, which cover the ability to use derivative transactions to hedge movements in the value of assets and liabilities. After much discussion, it was agreed that the standards should incorporate 'macro hedging' concepts under which assets or liabilities could be valued jointly, where the assets acted as a hedge against movements in the market price of liabilities or vice versa. However, the accounting standards do not permit hedge accounting involving demand deposits – a source of concern to those ADIs that tend to hedge the interest-rate risk on these liabilities.

During the development of the new standards, some argued that all financial instruments should be measured at fair value, including loans because, by doing so, financial reports would more accurately reflect changes in the credit quality of an ADI's loan portfolio. This approach

attracted much debate with critics arguing that it was impractical, as few loans are actively traded. Accordingly, loans will continue to be reported at book value (less provisions) under the new standards, unless intended for sale by the ADI. While the new standards emphasise the use of 'objective evidence' in identifying loan impairment and thus provisions, they provide some scope for a forward-looking assessment using 'experienced judgment' where observable evidence is limited or irrelevant.

For regulators, there is considerable work to be done in reconciling various aspects of the new standards with current prudential requirements. For example, some hybrid capital instruments currently treated as equity by regulators will be classified as debt under the new standards and the tests for the accounting derecognition of assets sold by banks to securitisation vehicles will be more stringent than those currently applied by banking regulators. But there is also a more fundamental issue for regulators that arises from differences in the purposes of the new accounting standards and the objectives of prudential rules. Accounting standards measure the economic value of a bank as a going concern, with capital treated as the difference between assets and liabilities. In contrast, prudential supervisors are more concerned with values of assets and liabilities in stress scenarios and the ability of capital to meet the obligations of the bank in these situations. Reflecting this, the Basel Committee has recommended that some unrealised gains/losses arising from changes in market prices be excluded from regulatory capital. The Committee has also argued strongly that where liabilities are measured at fair value, only valuation changes due to general market movements should be taken into account. Doing so would lessen the possibility that a deterioration in an institution's credit rating would lead to a reduction in the value of its reported liabilities.

Like other regulators, APRA is giving very careful consideration to the reconciliation of prudential requirements and the new accounting standards. It has confirmed that no changes to Australian prudential requirements will be made before 1 July 2005 or without industry consultation.

## 3.3 Other Developments

### Study of Financial System Guarantees

The HIH Royal Commission recommended that the Commonwealth Government establish a comprehensive scheme to support insurance policyholders against the failure of insurance companies. In response to this recommendation, the Government commissioned a technical study not only into the merits of this proposal, but the establishment of a system of guarantees for financial products more generally. The study, known as the Davis Report, was released in May. It covers issues including the economic rationale for explicit guarantees; criteria that could be used to determine which financial products are to be guaranteed; the cost of such a system; how it could be funded and priced; and what implications a guarantee scheme might have for the existing regulatory framework.

The Davis Report concluded that the costs and benefits of adopting a system of financial guarantees are 'finely balanced'. Arguments in support of a guarantee scheme include consumer protection and greater certainty about the resolution of a failed financial institution. The case against explicit guarantees rests on the impact that such schemes can have on private incentives

to manage risk. The Bank is of the view that for deposits, at least, there is merit from a crisis-management perspective in a limited guarantee in the form of deposit insurance. Australia is one of the few countries without such a scheme, instead providing depositors with first claim on the assets of a failed bank.

The Davis Report was intended to be used as a resource for parties interested in making submissions to Treasury on financial system guarantees. Treasury is currently considering the public submissions it has received.

## Changes to Superannuation Arrangements

Choice-of-fund legislation, which has been on the regulatory agenda since the mid 1990s, was passed in June. From July 2005, this legislation will provide up to five million employees with the freedom to choose the superannuation fund into which they wish to place their compulsory superannuation contributions. The legislation will also affect around 700 000 employers, who will need to notify new and current employees of their rights in relation to fund choice before July 2005, and eventually allocate those that do not exercise choice to an eligible default fund. The new legislation is intended to increase competition and efficiency in the superannuation industry. It may also have implications for financial markets if significant shifts in the location of superannuation monies were to occur.

The Government also released a set of recommendations in early July for legislation designed to improve the protection of superannuation funds. The recommendations relate to the provision of financial assistance by the Government in the event of losses incurred by superannuation funds due to fraudulent conduct or theft.

## Business Continuity Management for Financial Institutions

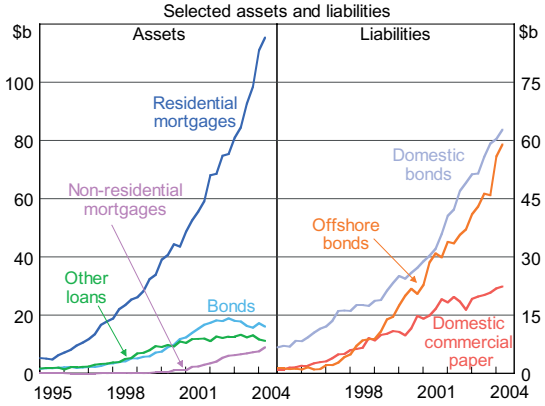
In early July, APRA released for public consultation a draft prudential standard on business-continuity management for ADIs, general insurers and life insurers. The standard is designed to ensure that financial institutions can continue to meet their obligations to customers in the event of a significant disruption to normal operating conditions.

As part of its crisis-management responsibilities, the Bank has also begun working with the financial industry to identify and address, where appropriate, infrastructure risks that could have systemic implications.

Crisis-management plans also have an international dimension. Cross-border co-ordination is particularly important between Australia and New Zealand, due to the size of the Australian banks' trans-Tasman business. New Zealand is the largest country exposure of Australian banks, representing 13 per cent of their consolidated assets, and the four major Australian banks account for 86 per cent of the New Zealand banking-system assets. Reflecting this deep integration, the two Governments established a working group earlier this year to explore options for more closely integrating the regulatory and crisis-management arrangements of both countries. The Bank participated in the working group along with officials from the Australian and New Zealand Treasuries, APRA and the Reserve Bank of New Zealand. The Report is now with the Australian Treasurer and the New Zealand Minister of Finance for their consideration.

# Asset Securitisation in Australia[1]

**Graph 1**
**Australian Securitisation Vehicles**
Selected assets and liabilities




Sources: ABS; RBA

## Introduction

Asset securitisation – the process of converting a pool of illiquid assets, such as residential mortgages, into tradeable securities – has evolved rapidly in Australia over the past 10 years.[2] During this period, the outstanding assets and liabilities of Australian securitisation vehicles have increased from around $10 billion in March 1995 to $160 billion in June 2004 (Graph 1). In addition, the range of assets that has been securitised has broadened.

Australian entities have issued asset-backed securities into both the domestic and offshore markets: current outstandings comprise $63 billion of domestic bonds and $59 billion of offshore bonds. In addition, there is $22 billion of asset-backed commercial paper outstanding.[3] Since 2000, more than half of the bonds issued domestically by Australian entities have been asset-backed bonds, while over a quarter of offshore issuance has been of asset-backed bonds.

The rapid growth in the asset-backed securities market in the past decade has been driven by securitisations of residential mortgages. Securitised residential mortgages have increased from $5 billion to $116 billion and currently account for 70 per cent of the assets of Australian securitisation vehicles.

While issues of securities backed by other types of assets, such as commercial mortgages, trade receivables, other loans and asset-backed bonds, have also increased in recent years, they have done so at a slower pace and from a much lower level. Accordingly, this article focuses on residential mortgage-backed securities (RMBS).

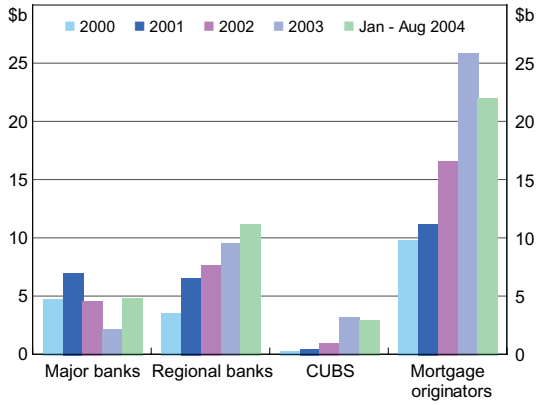
1 *This article was written by Kirk Bailey, Michael Davies and Liz Dixon Smith of Domestic Markets Department.*
2 *The basic structure of a residential mortgage securitisation is outlined in Box 1.*
3 *Securities with an original maturity of less than 12 months.*

## Issuers of RMBS

The rapid growth in housing finance in Australia in recent years cannot fully explain the growth in residential mortgage securitisations. Over the past decade, the stock of securitised mortgages has grown much more quickly than overall housing finance. As a result, securitised mortgages now account for one fifth of outstanding housing finance, compared with less than 5 per cent in 1995.

The growth partly reflects the changing composition of the mortgage market: specialist mortgage originators – who securitise all of their loans – have more than doubled their share of housing lending since 1995. Since 2000, mortgage originators have issued $85 billion of RMBS and account for half of RMBS outstanding (Graph 2).

**Graph 2**
**Issuance of RMBS by Type of Issuer**
2000-2004




Source: RBA

Securitisations have also become a more attractive financing option for traditional mortgage lenders as the deal costs associated with securitisations have fallen. Since the start of 2000, regional banks, and credit unions and building societies (CUBS) have securitised about one quarter of their gross housing lending, issuing a total of $47 billion of RMBS. The four major banks have funded a smaller proportion (less than 10 per cent) of their new housing loans through RMBS as they have cheaper ways of funding loans on their balance sheets. Despite having a share of more than half of the mortgage market, the major banks have accounted for only around 15 per cent ($23 billion) of RMBS issuance since 2000.

Banks and other deposit-taking financial institutions use securitisations for various reasons. The process of selling the loans to a third party, rather than retaining them on their balance sheets, enables them to: manage their credit risk while continuing to maintain a relationship with the borrower; free up regulatory capital so that it can be used more productively; and diversify their funding sources, enabling them to raise funds to finance new lending.

There are some differences in the composition of RMBS issuers between the domestic and offshore markets. The major banks are far more active offshore than they are domestically, whereas the opposite is true for credit unions and building societies (Table 1). Mortgage originators and regional banks are active both in Australia and offshore. Neither market appears to have a systematic cost advantage. Spreads above bank bill rates on RMBS issued offshore have tended to be slightly lower than those on domestic RMBS, but the cost of hedging the bonds into Australian dollars has offset most of this advantage. For large issues, however, offshore issuance may enjoy a cost advantage. It certainly appears to be possible to issue in much larger volumes offshore than in the domestic market. This may help explain the major banks' preference for offshore issuance. On the other hand, the domestic market appears to enjoy an advantage when

**Table 1: Australian Entities' RMBS Issuance**
2000-August 2004, A$ billion

| | Domestic | Offshore | Total |
|---|---|---|---|
| Major banks | 4 | 20 | 23 |
| Regional banks | 19 | 20 | 39 |
| Credit unions and building societies | 7 | 1 | 8 |
| Mortgage originators | 36 | 49 | 85 |
| **Total** | **66** | **90** | **155** |
| Average issue size | 0.4 | 1.4 | 0.7 |
| Average spread (basis points)[(a)] | 33 | 28 | 30 |

(a) Spreads are weighted averages of spreads above bank bill rates for the senior tranches of prime RMBS. Offshore spreads include the cost of hedging into Australian dollars.

Source: RBA

it comes to issuing subordinated tranches; currently, most subordinated tranches, even of RMBS where the senior tranches are issued offshore, are sold domestically.

## Credit Quality of RMBS and Underlying Mortgages

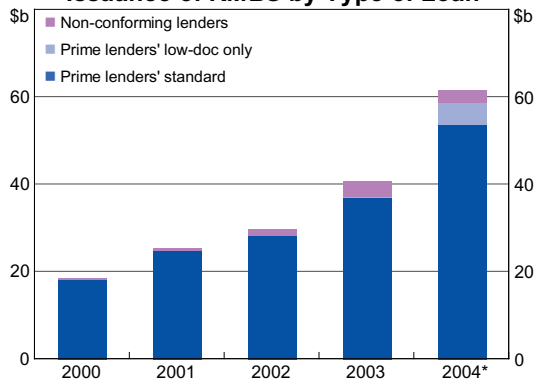
There are two main types of RMBS issued by Australian entities: prime RMBS and non-conforming RMBS. Prime mortgage loans are those made by mainstream mortgage lenders (banks and other deposit-taking institutions and mortgage originators). Non-conforming mortgage loans are those made to borrowers who do not meet the normal eligibility requirements of the mainstream lenders.

Prime RMBS account for most of the RMBS issuance by Australian entities, with $145 billion having been issued since 2000. A typical prime residential mortgage would be one with a loan-to-valuation ratio of less than 80 per cent, to a borrower with a sound credit history and a full set of documentation. However, within the pool of loans backing a prime RMBS there can be substantial variation between individual loans in regard to: loan size; the amount of time that has elapsed since the loan was originated (older loans tend to have lower probabilities of default than more recently originated loans); loan-to-valuation ratio; the amount of documentation provided; and borrower demographics.

Prime RMBS mortgage pools will often contain some low-documentation ('low-doc') loans. Low-doc loans are loans where the borrower is not required to provide documentary proof of their income or saving history; they are particularly popular with self-employed people. They are perceived to be more risky than 'full-doc' loans and so are generally required to have a lower loan-to-valuation ratio. Partial data since 2003 suggest that, on average, about 10 per cent of the loans in a standard prime RMBS mortgage pool are low-doc loans. However, in recent months, there has been a trend towards issuing prime RMBS backed by mortgage pools comprising solely low-doc loans. Anecdotal evidence suggests that this reflects investors' demand for the higher yield of low-doc portfolios. It may also reflect a desire to identify and manage more proactively the credit risk associated with low-doc loans.

Non-conforming RMBS are backed by a pool of higher risk loans, for example those to borrowers with a poor credit history or those with a high loan-to-valuation ratio (typically over 90 per cent). They tend also to contain a high proportion of low-doc loans. Non-conforming RMBS account for a relatively small proportion of Australian RMBS issuance. However, their share of issuance is growing, with $5 billion of issuance occurring in the past two years (Graph 3).

**Graph 3**
**Issuance of RMBS by Type of Loan**



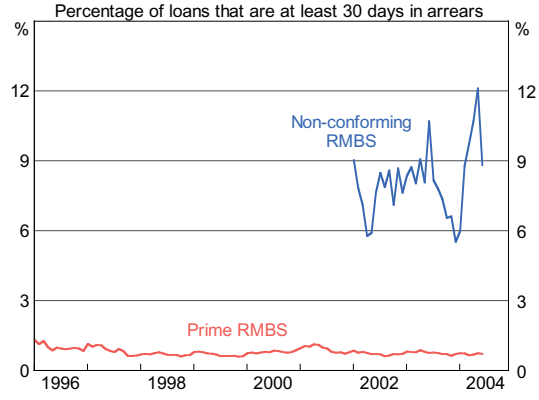

* Data to August 2004 annualised
Source: RBA

The mortgage pools backing both prime and non-conforming RMBS will usually contain a balance of investor and owner-occupier mortgages. There is generally no restriction on the proportion of investor loans that can be included in a prime RMBS and, on average, around one third of loans are to investors. To date, holders of RMBS have appeared not to distinguish between investor and owner-occupied mortgages.

Both prime and non-conforming RMBS may also contain loans whose primary purpose is not the purchase or refinancing of a loan on a residential property. For example, some refinanced loans include a component that may be used for home renovation, consumption or debt consolidation. Some of the loans in non-conforming RMBS are loans to small businesses that are secured against residential properties.

Prime RMBS usually – although not always – benefit from lenders' mortgage insurance, either on the individual loans or on the whole pool of loans up to a certain maximum loss.[4] Taken together, the lenders' mortgage insurance, the large number of loans within the portfolios, the property collateral backing the loans, and the low historical arrears on Australian prime residential mortgages mean that prime RMBS are perceived to have a very low probability of default (Graph 4).

**Graph 4**
**Loan Arrears on Domestic RMBS**
Percentage of loans that are at least 30 days in arrears




Source: Standard & Poor's

4 *One recent innovation was a prime RMBS issue that contained no mortgage insurance but a higher degree of subordination (about 11 per cent) than is usually required for prime RMBS.*

As a result, prime RMBS have very high average credit ratings. The senior tranche of a standard prime RMBS issue, which generally comprises 97 per cent of the total issue size, is invariably AAA-rated, while the subordinated tranche (the remaining 3 per cent) generally carries an AA-rating.

Non-conforming RMBS often do not have lenders' mortgage insurance, either on the individual loans or on the pool of loans. Because of both this and the lower quality of the underlying loans, non-conforming RMBS have much higher levels of subordination than do prime RMBS. Non-conforming RMBS are typically structured so that about 90 per cent is rated AAA; and within the AAA-rated tranche there is often further subordination, with some bonds having 'super-senior' status. The remaining 10 per cent is distributed across lower-rated tranches (A to unrated). A small unrated equity tranche, typically about 1 per cent of the face value of the RMBS, may be funded upfront and held by the issuer.

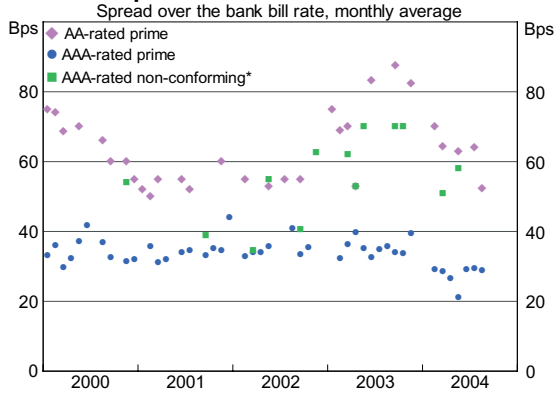
The proportion of non-conforming loans that are 30 days or more in arrears has been noticeably higher and more volatile than that of prime RMBS, ranging between 6 and 12 per cent compared with less than 1 per cent for prime RMBS.

Cumulative loan losses on mortgages backing prime and non-conforming RMBS have, to date, been small. There have been less than $10 million of losses on currently outstanding RMBS, $7½ million of which have been on prime loans. Most of the losses on prime loans have been borne by lenders' mortgage insurers, while all other losses have been covered by the originator or the excess between the interest rate paid on the mortgages and that payable on the securities. As a result, RMBS investors have not suffered any losses. Strong economic and employment growth, low interest rates, and rising house prices are all likely to have contributed to this outcome.

## Pricing of RMBS

Since 2000, AAA-rated tranches of prime RMBS have been generally issued into the domestic market at spreads of between 25 and 45 basis points above the bank bill rate, with an average spread of around 35 basis points (Graph 5). This spread has, over recent years, been fairly stable but has contracted during 2004 despite the large increase in supply. The super-senior AAA-rated tranches of non-conforming RMBS tend to have similar spreads to prime RMBS, but the issuance spreads on other AAA-rated tranches have been wider: generally between 50 and 70 basis points over bank bill rates.

**Graph 5**
**Spreads on Issues of RMBS**
Spread over the bank bill rate, monthly average




* Includes 100 per cent low-doc; excludes super-senior tranches
Source: RBA

Spreads on subordinated tranches appear to be more variable. Over the past four years, AA-rated subordinated tranches of prime

RMBS have been issued at an average spread of around 65 basis points. Issuance spreads on AA-rated tranches were markedly wider during 2003 than in the previous two years, but they appear to have narrowed somewhat during 2004. Data on spreads on subordinated tranches of non-conforming RMBS are scarce, in part because many of these bonds are placed privately. However, partial data suggest that there is considerable variation in the issuance spreads of these bonds. A-rated tranches have been issued at spreads of between 100 and 200 basis points over bank bill rates, while lower-rated tranches have been issued at substantially wider spreads.

It is interesting to note that spreads on RMBS seem to be higher than spreads on non-asset-backed bonds of a similar credit quality. For example, the spread of 35 basis points above the bank bill rate for senior (AAA-rated) tranches compares with spreads of less than 20 basis points for bonds issued by the major Australian banks (who are rated AA-). The spreads on subordinated RMBS tranches are also much higher than those on similarly rated non-asset-backed debt.

The wider spreads probably reflect a combination of uncertain duration and low liquidity. Changes in mortgage refinancing and excess repayment rates – which are likely to be correlated with interest rates – will affect the horizon over which the mortgage repayments are made and mean that it is not possible to predict exactly what the cash flows from the bonds will be. Investors require compensation for this uncertainty.

Anecdotal evidence and turnover data suggest that the secondary market for domestic RMBS is much less liquid than the markets in Commonwealth or State government bonds and even corporate bonds. The lack of liquidity means that it might be difficult for an investor to sell a portfolio of RMBS without moving the price against itself. Although RMBS tend to be purchased mainly by buy-and-hold investors (such as superannuation funds), who are unlikely to trade on a regular basis, they might nevertheless require a premium to compensate for the liquidity risk.

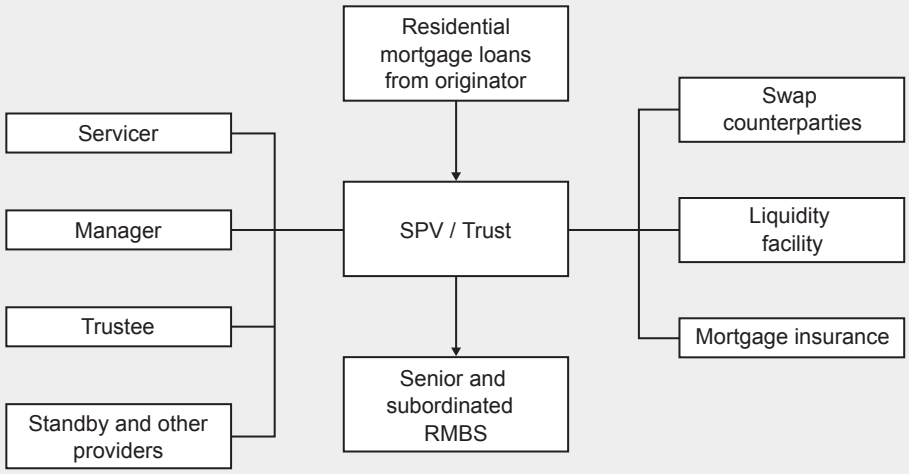
The particularly high spreads on subordinated tranches – of both prime and non-conforming RMBS – also reflect higher expected losses in the event of a default than senior or non-asset-backed bonds. Once losses on the underlying portfolio are sufficient to exhaust the first loss provisions (such as the equity tranche or lenders' mortgage insurance), the subordinated tranches bear *all* subsequent losses in the portfolio until they too are exhausted.

The widening in the spreads on subordinated tranches of prime RMBS during 2003 may have been due to increased concern about issuers' reliance on lenders' mortgage insurance. The subordinated tranches are particularly vulnerable to changes in investor sentiment about the credit quality of the mortgage insurers because they are the next line of defence once the mortgage insurance is exhausted. The widening in spreads coincided with the withdrawal of one of the three main mortgage insurers in the Australian market, which increased concentration in an already concentrated market. It may also have reflected more general concerns about possible overheating in the residential property market. The decline in spreads during 2004 suggests that these concerns have abated somewhat.

# Box 1: Structure of a Residential Mortgage Securitisation

The basic process for securitising a pool of assets is as follows (Figure 1). The loan originator sells a portfolio of loans to a special purpose vehicle (SPV). The SPV raises the funds to purchase these loans by issuing debt securities (bonds or commercial paper) to investors. The cash flow from the loans is used to meet the principal and interest repayments on the securities.

**Figure 1: Residential Mortgage Securitisation Structure**




The loans can be financed initially on or off the originator's balance sheet. Banks and other deposit-taking institutions generally opt for the former and periodically sell a pool of loans to an SPV to be securitised. Mortgage originators tend to do the latter, finding interim funding for the loans from financial institutions or from commercial paper issued by an SPV.

In most cases, borrowers will not be aware that their loans have been securitised because the originator will continue to service the loans following their securitisation (collecting loan repayments, providing customer service and enforcing delinquent loans). The cash flow from the loan repayments is passed from the originator to the SPV and is used to meet the debt-servicing obligations (both interest and principal) on the bonds and any other on-going costs such as trustee and management fees.

Two main types of SPV are used in the Australian market: individual trusts, which are established to securitise a specific pool of loans and wound up once the loans are fully repaid; and conduits, which are used to securitise a revolving pool of loans. The vast majority of individual trusts' assets are residential mortgages, and they fund themselves by issuing bonds secured against those loans either in Australia or offshore. Conduits are generally sponsored by banks and are used to securitise assets from either a bank's own balance sheet or from those of

its corporate clients. They hold a much broader range of assets (including individual loans and both asset-backed and non-asset-backed bonds) than individual trusts and fund themselves by issuing asset-backed commercial paper.

Various liquidity and hedging facilities are put in place to ensure that the SPV can fulfil its debt-servicing obligations. These services may be provided by the loan originator or another bank. Currency and interest-rate swaps will be used to match the timing, interest rate and currency of the cash flows from the underlying assets with those of the bonds. And a liquidity facility ensures that the SPV will be able to make timely repayments on its obligations if there is a temporary shortfall in the cash flow on the underlying assets.[5]

A number of features set RMBS apart from their non-asset-backed counterparts. First, their credit quality is not directly related to that of the originator. The sale of the assets from the originator to the SPV is structured so that, in the event of a default by the originator, the assets should be protected from any claims from creditors of the originator. Likewise, if the SPV defaults on its obligations, the RMBS investor would not have recourse to the originator.

Second, almost all RMBS benefit from some form of credit enhancement, which is used to raise the credit rating of some or all of the securities above that of the underlying loans. The most common form of enhancement comes from splitting the asset-backed security into senior and subordinated tranches. The subordinated securities provide protection for the senior tranche by absorbing the first round of defaults in the pool of assets. So long as the value of losses does not exceed the combined amount of the subordinated tranche and any external credit enhancement, the senior securities will be repaid in full. Although tranching generally allows the senior securities to be assigned an AAA-rating, the subordinated tranches will have lower credit ratings than they otherwise would.[6] Another common tool is lenders' mortgage insurance, while a recent innovation has been the provision by the monoline insurers of additional protection for the senior tranches over and above that provided by mortgage insurance. These external guarantees usually lift the rating on the securities to at least that of the insurer.

Third, the principal of the RMBS is amortised over the life of the security rather than being repaid as a bullet payment when the security matures, reflecting the payment profile of the underlying loans. If early repayments of principal are received, these are generally paid through to investors rather than being held with the SPV. The amortising principal and ability to repay the loan early means that the average life of an RMBS is substantially shorter than its final legal maturity, which is usually set to occur after the longest dated loan in the underlying portfolio is due to be repaid in full, and is typically around 30 years.

*5 SPVs generally have to pass on to investors any excess repayments as soon as they are received, which means they cannot build a sizeable buffer against the possibility that occasionally fewer repayments will be received than were expected. Such a situation could occur if, for example, borrowers make net underpayments in one month after a period of overpayments.*

*6 For further discussion see Davies, M and L Dixon Smith (2004), 'Credit Quality in the Australian Non-government Bond Market', Reserve Bank of Australia* Financial Stability Review, *March 2004, pp 46-51. Other internal credit enhancement techniques include: over-collateralisation, where the face value of the loans is higher than the value of the securities they back; reserve funds created by or equity tranches held by the issuer; and the excess spread (yield differential) between the interest rate received from the underlying loans and that paid on the securities.*

To ensure that the RMBS can be redeemed before it becomes uneconomic for the SPV to service the loans and to protect investors from being left with a small, illiquid rump of stock once the bulk of loans have been repaid, most RMBS include an option for the originator to buy back the loans and redeem the RMBS after a certain date or when the aggregate principal outstanding on the mortgage pool falls below a stated threshold (say 10 per cent) of its original face value. The option also facilitates the return of any profits from the SPV to the mortgage originator. If the option is not called, a higher interest rate may become payable on the securities. The expected life at issue of most RMBS is typically two to five years.

# The Australian Hedge Fund Industry[1]

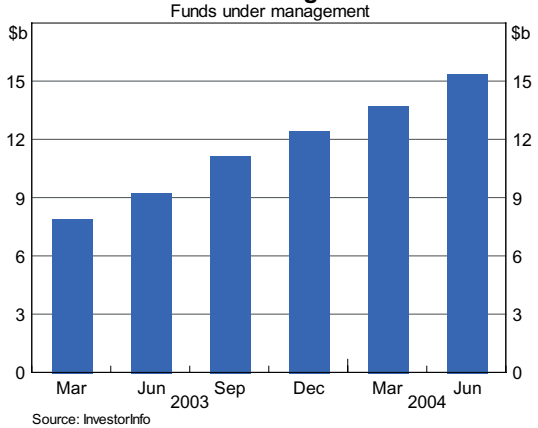
Hedge funds have attracted growing investor interest in Australia, particularly in recent years when the returns from traditional equity investments have, with the exception of the past year, been relatively poor. There is no standard definition of a hedge fund; the name is typically applied to managed funds that use a wider range of financial instruments and investment strategies than traditional managed funds, including the use of short selling and derivatives to create leverage, with the aim of generating positive returns regardless of overall market performance.

While information on Australian hedge funds remains fairly limited, it is estimated that, as at June 2004, there was at least $15½ billion invested in these funds, though their actual market positions could be significantly higher owing to the use of leverage. Most of the money invested in Australian funds has gone to funds of hedge funds that invest in portfolios of underlying single-strategy hedge funds, with the majority of the underlying funds located offshore.

## Growth of the Australian Hedge Fund Industry

Although hedge funds have existed in Australia for some time, the industry has really only grown significantly since the late 1990s, with particularly strong growth in the past couple of years. According to InvestorInfo, an Australian funds management research house, there were 51 hedge fund managers operating in Australia as at June 2004, managing at least 100 funds as well as individual accounts. Total funds under management were around $15½ billion, an increase of $6 billion, or 65 per cent, over the past year alone (Graph 1).[2] At an aggregate level, the amount invested is still relatively small, representing around 2 per cent of total funds under management in Australia.

**Graph 1**
**Australian Hedge Funds**
Funds under management



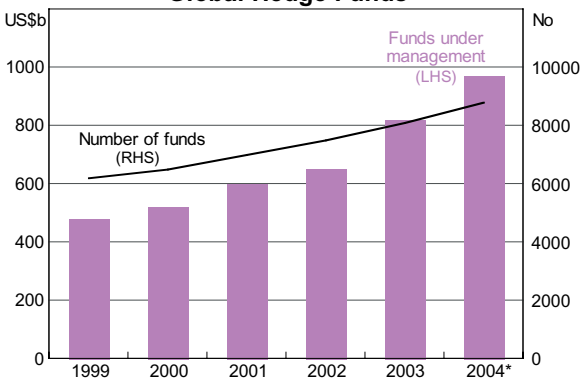

Source: InvestorInfo

The rapid growth in hedge funds is a global trend. While estimates vary, according to one source, Van Hedge Fund Advisors, globally there were around 8 000 hedge funds as at the end of 2003, with total (unconsolidated) funds under management of around

1 *This article was written by Scott McNally, Mark Chambers and Chris Thompson of Domestic Markets Department.*

2 *While this figure mainly reflects investments by Australian residents, it also includes amounts invested by offshore investors in Australian-based hedge funds. The total exposure of Australian investors to hedge funds will also include any direct investments in offshore hedge funds.*

**Graph 2**
**Global Hedge Funds**




* 2004 figures are estimates by Van Hedge Fund Advisors.
Source: Van Hedge Fund Advisors

US$800 billion. This is up from around 6 000 hedge funds and US$500 billion in funds under management in 1999 (Graph 2). Based on these estimates, Australian hedge funds represent around 1 per cent of the global hedge fund industry. As in Australia, growth in the global hedge fund industry has been particularly strong in the past couple of years, with total funds under management increasing by 26 per cent in 2003, and more recent estimates pointing to similarly strong growth in 2004.

## The Structure and Regulation of Hedge Funds in Australia

Australian hedge funds are most commonly structured as trusts, although company structures (typically unlisted and domiciled in offshore tax havens) are also used. The administration and investment decisions of the fund are handled by a hedge fund manager, who is appointed by the fund trustees or board of directors.

The two main categories of hedge funds are single-manager funds and funds of hedge funds (FOHFs). Single-manager funds undertake direct investments in financial markets, using one or more investment strategies. They usually appoint a prime broker to execute their trades and provide securities lending and other borrowing facilities, as well as to perform back-office functions (such as settlement and custodial services); the prime brokers appointed by Australian hedge funds are mainly global investment banks. Unlike single-manager funds, FOHFs do not take positions in financial markets directly, but instead place investors' funds in portfolios of single-manager hedge funds, which are usually diversified across hedge fund managers and/or investment styles in an attempt to reduce risk. The main functions of the FOHF manager are the analysis and selection of single-manager hedge funds for inclusion in the FOHF portfolio, and the monitoring of these hedge funds' performance.

Management fees charged by hedge fund managers are usually between 1 and 2 per cent per annum of the fund's net assets. In addition, most fund managers also receive a performance fee, which is often between 10 and 20 per cent of the positive returns, or of the returns above a hurdle rate such as the bank bill rate. A 'high watermark' is also usually employed for the calculation of the performance fee, whereby a fee cannot be charged by the manager until any past under-performance has been recouped. In the case of FOHFs, management and performance fees are charged by the FOHF manager in addition to those charged by the underlying single-manager funds.

There are no specific regulations covering hedge funds in Australia. Like other types of managed funds, hedge funds fall under the scope of the *Corporations Act 2001*; the provisions

that apply depend on whether they are structured as trusts or companies. In the case of a trust, if a hedge fund is marketed to retail investors then it must be registered with ASIC, and is subject to certain operational and disclosure requirements designed to protect investors' interests. These requirements include the appointment of a responsible entity charged with certain fiduciary duties, the provision of adequate product disclosure statements and annual or semi-annual reporting of financial statements. Hedge funds which do not accept funds from retail investors are subject to fewer requirements, as their investors are considered to be better placed to monitor and manage their investments without government regulation. Hedge funds structured as companies must comply with provisions covering capital raisings, corporate governance and disclosure requirements.

## Composition of the Australian Hedge Fund Industry

As noted above, the Australian hedge fund industry is dominated by FOHFs. Of the hedge funds that are able to be classified by type, FOHFs account for 63 per cent of the total funds under management (Table 1). Moreover, as most of the underlying single-manager hedge funds selected by Australian FOHFs are based offshore (and mainly managed in the US), these FOHFs act mainly as vehicles for the pooling and channelling of funds to foreign hedge fund managers. However, there has been an increasing number of single-manager funds created in Australia in the last few years. Single-manager funds now comprise around 50 per cent by number, but only 37 per cent of the total funds under management. Most single-manager hedge funds in Australia pursue single investment strategies, the majority of which are long/short equity funds; these account for 20 per cent of the total funds under management.[3]

Of the funds that are classified by type, the average size is around $115 million, though the median size is much lower ($35 million) since there are quite a large number of relatively small hedge funds (Graph 3). The largest fund in Australia is a FOHF with assets under management of around $2 billion.

**Table 1: Australian Hedge Funds by Type**
Funds under management, 30 June 2004

| | $m | Per cent of total classified |
|---|---|---|
| Funds of hedge funds | 6 595 | 62.6 |
| Long/short | 2 115 | 20.1 |
| Market neutral | 518 | 4.9 |
| Arbitrage | 459 | 4.4 |
| Managed futures | 374 | 3.6 |
| Global macro | 341 | 3.2 |
| Multi-strategy | 65 | 0.6 |
| Event driven | 60 | 0.6 |
| **Total classified** | **10 528** | **100.0** |
| Not classified by fund type | 4 865 | |
| **Total** | **15 393** | |

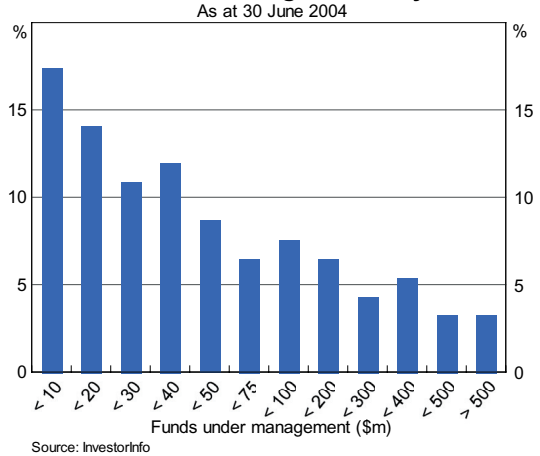
Source: InvestorInfo

3 *See Box 1 for descriptions of the various hedge fund types.*

**Graph 3**

**Distribution of Hedge Funds by Size**

As at 30 June 2004




Source: InvestorInfo

The Australian hedge fund industry is quite heavily concentrated, though the level of concentration has declined a little in recent years with new entrants. The top five hedge fund managers account for 47 per cent of total funds under management, while the top 10 managers make up 66 per cent of the market.

The rapid expansion of the Australian hedge fund industry over recent years also means that many funds are still relatively young; it is estimated that less than a third of the funds currently operating in Australia have a track record of three years or more. Historically, hedge funds have experienced a fairly high attrition rate – global estimates suggest that around 7 to 10 per cent of hedge funds cease operations each year.

## Investment in Australian Hedge Funds

Whereas in the past, hedge fund investments were mainly made by wealthy private investors, recently there has been a broadening in the investor base which has underpinned growth in the industry. As has been the case globally, there has been increased demand for hedge funds from institutional investors, particularly superannuation funds. An APRA survey of Australian superannuation funds in 2003 (accounting for 28 per cent of the industry's assets) found that 15 per cent of funds had made hedge fund investments, for which the average exposure was just over 4 per cent of their portfolios. A small proportion reported that over 10 per cent of their portfolios had been allocated to hedge fund investments. In aggregate, the sampled superannuation funds had invested $1.25 billion in hedge funds when the survey was taken.[4] Other data sources suggest that the number and value of superannuation mandates awarded to hedge funds has increased over the past year.

The accessibility of hedge funds to retail investors has also increased in recent years. This has been facilitated by: more funds offering low minimum investment requirements (some funds now only require a minimum investment of $2 000); more flexible investment conditions, such as easier redemption and shorter or zero initial lock-up periods; a greater number of hedge funds being rated by fund rating agencies and, associated with this, a growing number of funds appearing on the approved product lists of financial planners; and increased advertising and promotional activity aimed at retail investors, particularly by FOHFs emphasising their potential diversification benefits. The growing number of retail-targeted FOHFs, and the increasing availability of hedge funds through master trusts and wraps, has also allowed retail

4 *Some of these superannuation funds may have invested directly in offshore hedge funds rather than in Australian-based funds, in which case they will not show up in the $15½ billion figure quoted earlier on the size of the Australian hedge fund industry.*

investors access to hedge funds that would ordinarily require high minimum investments, or which have other restrictions on retail investors. Finally, some FOHF providers have begun enabling investments via margin lending facilities, further increasing the accessibility, but also the riskiness, of these products. There has also been a proliferation of capital-guaranteed FOHF products which are lower risk and tend to appeal more to retail investors.

## Hedge Fund Leverage

Some hedge funds use leverage to increase the size of their market positions in excess of invested capital. Leverage can be obtained by borrowing from institutions, short selling, or from trading in derivatives (such as futures and options). Leverage has the effect of magnifying the risks faced by hedge funds and can result in higher volatility of returns.

While there is no comprehensive information available on the degree of leverage used by Australian hedge funds, data on international hedge funds, in which most Australian-based FOHFs invest, provide some indication. According to Van Hedge Fund Advisors, of the hedge funds that they tracked globally as at the end of 2003, roughly 30 per cent reported that they did not use leverage, 40 per cent reported balance-sheet leverage (the sum of total long and short positions on balance sheet divided by total capital) less than 2, and the remainder had leverage greater than 2. Note that these estimates are likely to understate the total exposure of hedge funds as they exclude off-balance-sheet leverage obtained from derivatives. In addition, because some investors have a negative perception of leverage, there may be an incentive for hedge funds to report lower leverage than they actually use (indeed, a large number of funds choose not to report leverage at all). The possibility for leverage to be employed by hedge fund investors (through margin loans, for example) and at the FOHF level can add further layers of risk to what may already be leveraged underlying investments.

## Performance of Australian Hedge Funds

Over the past three years – the longest period for which representative data are available – hedge funds have shown relatively strong performance. On average they outperformed all major benchmarks during this period, though they underperformed relative to Australian and international equities during the year to end June 2004 (Table 2). It should also be noted that the average returns of hedge funds may be biased upwards as the sample can be affected by selection bias as well as survivorship bias.[5]

Single-manager hedge funds have generally outperformed FOHFs in each of the past three years. The relative underperformance of FOHFs may be partly explained by the higher total management fees of those funds, but might also be due to a large proportion of those funds' assets being invested in offshore hedge funds, which have tended to underperform Australian-based single-manager funds in the past three years.

*5 Selection bias will occur if hedge fund managers choose to report only on their best performing funds, or if hedge fund managers selectively choose the history of returns which they report. Survivorship bias may be a problem if the returns from hedge funds which are terminated or stop reporting are subsequently dropped from the sample, or if hedge funds do not start reporting until after an incubation period in which poor hedge funds fail and only the best performing hedge funds survive.*

**Table 2: Performance of Australian Hedge Funds and Asset-class Benchmarks**

Per cent[(a)]

| | 12 months to: | | | |
|---|---|---|---|---|
| | 30 June 2002 | 30 June 2003 | 30 June 2004 | 3 year annualised |
| Australian hedge funds | 9.2 | 11.2 | 12.2 | 10.8 |
| – Funds of hedge funds | 5.6 | 7.8 | 7.9 | 6.7 |
| – Single-manager hedge funds | 12.6 | 15.0 | 16.5 | 14.6 |
| ASX 200 Accumulation Index | -4.7 | -1.7 | 21.6 | 4.4 |
| US S&P 500 Total Return Index (US$) | -18.0 | 0.3 | 19.1 | -0.7 |
| MSCI World Total Return Index (local currency) | -17.8 | -5.4 | 21.1 | -2.0 |
| UBS Australian Composite Bond Index | 6.2 | 9.8 | 2.3 | 6.1 |
| UBS Australian Bank Bill Index | 4.7 | 5.0 | 5.3 | 5.0 |
| CSFB/Tremont Hedge Fund Index (global) | 3.6 | 9.8 | 10.1 | 7.8 |

(a) Hedge fund returns are net of fees.

Sources: Bloomberg; InvestorInfo

**Table 3: Performance of Australian Hedge Funds by Type**

Year to 30 June 2004, per cent[(a)]

| Hedge fund type | Number of funds | Lowest | Highest | Average |
|---|---|---|---|---|
| Long/short | 17 | -15.7 | 141.7 | 25.4 |
| Multi-strategy | 3 | 10.0 | 25.3 | 16.2 |
| Managed futures | 6 | 0.7 | 47.9 | 15.0 |
| Global macro | 6 | -1.1 | 22.8 | 10.0 |
| Event driven | 2 | 8.3 | 8.5 | 8.4 |
| Funds of hedge funds | 40 | -3.3 | 19.2 | 7.9 |
| Market neutral | 5 | -5.7 | 9.9 | 3.9 |
| Arbitrage | 2 | 2.6 | 5.1 | 3.8 |

(a) Hedge fund returns are net of fees.

Source: InvestorInfo

There has been quite wide dispersion in performance across hedge fund types and across funds of the same type (Table 3). This dispersion is symptomatic of the heterogeneity of hedge funds, but also of the substantial flexibility that hedge fund managers enjoy in their investment activities. The best and worst performing Australian hedge funds in the year to end June 2004 were both long/short equity funds.

The volatility of the returns of Australian hedge funds also varies quite substantially (Graph 4). Not surprisingly, reflecting the diversification benefits of FOHFs, single-manager hedge funds have tended to display higher volatility than FOHFs. Over the three-year period, Australian hedge funds, on average, displayed lower volatility than that of the Australian ASX 200 and the US S&P 500 accumulation indices, but higher volatility than the UBS Australian Composite Bond Index.

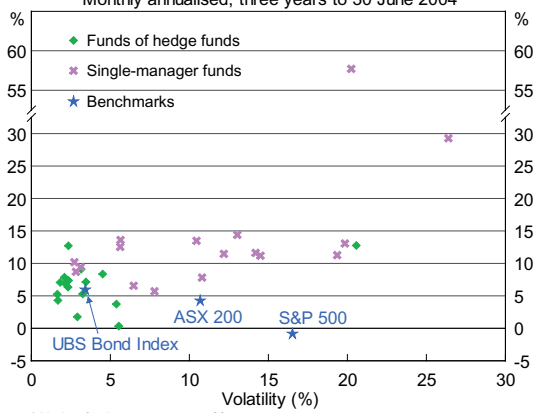
## Conclusion

The outperformance of hedge funds relative to major asset-class benchmarks, particularly in an environment of generally low returns, goes some way toward explaining why hedge funds have become more popular in recent years. What is perhaps less well appreciated is the potential for hedge fund returns to be more volatile, and the wide dispersion of returns and volatility across different funds. A key driver of this volatility is the leverage that some funds use.

**Graph 4**

**Australian Hedge Fund Returns***

Monthly annualised, three years to 30 June 2004




* Hedge fund returns are net of fees.

Sources: Bloomberg; InvestorInfo

Although the Australian hedge fund industry has been growing rapidly, it is still small relative to the wider funds management industry, and will likely remain a niche market for some time. However, as new investors come to consider this alternative investment class, it is important that they understand the differences in strategy and the risk-return trade-off of hedge funds compared with traditional managed fund products.

# Box 1: Description of Hedge Fund Types

## Long/short

Long/short is a strategy which involves combining long holdings of securities that are expected to increase in price with short sales of securities that are expected to decrease in price.[6] Long/short portfolios are directional – that is, the investment strategy is based on the manager's expectation of future movements in the overall market – and may be net long or net short. Short positions are expected to add to the return of the portfolio, but may also act as a partial hedge against market risk. However, long/short portfolios tend to be quite heavily concentrated and thus the effectiveness of the short positions as a hedge against market risk may be limited.

## Market Neutral

Market neutral strategies claim to be non-directional. Market neutral managers attempt to eliminate market risk by constructing portfolios of long and short positions which, when added together, will be largely unaffected by movements in the overall market. Positive returns are generated when the securities which are held long outperform the securities which are held short. Market neutral portfolios tend to be more heavily leveraged than long/short portfolios.

## Arbitrage

Arbitrage strategies involve making non-directional spread trades. Managers take equal long and short positions in two related securities when their prices diverge from their typical relationship. Positive returns are generated when the prices of the two securities reconverge. Because arbitrage opportunities can be limited and the returns from these trades tend to be quite small, arbitrage strategies often employ higher leverage than other funds in an attempt to maximise the profit from exploiting these perceived mispricings.

## Event Driven

Event-driven strategies seek to take advantage of opportunities created by significant corporate transactions such as mergers and takeovers. A typical event-driven strategy involves purchasing securities of the target firm and shorting securities of the acquiring firm in an announced or expected takeover. Profits from event-driven strategies depend on the manager's success in predicting the outcome and timing of the corporate event. Event-driven managers do not rely on market direction for results; however, major market declines, which might cause corporate transactions to be repriced or unfinished, may have a negative impact on the strategy.

6 *Being 'long' in a security means that the investor has a net positive holding of that security. Being 'short' indicates that the investor has a net negative holding of the security; in order to sell more of a security than was originally owned, an investor would typically borrow the necessary extra amount of the security and then on-sell this.*

## Global Macro

Global macro strategies take leveraged speculative positions in a wide range of global markets, seeking to exploit apparent mispricings. Trading strategies are generally systematic or discretionary; systematic traders tend to use price and market-specific information (often based on technical trading rules) to make trading decisions, while discretionary managers use a judgmental approach regarding differences between current financial market valuations and what is perceived as the 'correct' or fundamental valuation.

## Managed Futures

This strategy invests in listed financial and commodity futures markets and currency markets around the world. The managers are usually referred to as Commodity Trading Advisors. Like global macro funds, managed futures funds utilise strategies that are either systematic or discretionary.

## Multi-strategy

The manager utilises two or more specific strategies, although the relative weighting of each may vary over time. Managers may elect to employ a multi-strategy approach in order to better diversify their portfolio or to avoid constraints on their investment opportunities.