Financial Stability Report

May 2006

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1 Summary and assessment

In promoting financial stability the Bank draws on a variety of information, practices, and ongoing research to make assessments and form policy judgements. In particular, the Bank conducts regular surveillance of financial system risks, with the *Financial Stability Report* the main mechanism for reporting our assessment.

The New Zealand and global financial systems continue to perform soundly. However, signs of increased volatility have emerged in some markets (eg, commodities and foreign exchange), and some major challenges to financial stability persist.

An ongoing financial system risk remains the potential for disruptive corrections to the current account (or saving-investment) imbalances experienced in many countries – in particular between the United States deficit and surpluses in various Asian and oil exporting countries. These imbalances have sustained unusually low US long-term interest rates, precipitating a global 'search for yield'. In their quest for higher returns it is possible that global investors may be underestimating their exposure to various market and credit risks. Some of these risks have heightened as global inflation pressures re-emerge, exacerbated in the near term by higher oil and other commodity prices.

More optimistic economic outlooks for Japan and Europe signal more widespread global growth, which will aid somewhat the necessary saving-investment rebalancing. In addition, interest rates have been rising in an anticipated fashion as economic growth has improved, and exchange rates have been adjusting, where able, to better reflect fundamentals.

Many of the challenges to New Zealand financial system stability identified in our November *Report* remain, and some have increased. For example, New Zealand banks have continued to raise their exposure to the housing market. A very large proportion of foreign capital being utilised in New Zealand is now intermediated through the banking sector via secured residential mortgage lending. A slower housing market will thus pose challenges to bank risk management and we will continue to monitor this closely, especially when implementing the new bank capital requirements regime.

New Zealand households have also been increasingly ready to purchase property for investment purposes. Household indebtedness has increased, so that over time households have raised their financial vulnerability to interest rate changes, unemployment, and swings in rental incomes and property capital values. On balance, the data suggest that the New Zealand household sector has continued to increase its financial concentration and overall debt exposure.

A slower growing economy will thus bring challenges to households and financial institutions – especially those that have recently experienced rapid growth and have limited experience in managing a downturn, as is the case for a number of the non-bank financial institutions. This *Report* highlights that there is a wide degree of variation in financial exposure amongst households as well as financial institutions. Overall, those who may need to reassess their positions appear to be the lower and middle income households, and institutions exposed to property investment and consumer finance.

Meanwhile, New Zealand's financial markets have remained sound. The decline in the New Zealand dollar over the March quarter, from its previous exceptional and

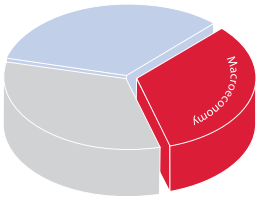
unjustifiable level, represents a significant risk reduction. The depreciation was managed in the foreign exchange market with good liquidity and efficient pricing, and was principally a cyclical adjustment to better reflect the underlying fundamentals of the economy.

In this *Report* we reiterate recent steps taken to ensure banks have adequate access to liquidity for settlement purposes. Work on access and governance issues with regard to the payment system also continues, and we will continue to pursue more rapid progress in this area. The Reserve Bank is currently working with banks in other areas of policy development, including outsourcing, the implementation of the Basel II Capital Accord, and pandemic preparedness amongst other things. We are also working with various government agencies on reviewing the prudential regulation and supervision of the non-bank financial sector. All of these developments represent significant efforts in bolstering financial system soundness.

This *Report* concludes with a special chapter that outlines some of the broad concepts on which we base our surveillance of financial stability assessment. This is work in progress, but it is important to ensure that, should the Bank's financial regulatory role be expanded, there is a well articulated framework for the conduct of this work.

Alan Bollard
Governor

2 The economic and financial environment



Although external imbalances in the global economy have continued to widen, and remain a key source of risk to financial stability, more optimistic growth outlooks in Japan and Europe could suggest that a rebalancing of the global economy is already under way.

Aggregate data suggests that New Zealand household leverage has continued to rise, increasing household vulnerability to the slowing economy forecast in the March Monetary Policy Statement. *Despite the increase in household borrowing, mortgage data for owner-occupied dwellings suggests that the risks could be borne by higher-income households. However, growth in mortgage borrowing has also been driven by investment in residential rental properties. New entrants into this market may have taken on higher levels of debt than in the past, and could find a period of softening house prices and lower economic growth relatively more difficult.*

Consistent with lower economic growth forecasts, corporate earnings are expected to decline over the next year. However, improved balance sheets should aid the sector through a slower growth period. Widespread hedging is likely to temper the near-term impact of the sharp depreciation of the exchange rate.

2.1 Recent developments in the international environment

Growth has improved, but risks remain

The near-term global economic growth outlook appears stronger than at the time of the November 2005 *Financial Stability Report*. However, many of the risks to global financial systems identified in the previous *Report* are still relevant – in particular, the potential for a disruptive correction in global imbalances; higher oil prices; and an abrupt end to the 'search for yield'.

In large part the counterparts to the US deficit are the current account surpluses in East Asia – particularly Japan and China. Consumption as a share of GDP in East Asian economies remains low relative to the major industrialised economies, and income growth exceeds consumption growth resulting in growing savings rates (and current account surpluses). Exchange rate policies in East Asian economies have resulted in a substantial accumulation of foreign currency reserves, many of which are invested in US dollar denominated securities. The large build up of reserves has underpinned otherwise inexplicably low levels of US long-term interest rates, despite a drive towards greater diversification of reserves to non-US currencies.

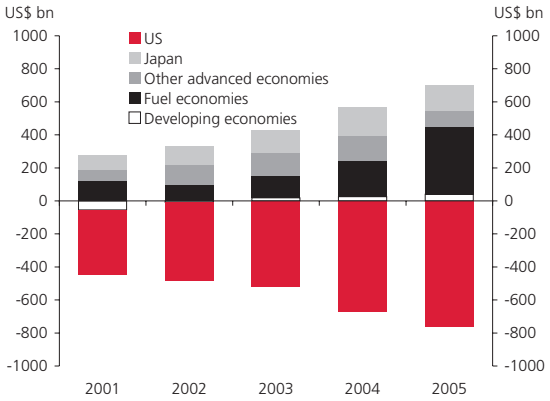
Higher oil prices exacerbate global imbalances

Higher oil prices have temporarily reinforced global imbalances by adding to current account surpluses and raising savings and investment rates in oil-producing nations, with the reverse effect in oil-importing nations (figure 2.1). At the same time, capital flows from fuel economies – 'petrodollars' – have added to global liquidity. Under the assumption that fuel-exporting countries invested half of their current account surpluses in US securities, and holding all other capital flows constant, the IMF estimates that these flows could have reduced US long-term interest rates by

about a third of a percentage point.[1] However, oil prices remain a key source of uncertainty to policy interest rates.

Figure 2.1

Global current account balances



Source: IMF, OECD.

Rebalancing may be disruptive

Some movement towards rebalancing of global economies can be observed in the form of recent exchange rate and interest rate changes. These changes act to promote export growth, and slow domestic expenditure in the deficit countries (and the opposite in surplus countries). While uncertainty remains around how and when global rebalancing might ultimately be achieved, orderly adjustment will include increases in US long-term yields and more evenly spread global growth.

However, US long-term interest rates have remained low, both historically and in comparison to nominal output growth rates. The longer these low interest rate levels persist, the greater the risk may be of a sharp reallocation of assets away from deficit countries, leading to steeper falls in exchange rates, lower asset values, and/or higher interest rates in those countries.

More generally, the implications of current account deficits will largely reflect how those deficits have arisen. For example, a deficit reflecting a particularly strong investment cycle will generate higher national income, and thus have different consequences than one underpinned by an increase in consumption.

[1] See p.89 IMF *World Economic Outlook*, April 2006, http://www.imf.org/external/pubs/ft/weo/2006/01/index.htm

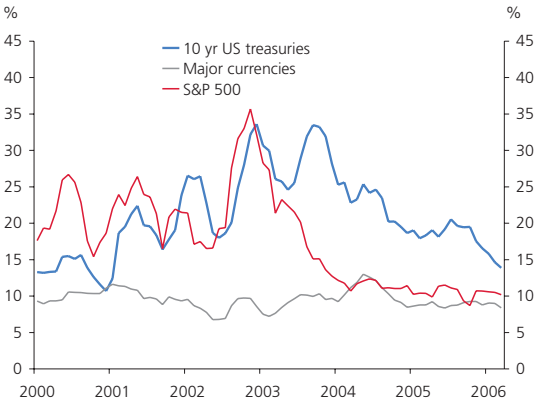
Configuration of global capital flows underpins the 'search for yield'

In an environment of low interest rates, the demand for assets offering higher returns remains strong. Despite the rise in both short- and long-term interest rates in the US, Japan and the euro area, the 'search for yield' described in the November 2005 *Financial Stability Report* persists. This 'search for yield' is reflected in continuing issuance of New Zealand dollar denominated securities, issued by offshore borrowers for offshore investors (Uridashi and Eurokiwi bonds).

Low volatility across a wide range of financial markets (figure 2.2) has lowered perceptions of risk and supported a drive into riskier asset classes. Financial intermediaries have been able to meet demand for riskier higher–yielding assets

Figure 2.2

Historical volatility (90 day) in financial markets*



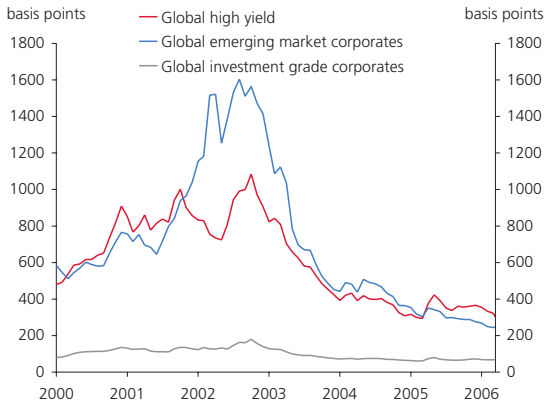
* Annualised rolling 90 day standard deviations of daily per cent rates of change in: the US 10yr Treasury bond yield; a weighted average index of EUR/USD, JPY/USD, GBP/USD, CHF/USD; and the S&P 500 index.

Source: RBNZ calculations, Bloomberg.

by injecting risk – often through increased leverage – into a wide range of financial products. For example, structured finance products which bundle claims on cash flows from an underlying pool of assets for sale to investors have become increasingly leveraged (ie, the debt which is supported by cash flows in these products has grown). There is also evidence to suggest that the extent to which leverage is used in buyout deals has also increased. Leverage loan market conditions in the US and Europe are buoyant, with lending in these markets having almost doubled since 2001.[2]

A number of commentators have argued that investors are not being adequately compensated for the additional risk they are bearing – particularly in bond markets – meaning that risk may be either unidentified or mis-priced. Yields on corporate debt remain persistently low relative to government bonds (figure 2.3), while yields on structured finance products, such as collateralised debt obligations (CDOs) and asset-backed securities (ABS), also remain low.

Figure 2.3
Bond spreads

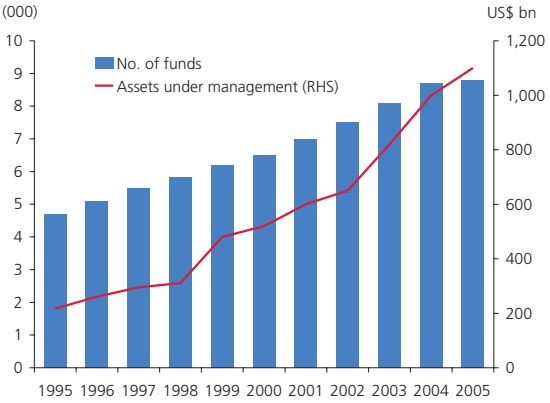


Source: Merrill Lynch, Bloomberg.

The persistence of the 'search for yield' also raises the question of whether there has been a structural reduction in the price of risk.[3] A combination of low volatility in financial markets and financial innovation, including growth in hedge funds and the increasing use of structured finance, could have resulted in a better allocation of risk to those who are able to best manage it. This would allow the price of risk to remain low despite the expectation of tighter monetary policies in the US, Japan, and the Euro area, and the recent increase in government bond yields.

This scenario is consistent with the modest impact from idiosyncratic events that have tested markets in recent times, such as the episode of stress in credit markets originating in the US automotive industry in mid-2005; the ongoing difficulties in the US airlines and automotive industries; and the collapse of Refco, a large financial intermediary. It is also supported by the growth of hedge funds and assets under management (figure 2.4), as well as our own monitoring of the recent strength of Uridashi and Eurokiwi issuance.

Figure 2.4
Hedge funds assets under management



Source: Van Hedge Fund Advisors International.

However, it remains that demand for many of these financial assets is influenced by the current configuration of global capital flows. To the extent that these flows are a product of temporary and unsustainable imbalances in the global economy, it seems plausible that investors may be complacent or unaware of some of the risk that they are bearing.

2.2 New Zealand's external imbalances

New Zealand's external imbalances continue to be noteworthy in terms of both stocks and flows. Net foreign liabilities are now equal to almost 89 per cent of annual GDP, one of the highest ratios in the developed world. The current account deficit has also expanded rapidly and equalled 8.9 per cent of GDP in 2005. This ratio is the highest since the New Zealand dollar was floated in 1985 (figure 2.5).

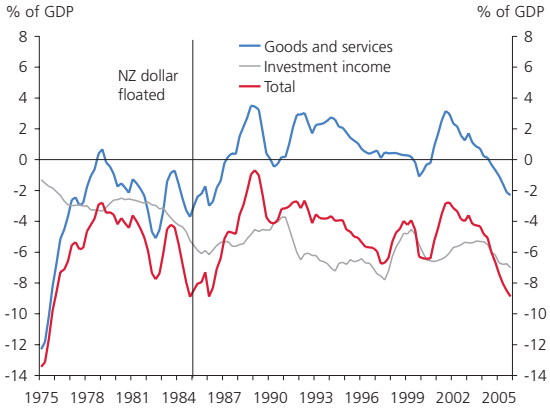
Both of these measures reflect a continuation of trends that have been highlighted in previous *Reports*. The rise in the current account deficit reflects both a growing trade deficit, due to of an overvalued exchange rate in recent times, and a rise in income earned on New Zealand assets held by offshore investors. As the previous *Report* noted, the deficit is likely to moderate through a mix of a lower exchange rate and weaker domestic demand, both of which are in progress.

2 Lending reached an estimated $700 billion in 2005.
3 See, for example, the Bank of England *Financial Stability Review*, December 2005, http://www.bankofengland.co.uk/publications/fsr/2005/index.htm

The net growth in external liabilities over the last year was driven entirely by increased borrowing,[4] most of which was intermediated through the banks as housing loans. Since overall housing debt does not tend to be run down quickly, external liabilities will probably continue to grow at around the same pace as national income.

Figure 2.5

Components of current account deficit



Source: Statistics New Zealand.

The external imbalance creates an ongoing vulnerability to periods of stress

A larger current account deficit leaves New Zealand more vulnerable to shocks to its financial system, and could aggravate the economic costs of a period of financial stress or crisis.[5] That possibility aside, the growth in the external position does not mean that the likelihood of a period of financial stress has increased. There is not much evidence that the implied 'country risk premium' for New Zealand has risen as external borrowing has grown. New Zealand's sovereign credit rating improved following an upgrade by Moody's to 'Aaa' in 2002. At the same time, Standard & Poor's and Fitch Ratings have maintained 'stable' outlooks.

There are important factors that mitigate some of the concerns about the level of external debt – the most important being the flexible exchange rate. Other factors, such as the high degree of hedging of foreign-currency debt, reflect steps taken by market participants to absorb the impact of 'typical' shocks during periods of otherwise normal financial conditions.

However, financial hedges may be difficult or costly to maintain during a period of stress. For example, long-term currency hedging relies on a deep and liquid market for cross-currency swaps, which essentially means that there needs to be a large pool of counterparties willing to hold New Zealand dollars. Investor appetite for New Zealand dollar risk has been highly variable in the past, especially in stressed periods, as the New Zealand dollar is considered a 'peripheral' currency that few, if any, overseas investors are required to hold.

New Zealand's large and persistent external liability position highlights the need to ensure that risks in the financial system are being identified and priced correctly by the entities that require funds from offshore – namely the corporate and banking sectors.

2.3 Household sector

The aggregate picture of household balance sheet looks riskier than before

Household debt has continued to grow rapidly – by 15 per cent over the year to December 2005, to more than $132 billion (figure 2.6). This growth primarily reflected increases in mortgage debt, which accounts for around 90 per cent of all household debt.

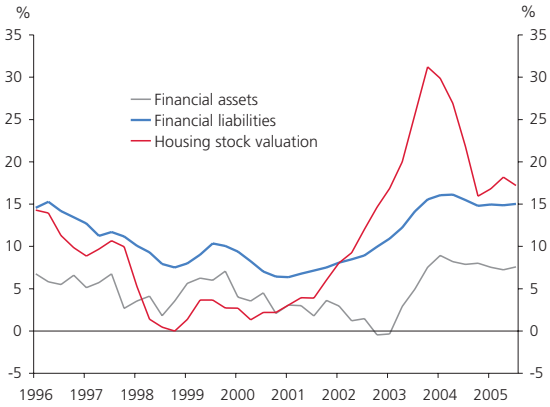
The value of household assets grew largely because of the rise in house prices. House price inflation has softened since the peak in 2003–04, but is still growing at double digits, and the value of other assets grew only modestly in comparison. As a result, while household assets have grown, they have become even more concentrated in property (figure 2.8 on page 11).

[4] This is not obvious from the gross figures, as banks have been running down their 'conduit lending' transactions since 2004. These transactions had allowed banks to reduce their taxable income by incurring an interest expense on a loan from an offshore funding vehicle. All else equal, the rundown in conduit lending would show up as a fall in both foreign assets and liabilities.

[5] See, for example, the IMF Staff Report for the 2006 Article IV Consultation, http://www.imf.org/external/country/NZL/index.htm. IMF staff simulations demonstrate that the ratio of New Zealand's gross external debt to GDP could reach close to 125 per cent in 2010, from an estimated 107 per cent at year-end 2005, under several 'shock' scenarios.

Figure 2.6

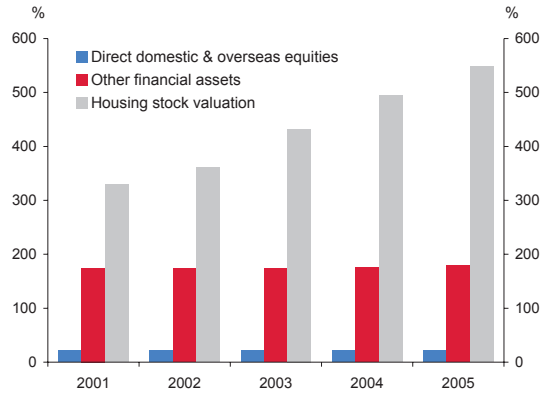
Growth of household assets and liabilities



Source: RBNZ, Quotable Value Ltd.

Figure 2.7

Household assets as a percentage of disposable income



Source: RBNZ, Statistics New Zealand, Quotable Value Ltd.

There has been a global boom in house prices that has been driven by strong growth in incomes, historically low interest rates, and relatively low returns in equity markets. These drivers have been present in New Zealand also, along with fast population growth from immigration. Another important factor is speculative behaviour in the housing market: property market investors have bought new properties largely in the expectation of capital gains. Meanwhile, yields on rental properties have been below the average interest rates for several years.

Households' debt servicing obligations, measured by the ratio of interest payments to disposable income, have increased (see Appendix figure A7). Although the weighted average interest rate remained more or less flat, the rapid growth of debt along with weaker growth of disposable income has resulted in an increase in the ratio to around 12 per cent. This ratio is expected to rise further over coming months, as a large number of households on fixed-rate mortgages come to an interest rate reset.[6] An interest rate increase would further reduce the aggregate households' ability to service debt.

In summary, higher debt, a greater concentration of assets in housing, and higher debt-servicing requirements has increased the vulnerability of household balance sheets to macroeconomic shocks.

Disaggregated mortgage debt data

A study of household balance sheets is useful for better understanding the vulnerability of the household sector. The Reserve Bank is currently analysing household-level data from several sources (see Box 1).

Box 2 reports some early findings based on the Household Economic Survey (HES), and examines the distribution of mortgage debt of owner-occupied dwellings across households with different levels of income. The main finding from our initial assessment of the data is that, by and large, most of the debt identified in the survey seems to have gone to those who are better able to manage it.

- Most debt identified in the survey is held by the households in *higher* income quintiles, who also hold most of the assets identified in the survey and spend a smaller proportion of their disposable income on interest payments.
- *Lower* income households, with fewer assets and weaker ability to service debt, do not hold much debt.
- Indebted households in the *middle* income quintile are, on balance, more exposed to shocks to interest rates or disposable income. This is because they have relatively low debt-servicing ability compared to the higher-income groups, and account for a relatively large proportion of total debt compared to the lower-income quintile.

[6] Approximately a third of households are coming up for mortgage repricing during 2006.

Box 1

Household balance sheet data and applications

The rapid build-up in household indebtedness is a source of vulnerability in financial systems in many developed countries, yet relatively little is known about the distribution, sustainability, and limits of the build-up. In promoting financial stability, it is important to understand how resilient bank mortgage books are to shocks to house prices and households' debt-servicing ability. Building this understanding requires digging beneath the aggregate numbers.

This box briefly describes sources of (confidentialised) unit record data on household balance sheets, collected by Statistics New Zealand, and notes the relevance of this data for ongoing work around stress testing of banks' mortgage books. Box 2 reports on some initial findings from the HES; further analysis will be reported in future *Financial Stability Reports*.

Household Economic Survey (HES): This survey has information on household expenditure for the years 1973 to 2004. Since 1992 information has been collected on mortgages of owner-occupiers, enabling estimation of debt-servicing ratios and household leverage (on the respondent's property). The survey, of around 3000 households, was undertaken annually until 1998, but since then it has been undertaken every three years, with 2004 being the latest survey.

The HES dataset includes variables relating to the sources and amounts of income, household demographics, home-ownership, and mortgages and loans. It will help us to identify the socio-economic and demographic characteristics of indebted households, and how these characteristics change through time.

However, for our purposes, an important limitation on the HES dataset is that it does not collect information on the mortgages relating to investment properties, which have been an important driver of household mortgage debt in recent years.[7]

Household Savings Survey (HSS): The HSS is a one-off survey of 5374 couples and non-partnered individuals, taken in 2001. It collects data on the assets and liabilities of couples and non-partnered individuals. Unlike the HES, it includes data on investment properties, including rental residential properties.

Survey of Family Income and Employment (SoFIE): This is a longitudinal survey, with the same respondents every year. It has approximately 11,500 participants. The first annual wave of the survey was undertaken in 2003. The second wave, undertaken in 2004, included questions on assets and liabilities, similar to those in the HSS.

Stress testing

We are currently developing stress testing models of the banks' mortgage books that incorporate disaggregated information on household balance sheets.[8] In general terms, this involves understanding how households' debt-servicing ability responds to changing economic and financial circumstances. Data from the HES enables us to link household income and expenditure with mortgage debt on an owner-occupied dwelling (and data from other sources will provide information on other properties, including investment properties). Disaggregated data enables us to identify the socio-economic and demographic characteristics of indebted households, and how these characteristics change through time. It will also allow us to determine under which conditions households are most vulnerable to default.

Defaults are relatively rare, and therefore information is limited. Our work in this area will enable us to calibrate a model of the residential housing loan default process to derive probabilities of default and of loss given default.

[7] The HES identifies some debt relating to second and holiday homes, but as a valuation for these properties is not recorded in the survey we are unable to incorporate this information into households' loan-to-value ratios.

[8] Some of our earlier stress testing work was discussed in the November 2004 *Financial Stability Report* (http://www.rbnz.govt.nz/finstab/fsreport/fsr_oct2004.pdf).

Disaggregated information on household balance sheets has the advantage of identifying where financial risk is concentrated. However, the conclusions drawn from this partial information need to be handled carefully. The HES has some gaps that could prove to be material to our assessment of financial stability.

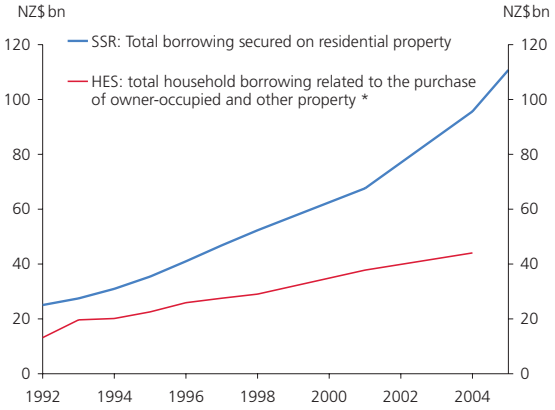
First, information on mortgage debt from the HES relates primarily to owner-occupied properties, and excludes investment properties. The latter appear to have contributed substantially to the growth in household demand for mortgages in recent years. We estimate that as much as a third of aggregate household debt relates to investment properties. Figure 2.8 compares the HES information on housing borrowing secured on owner-occupied dwellings against the information the Reserve Bank collects on borrowing secured on residential property (ie, it includes borrowing for investment properties, holiday homes, and other borrowings secured against property). Both series show an increase in property-related debt, but with a substantial, and growing, difference in the level recorded.

Second, debt related to investment property may be more risky. The number of rental properties has increased markedly in recent years. House prices have risen substantially over the same period, suggesting that new entrants into the investor property market have taken on higher levels of debt than in the past. More risky forms of mortgage finance – interest-only or no down-payment loans – are also probably more common, although in the minority. Property investors may therefore have a lower tolerance for a rise in interest rates or a fall in house prices, especially investors relying entirely on capital gain rather than an underlying positive income stream to generate a return on their investment.

Third, and more generally, default risk is not the only financial stability risk associated with highly indebted households. A fall in house prices could lower wealth and lead households to curtail their spending, leading to a lower level of economic activity and weaker credit conditions generally. Mortgage equity withdrawal – borrowing secured on but not invested in housing – is also high, estimated to be around 3 per cent of disposable income. Again, this activity would contract if house prices fall.

Figure 2.8

Debt secured on property exceeds debt reported in the HES



* Excludes investment properties.

Source: RBNZ – registered banks' standard statistical returns (SSR), Statistics New Zealand.

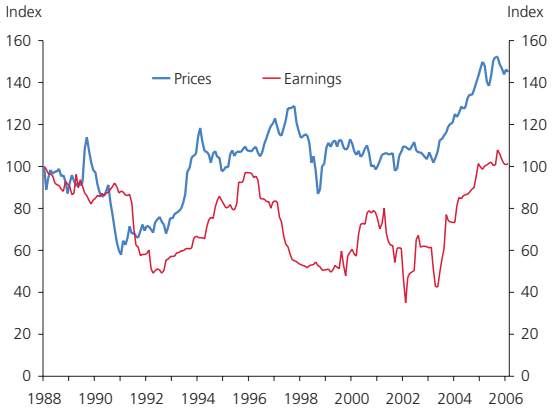
2.4 Corporate sector

Profitability expected to soften after a strong run

The business environment appears to have softened in the last six months, after a reasonably favourable period over the last few years. Corporate earnings peaked last year after solid growth, and the share price index has generally moved in tandem (figure 2.9). Earnings are expected to decline over the next year, consistent with the forecast slowdown in economic growth.

Figure 2.9

New Zealand share price and earnings indices



Source: Datastream. Rebased to 100 as at Jan 1988.

Earnings growth for listed Australian firms also slowed last year, in spite of the continued solid economic performance. The exception was the mining sector, which continues to benefit from rising commodity prices and strong demand

from China. New Zealand firms with exposures to Australia (largely to the retail sector) have tended to fall short of their earnings forecasts.

While some sectors will be affected more than others, the expected fall in earnings is unlikely to raise any concerns for the soundness of the financial sector. Listed company accounts show that corporate leverage has been stable, and fairly conservative, over the last decade. Earnings have generally been more than sufficient to cover debt servicing costs.

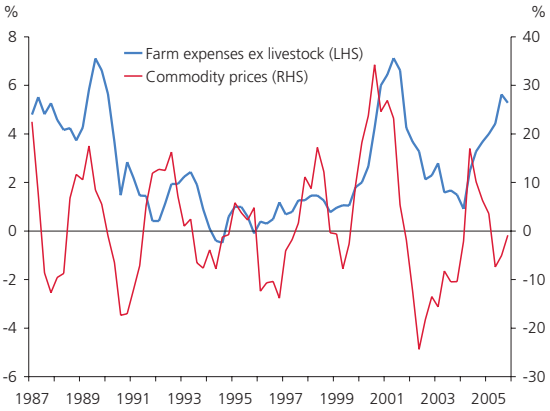
Widespread hedging is likely to temper the near-term effects of any depreciation in the exchange rate on the corporate sector.[9] Some firms may have incurred losses under their hedging contracts as they did following the 1997/98 Asian crisis, however.[10]

Risks to the agricultural sector are crystallising

The previous *Report* noted the rural sector's vulnerability to the combined effect of rising interest costs and weaker commodity prices; these risks have become more apparent in the last six months. World prices for New Zealand's export commodities have softened over the last year, as they have not benefited from demand from China to the same degree as 'hard' commodities. Although the recent fall in the exchange rate has partly offset the fall in world prices, past experience indicates that overall income tends to lag substantially behind exchange rate movements. Many sectors are also being squeezed by rising costs.

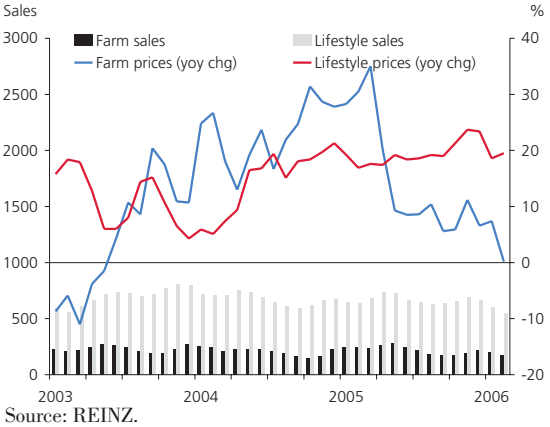
Despite farm incomes softening and farm expenses having risen, rural land values have continued to rise, and bank lending for agriculture purposes has accelerated. The growth in rural land values partly reflects ongoing demand for lifestyle properties, which has allowed farmers to split off parcels of land and sell them for a multiple of their values based on agricultural earnings. While farm section prices have slowed substantially in the last year, prices paid for lifestyle properties continue to grow at a double-digit pace (figure 2.11).

Figure 2.10
Year-on-year changes in farm income and expenses



Source: ANZ, Statistics New Zealand.

Figure 2.11
Prices and sales of farms and lifestyle properties.



Source: REINZ.

The risks to financial stability in this case are similar to those presented by rental property investment – while rural land speculation has proved profitable in recent years, it can lead to high debt-servicing burdens and a reliance on ever-larger capital gains.

9 Statistics New Zealand surveys indicate that around 80 per cent of foreign currency denominated overseas debt is hedged.

10 These losses resulted from the fall in export revenues, which meant that firms had to effectively buy foreign exchange (at now more expensive rates) to meet their obligations under their hedging contracts. Buying foreign exchange at a high price and selling at the previously fixed (lower) price resulted in a loss. See "Can hedging insulate firms from exchange rate risk?" by Andy Brookes, David Hargreaves, Carrick Lucas and Bruce White, Reserve Bank of New Zealand *Bulletin*, Vol. 63, No. 1.

Box 2

Household balance sheets evidence from microeconomic data

In this box we report some early findings from our research into the distribution of debt and debt-servicing ability across households with different levels of income.[11] The data underlying the analysis in this box is Statistics New Zealand's Household Economic Survey (HES) for 2004 (see Box 1). Households are grouped by income quintiles, which have been calculated based on the disposable incomes of the population covered by the HES.[12]

The main finding from the initial assessment of the data is that, by and large, most of the debt identified in the survey seems to have gone to those who are better able to afford it.

Distribution of debt and assets

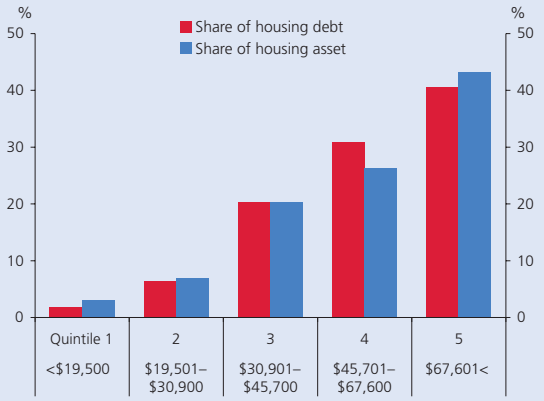
Figure 2.12 shows the distribution of debt and assets. Most debt is held by households in higher income quintiles, as are most of the assets. Households in the top two income quintiles account for 72 per cent of the debt and 70 per cent of the assets identified in the survey. In contrast, the households in the bottom two quintiles account for 8 per cent of the debt and 10 per cent of the assets identified in the survey.

Figure 2.13 looks at the distribution of debt-to-asset ratios. In general, the ratio tends to be higher for the higher income quintiles, except for the highest. Indebted households in the highest quintile (quintile 5) have a median debt-to-asset ratio of 37 per cent, which is lower than the ratios in the middle income quintiles (40 and 46 per cent in quintiles 3 and 4, respectively).

Figure 2.14 looks at differences in the degrees of indebtedness (debt-to-asset) within each income quintile.

Figure 2.12

Housing assets and debt in 2004

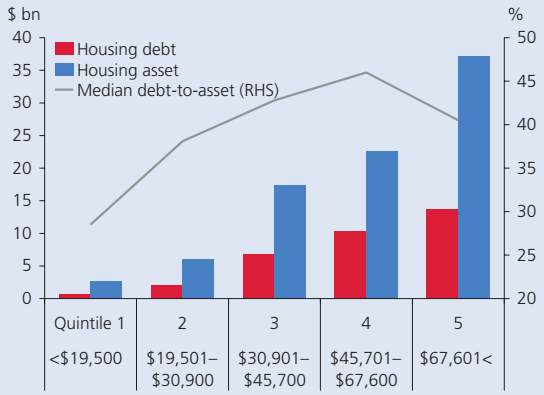


Source: RBNZ calculations, Statistics New Zealand.
Note: The figures are in per cent of the total debt and total assets. As such, the ratio of the two does not give the debt-to-asset ratio. The debt-to-asset ratio for different income quintiles is given in figure 2.13.

The distribution is broadly similar except in the lowest income quintile (quintile 1), where roughly 90 per cent of households have a debt-to-asset ratio below 50 per cent. A very small proportion of the indebted households in this quintile appear 'highly-geared' with a debt-to-asset ratio exceeding 80 per cent. In other income quintiles, still a majority (60 per cent) of them have debt-to-asset ratio of less than a half, but the ratio exceeds 80 per cent for around 10 per cent of the indebted households.

Figure 2.13

Median ratio of debt to assets in 2004



Sources: RBNZ calculations, Statistics New Zealand.
Note: The debt-to-asset ratio here is same as the loan-to-value ratio.

Distribution of debt-service ability

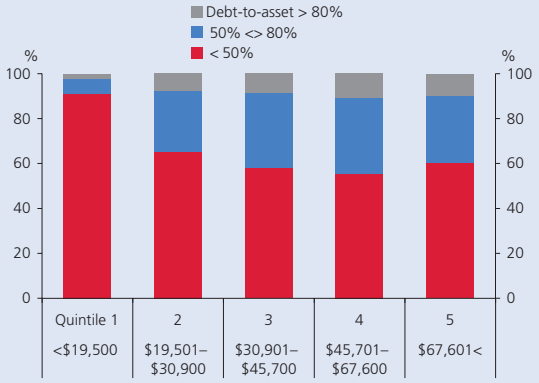
The ability of households to repay their debt can be examined by the size of their disposable income and how much of this income goes toward the interest payments.

[11] The Reserve Bank is currently also analysing household-level data from alternative sources, including the Household Savings Survey (HSS), and the Survey of Family Income and Employment (SoFIE).

[12] A quintile is one way to look at an income distribution [0]as it breaks down a ranking from lowest to highest incomes into five categories. For example, the lowest income group (the 0–20th percentile) comprises the first quintile, and the highest income group (the 81–100th percentile) comprises the fifth quintile. Each of the five quintiles represents 20 per cent of the NZ population.

Figure 2.14

Indebtedness in each income quintile in 2004



Sources: RBNZ calculations, Statistics New Zealand.

These indicators suggest that indebted households in the highest income quintiles are better able to service debt (Table 2.1). The indebted households in quintile 5 had a median disposable income of around $86,000 and an interest cost to disposable income ratio of around 8.5 per cent.

Indebted households in the middle income (quintile 3 and 4) are potentially more exposed to changes in interest rates or any shocks to household income. They have median interest to income ratios of 11 to 13 per cent and account for over 50 per cent of the total debt identified in the survey.

The ratio of interest to disposable income becomes progressively higher as we move from high to low income quintiles. That is, the debt-servicing ability is weakest at the bottom income quintiles (quintile 1 and 2). However, households in these income groups have not taken on much debt. The bottom two quintiles account for less than 10 per cent of the total debt in the survey, and have the lowest debt-to-asset ratios (figure 2.13).

Table 2.1

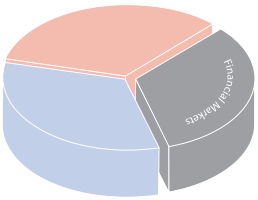
Indebted households' debt-service ability

Median (averages in parentheses) in NZ$ and per cent

2004	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Disposable income ($000)	14	25	38	56	86
	(14)	(26)	(38)	(56)	(95)
Interest-to-disposable income	17.9	16.1	13.3	10.9	8.3
	(27.0)	(16.2)	(15.8)	(12.4)	(9.3)
Share of total housing debt (%)	1.9	6.4	20.3	30.8	40.6

Sources: RBNZ calculations, Statistics New Zealand.
Note: Figures for disposable income are those of indebted households (ie, they do not include debt-free households). Share of housing debt refers to the proportion of total debt accruing to the given income quintile.

3 New Zealand's financial markets



Foreign exchange and fixed interest markets have generally functioned well since the November 2005 Financial Stability Report.

The New Zealand dollar (NZD) has depreciated significantly over the last six months from an over-valued level. Despite the speed of this fall, the foreign exchange market has continued to function normally.

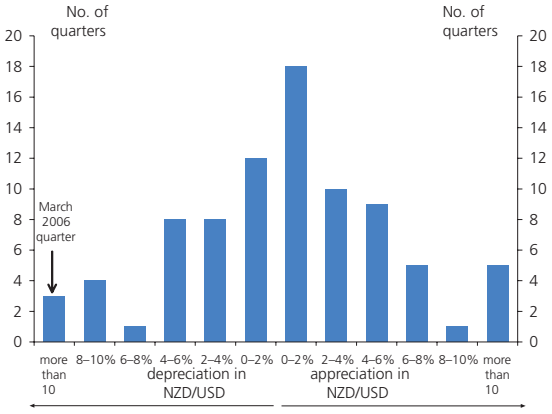
Signs of excess demand pressure in the money markets emerged for a period, which threatened to place pressure on the payment system. The Bank responded by making liquidity more widely available as a short-term measure, and is undertaking a wider review of liquidity management.

3.1 The foreign exchange market

There has been a significant depreciation in the NZD since the last *Report*. The NZD's March quarter decline of 10.3 per cent versus the USD, and 10.0 per cent versus the TWI, has been one of the largest since the NZD was floated in March 1985 (see figure 3.1).[1]

The depreciation of the NZD is a correction of the unjustified and over-valued exchange rate highlighted in the previous *Report*. The over-valuation both reflected, and contributed to, economic imbalances in the economy. As a result, it may have posed a potential threat to financial stability if there was to be a sudden reversal of capital flows out of New Zealand as the imbalances corrected to more normal levels. The recent depreciation of the NZD has helped mitigate this threat to financial stability, although imbalances in the economy remain.

Figure 3.1
Quarterly changes in the NZD/USD since the currency was floated



Source: RBNZ, Bloomberg.

A large and sudden decline in the value of a currency can be an indication of dysfunction in the foreign exchange markets. However, in this case, similar to past episodes of rapid NZD depreciation, the NZD market has functioned well. Indicators of liquidity conditions, for example bid-offer spreads in the NZD/USD market, have indicated that the market remained liquid. The absolute level of short-term exchange rate volatility is also still much lower than it has been in past periods of stress, for example, following the LTCM collapse in late 1998 (figure 3.3).

Another indication of the liquidity in the NZD market during this period of decline is included in figure 3.4.

[1] The scale of the depreciation in such a short time is unusual but not unprecedented – there have been two quarters where the depreciation of the NZD/USD and NZ TWI was of a greater magnitude and only seven occasions of larger movements over any three month period since the float.

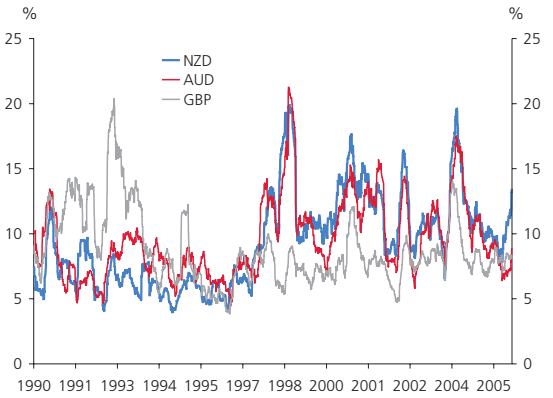
Figure 3.2

Bid-offer spreads in the NZD spot market

Source: RBNZ, Reuters.

Figure 3.3

Volatility in the NZD, AUD and GBP

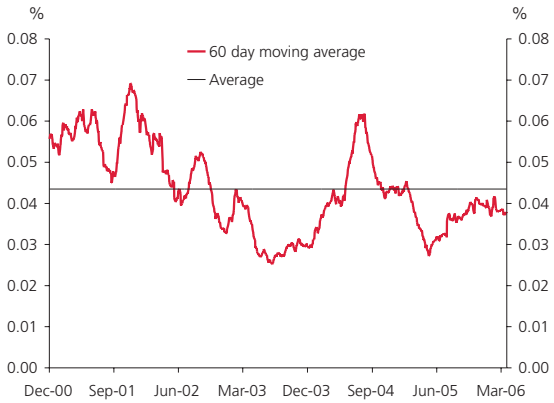


Source: RBNZ calculations, Bloomberg.

This shows that the daily movement in the NZD/USD per NZD 1 million traded was below the historical average. That is, while recent daily exchange rate depreciations have been large, these have been associated with greater-than-average traded volumes. Traded volumes of the NZD/USD on the Reuters electronic broking system at times came close to those in the AUD/USD, which is unusual given the much larger size of the Australian financial markets. Anecdotal evidence suggests there was strong buying and selling interest in the NZD market during this time. Selling interest from leveraged investors and funds was met with buying interest from long-term real money investors. This was evidenced in part by the continued strong pace in Uridashi issuance, and the growth in offshore holdings of government securities in the first few months of the year. On balance, despite the magnitude of the move, the decline in the NZD over recent months has generally been orderly.

Figure 3.4

Daily movement in NZD/USD per NZD 1 million traded



Source: RBNZ, Reuters.

However, there is potential for the depth and resilience of the NZD market to be tested in the future. Some depreciation of the NZD has been due to concerns regarding the substantial maturity profile for NZD denominated securities issued in offshore markets (Eurokiwis and Uridashis) scheduled over the next two years. While the pace of Uridashi issuance has remained strong since the start of the year, there is uncertainty in the market regarding whether upcoming Uridashi maturities will be rolled over into new NZD issues. Just as the positive interest rate differential favouring the NZD had driven the popularity of these investments over the past few years, expectations of a narrowing of this yield differential may lead to reduced demand from offshore investors in the year ahead.

3.2 The fixed income markets

Pressures in the money market

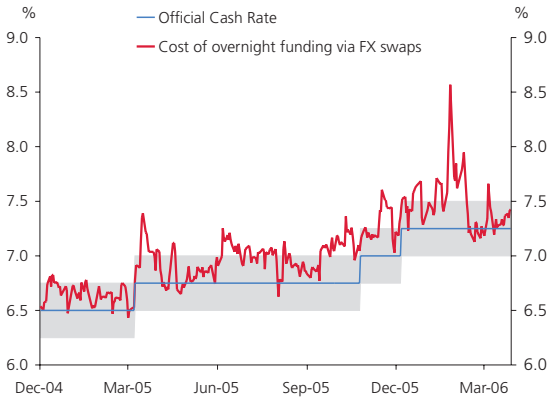
During the final quarter of 2005 and early 2006, signs of unusual pressure appeared in the short-term wholesale money market due to the coincidence of two factors. The first was the establishment of NZD 'short' positions by speculative investors as the NZD exchange rate began to depreciate, resulting in an increase in NZD borrowing demand in the FX swaps market to finance these positions. The second factor was a fall in the level of government collateral that was available to banks for secured lending purposes both between themselves and from the Reserve

Bank. This reflected the high and growing level of foreign ownership of government securities combined with the upcoming maturity of the February 2006 government bond.

The combination of very high NZD borrowing demand and shrinking supply of collateral made short–term liquidity more difficult and more expensive for banks to access. Normally, the rise in wholesale interest rates would have been capped at around 25 basis points above the Official Cash Rate (OCR), as banks would have found it increasingly advantageous to borrow secured from the Bank in preference to paying higher rates in the wholesale markets. However, this normal pressure valve was not working effectively due to the shortage of government stock collateral to use for these loans. Hence, liquidity pressures continued to build, reflected in the rise in the implied overnight borrowing rate in the FX swaps market (significantly above the rate at which banks could borrow from the Bank), and in high spreads between Treasury and bank bill yields (see figures 3.5, 3.6).

Figure 3.5

Overnight FX swap rate and the OCR



Source: RBNZ.

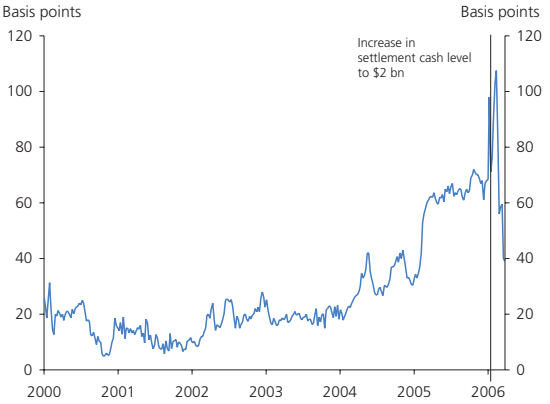
By late January 2006, the implied overnight interest rate in the forward FX market rose to over 8 per cent. Local banks reported increased difficulty finding liquidity to satisfy payments needs, and there was a growing risk of more frequent failed inter-bank payments. The upcoming maturity of the February 2006 government bond was expected to aggravate this situation, by reducing the effective pool of government securities available to banks to use as collateral in loans between each other and with the Bank.

In response, the Reserve Bank increased the amount of settlement cash (the sum of banks' account balances at the Reserve Bank) available to banks. The impact of this measure was to make cash more widely available without a need to use collateral, hence making it easier for banks to make normal payments between each other. The Bank supplied the extra settlement cash (in two steps from NZD 20 million to NZD 2 billion) via FX swaps with market participants at market determined interest rates. The increases in settlement cash reduced the banks' demand for collateral, as their need to borrow secured either from the Reserve Bank or each other declined significantly.

Subsequently, the implied overnight interest rate in the FX swaps market has fallen closer to more normal levels relative to the OCR. A decline in the differential between bank bill and Treasury bill yields also indicates that money market and payments system pressures have eased.

Figure 3.6

3 month T-bill spread below bank bills



Source: RBNZ.

Reserve Bank Liquidity Management Review

The increases in the level of settlement cash were a temporary but effective solution to the immediate pressures in the cash market. However, they have not really addressed the longer-term underlying problem with the Bank's liquidity management regime – that is, the fact that the demand for liquidity is variable, but the supply of cash and suitable collateral (government securities) is fixed and not in the control of the Reserve Bank (or market participants).

The Bank has been reviewing its liquidity management regime over the last year and released a consultation document on 17 March 2006.[2] The Bank's preferred new regime is to permanently 'cash up' the settlement system by substantially increasing the supply of cash. In addition, the Bank would remove the ability for banks to borrow cash within the day from the Bank, thus requiring banks to hold larger ongoing settlement account balances to satisfy their day to day payments requirements.

The advantage of this proposed regime is that the supply of settlement cash is directly controllable by the Bank, leaving the Bank in a better position to respond quickly and effectively to changes in market participants' demand for cash. Banks will also have a much reduced reliance on government securities, the supply and demand of which is outside the control of the Reserve Bank and affected by exogenous factors. Finally, the wider ongoing supply of cash among banks should better foster the development of an active inter-bank cash market, making it easier for banks to manage their liquidity needs without having recourse to the Reserve Bank's standing lending facilities.

Box 3

Banks' liquidity sources and NZD FX swaps

New Zealand banks raise a significant proportion of the funds they require to finance their local operations in domestic and foreign wholesale money markets. Banks' principal sources of wholesale funds are:

- The local money markets – by borrowing from each other, corporate institutions or overseas investors on a secured or unsecured basis at either the OCR or wholesale bank bill rates;
- Foreign money markets – converting these funds to NZD in the NZD FX swaps market. FX swaps allow local banks to tap the liquidity available in, for example, the very large US dollar and euro money markets; and
- From the Reserve Bank via its lending facilities.

In the event that funds are not easily available in the wholesale markets, banks have the option of borrowing from the Reserve Bank itself. This option is deliberately made to be relatively expensive. Banks must pay the 25 basis points above the normal market overnight cash rate. The result is that banks typically finance only a very small proportion of their total daily cash needs from the Reserve Bank, and in most cases banks have no need at all to use the Reserve Bank's lending facilities.

In order to borrow from the Reserve Bank, banks must provide government securities to the Reserve Bank as collateral to secure the loan. As such they hold portfolios of government securities in case they need to borrow from the Bank. Banks also hold government securities to use as collateral on loans between each other. Holding this collateral is costly, as they typically have lower yields than alternative investments. The cost of holding collateral is also variable: as demand for collateral (government securities) rises, so too does the price of that collateral and the effective cost of raising funds to meet banks' normal business requirements.

How banks use FX swaps to manage their liquidity needs

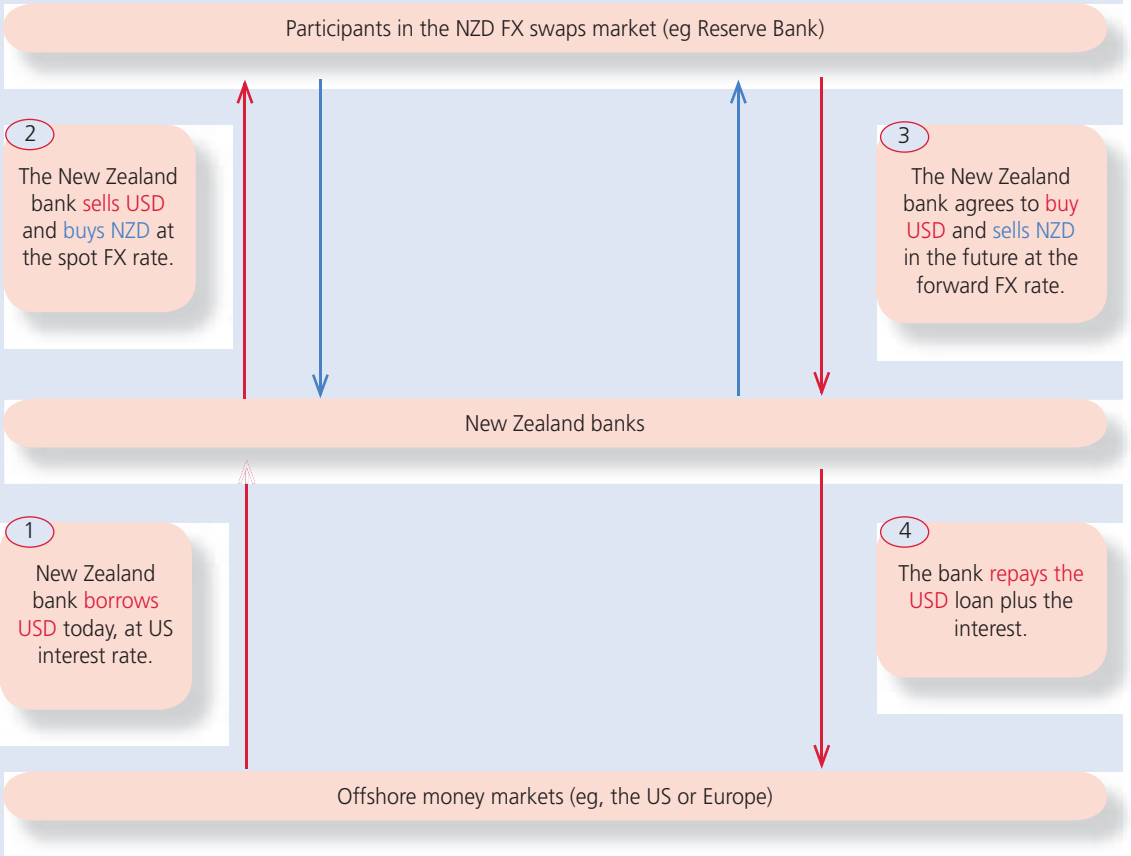
FX swaps allow the banks to convert offshore borrowing into NZD without incurring the exchange rate risk associated with borrowing offshore. An FX swap is essentially a spot foreign exchange transaction combined with an offsetting forward foreign exchange transaction. A simple stylised example is depicted by figure 3.7. The numbered arrows in the figure represent USD and NZD flows between the overseas money markets, NZ banks, and other participants in the NZD FX swaps market.

When New Zealand banks borrow in overseas money markets, they raise foreign currency and pay the relevant foreign interest rate on that loan (1). The foreign currency must then be converted into NZD. In the first leg of the swap (2) banks sell the funds obtained offshore and buy NZD at the spot exchange rate. The New Zealand bank simultaneously agrees to reverse this transaction at a later date, at an agreed forward rate (3). This reversal in the second leg means that the original foreign currency loan can be repaid (4). The forward exchange rate set in the

[2] The document is available at www.rbnz.govt.nz.

Figure 3.7

Use of an FX swap to borrow NZD



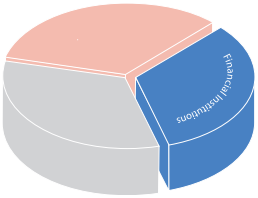
second leg is such that it largely cancels out the difference between the interest paid on the foreign currency, and the corresponding domestic interest rate.

As banks compete for funds in domestic and foreign wholesale money markets, domestic interest rates will change in response to demand and supply pressures. For instance, increased demand for NZD funds will see pressure for interest rates to rise in the local money market, and in the implied interest rates using the NZD swaps market. Banks will borrow in the market that offers the lowest interest rate, which generally ensures that implied interest rates in FX swaps and the domestic money markets are comparable. Note that the potential for arbitrage opportunities implies that the cost of borrowing will normally be related to the cost of borrowing using the Reserve Bank standing facility.

For example, the cost of borrowing NZD overnight through FX forwards should not exceed 25 basis points above the OCR. If the cost were above this level then banks could profit – by borrowing from the Reserve Bank at the OCR plus 25 basis points, and becoming an investor via the FX swaps market. The New Zealand bank would do the reverse of the above transactions – essentially investing NZD via the FX forwards market and earn an implied interest rate in excess of the OCR plus 25 basis points. This trade would increase the supply of liquidity in the market, putting downward pressure on the overnight cash rate in the local market until the difference is arbitraged away and the overnight cash rate is returned to within the OCR plus 25 basis points.

Hence the borrowing cost banks pay for these transactions is the implied NZD interest rate. The FX swap allows domestic banks to raise NZD at a known implied interest rate, without needing to hold the collateral that would be required in order to use the Reserve Bank standing facility.

4 New Zealand's financial institutions



New Zealand's financial institutions remain similarly placed as at the time of the November 2005 Financial Stability Report. *Banks continue to report robust balance sheets, and are well capitalised and profitable, with low levels of impaired assets. Lending growth continues to be strong despite a slower pace of economic growth. Competition for market share is also strong – margins on lending are falling while there appears little scope for expense reduction. We remain alert to the possibility that a more challenging environment may lead to under priced or mismanaged risk.*

Non-bank financial institutions are a diverse group. A number of these institutions have grown extremely rapidly in the last five years, and are vulnerable to a more challenging economic climate. This more vulnerable group is concentrated in the property and consumer finance sectors. Isolated and individual failures are unlikely to pose a significant risk to the stability of the financial system.

4.1 The banking system

Banks are well capitalised

The fundamental financial indicators remain strong for the banking sector. New Zealand banks continue to be financially sound and well capitalised. The ratio of tier one regulatory capital to total risk-weighted assets is above 8 per cent, which is significantly above the regulatory requirement of 4 per cent. In recent years New Zealand banks have had a higher ratio of tier one capital than Australian banks. However, the overall capital ratios (tier one plus tier two) for New Zealand banks is similar to that for Australian banks (see Appendix figure A27). Financial soundness is further evidenced by Standard and Poor's and Moody's assigning respective long term credit ratings of AA- and Aa3 to the large New Zealand banks.

Recent lending activity has increased the level of exposure to households

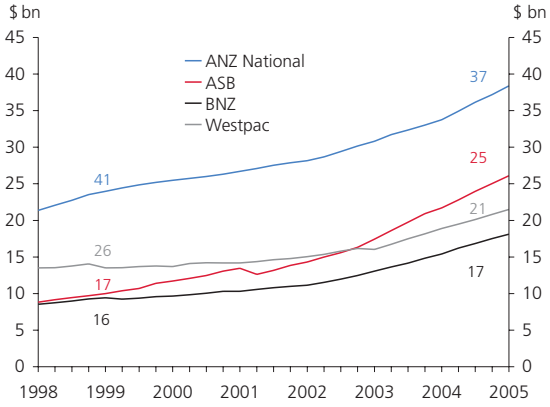
Over the past five years growth in mortgage lending has accounted for more than half of the increase in registered banks' total assets. ANZ National Bank remains the largest mortgage lender in both value and market share terms. The second largest is ASB Bank, whose market share has grown significantly in the last seven years (figure 4.1).

The proportion of bank lending to households has increased from 34 per cent to 44 per cent between 2001 and 2005, increasing alongside the cyclical pickup in house prices (figure 4.2). During the December 2005 year $16 billion flowed to households, following $12.5 billion in each of the preceding two years. In contrast, growth in all other sectors in 2005 amounted to $9 billion.

Mortgage lending is generally viewed as lower risk than corporate lending: loan amounts are low relative to corporate loans, and are spread across a large number of borrowers. Household behaviour also underpins the low-risk nature of mortgage loans. Households tend to curtail spending rather than risk mortgage default and bank foreclosure. Consequently, risk weightings for mortgage loans are lower than for lending to other sectors (and hence less capital needs to be allocated to this form of exposure). The new capital adequacy framework being developed (Basel II)

Figure 4.1

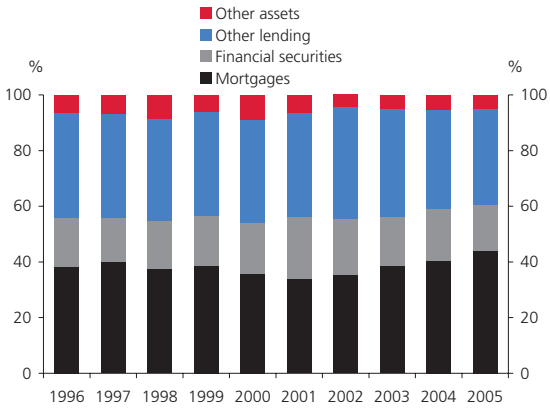
Large bank residential mortgage lending and market shares in 1998, 2005



Source: Registered banks' general disclosure statements (GDS), as at 30 September.

Figure 4.2

Composition of bank assets



Source: Registered banks' GDS, as at 30 September.

further lowers internationally-agreed risk weightings for residential mortgages.

It is possible, however for risks associated with residential mortgage lending to be underestimated during periods of strong growth in residential house prices. Chapter 2 notes that growth in mortgage lending is not solely related to the purchase of owner-occupied dwellings. For example, bank mortgage portfolios may contain loans taken out for commercial property, small businesses, or residential rental property. Recent lending growth may have led to greater dependence on housing for collateral for both mortgage and business lending. Should house prices contract, the value of this collateral will fall, raising the possibility of a broader contraction in credit supply; the use of collateral is no substitute for more substantive credit risk management. Households are increasingly leveraged, and it seems likely – in the context of the increase in interest rates – that there will be some deterioration in banks' residential mortgage portfolios.

Strong residential mortgage lending growth poses other risk management challenges. For example, rapid growth in residential mortgage lending could compromise the quality of risk monitoring, or management services in other parts of banks' balance sheets.

Currently, there is no clear indication of banks in New Zealand materially underpricing their credit risk or otherwise mismanaging residential lending growth. However, any suggestion that banks' internal credit scoring regimes are becoming more generous, or that banks are mismanaging residential lending growth, would be cause for concern.

Lending growth in other potentially vulnerable sectors

Bank lending has continued to grow in potentially vulnerable sectors, including agriculture and commercial property. Agriculture lending, accounts for 13 per cent of total bank lending and has increased by an average of $2.5 billion annually since 2001. As noted earlier in Chapter 2, the sector is susceptible to falling world commodity prices, although the recent fall in the New Zealand dollar will buffer farm incomes to some extent. Low earnings still characterise the dairying sector. Established and productive farms that are growing by acquisition and achieving economies of scale are better positioned to weather any downturn in dairy incomes and dairy farm prices. Those banks which have aggressively moved into the sector in recent years may, however, experience some deterioration in loan quality on exposures to new entrants or marginal dairying units.

New lending to the commercial property sector has increased to $2.5 billion per annum in 2004 and 2005. This is approximately double the figure for the preceding four years. It now accounts for about 10 per cent of total bank assets. Exposure to this asset class is primarily to property

investment and development, the health of which is closely linked to the economic cycle.

Strong competition in lending – some banks seem to have grown revenue more through volume than price

During the 18 months to September 2005 loans and advances by the large banks grew by $27 billion to $180 billion. This asset class is a proxy for residential mortgages as they comprise the majority of banks' loans and advances. Price competition in residential mortgage lending has been strong: in the latest half year period the increase in yield on loans and advances was just six basis points, which was much lower than the increases observed in the previous two periods (see Appendix table A4).

Asset growth and yield expansion implied an incremental income increase of $3.4 billion between March 2004 and September 2005. Growth in asset levels accounts for 56 per cent of the increase, while increased yields account for 44 per cent. Volume effects contributed significantly more to incremental income for BNZ and ASB Bank than price effects (see Appendix table A7).

Smaller banks are growing fast

Smaller banks (Kiwibank Ltd, TSB Bank Ltd and St George Bank New Zealand – trading as Superbank) have experienced significant asset growth. Growth in residential mortgage lending has underpinned balance sheet expansion. Kiwibank in particular has registered very strong growth in residential lending. Smaller banks bring competition and product innovation, thereby increasing banking choice. They have competed aggressively with the large banks for residential mortgages in an expanding economy. In a slower economy, they may find it difficult to maintain historic growth rates without compromising asset quality. In such an environment they may be susceptible to competition from large banks, which have access to economies of scale that can be employed to compete in a slower economy (see Appendix table A5)

Banks' funding rates have increased

While competition in the mortgage lending market shows no sign of abating, we have observed competitive forces which have driven up the price of funding costs through higher deposit rates on retail funds (for example, with Rabobank's recent retail offer of an on-call high-yielding savings account). Funding rates have risen on average by 136 basis points during this period. Additionally, during the last 18 months the proportion of funding obtained from wholesale sources has grown by about 2.4 per cent for the large banks, with retail funding contracting by a similar percentage.

Expansion in funding liabilities implies an incremental increase in interest costs of $3.6 billion between March 2004 and September 2005 (see Appendix table A8). This is higher than the $3.4 billion incremental increase in interest income shown in Appendix table A7. The higher cost of funding is the main contributor to the increase in interest cost for the large banks. Growth in the volume of funds accounts for 31 per cent of the increase, while increased unit costs of funding account for 69 per cent.

Higher funding costs and competition reduce interest spreads and margins

Downward pressure on interest spreads (ie, the difference between the interest rates at which banks are able to borrow funds and the rates at which they on-lend those funds) is likely to continue. Net interest spreads have contracted for the four main banks as funding costs have risen faster than yields on interest-earning assets (see Appendix table A6).

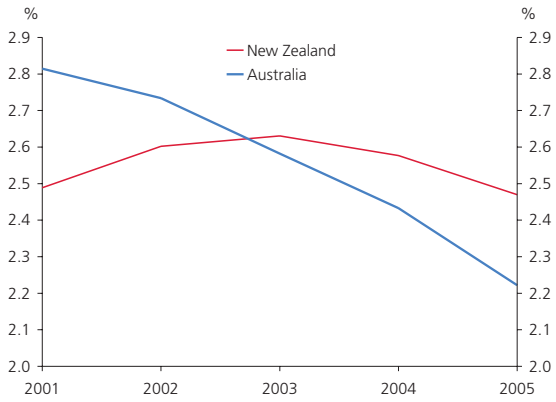
The interest margin (being interest income less interest expense divided by interest earning assets) continues to weaken for the four major New Zealand banks, but appears to remain higher than their Australian counterparts (see Appendix figure A8). This could reflect a range of different factors such as a more competitive trading environment for Australian banks, or the availability of non-interest revenue (eg, funds management and insurance income), that can be used to buffer interest revenue. New Zealand banks have largely divested their non-lending activity and hence non-interest revenue streams are unavailable to them. Whatever the underlying reasons, there is the strong possibility

that Australian parents may see scope for further price competition in New Zealand.

Taken together, these factors suggest there is little likelihood of pressure on margins easing in the New Zealand market and, if anything, we expect the pressures to intensify.

Figure 4.3

Large bank interest margin



Source: Registered banks' GDS, as at 30 September.

Pressure will also come from other parts of the market such as non-bank lenders. As discussed below, some of the non-bank lenders are growing strongly.

Little room for further expense reduction

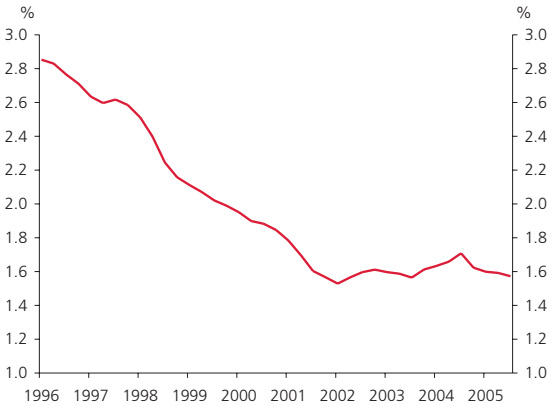
Operating expenses to average assets continue to plateau after a period of decline (figure 4.4). The decline in operating expenses is reflective of bank-wide cost reduction initiatives. The large banks have had a low operating expense to average assets ratio during the past five years. The ratio has been significantly lower than that of Australian parent banks during this time (see Appendix figure A28).

It is unlikely that there is scope to increase the return to shareholders significantly through further cost cutting, and there are a number of other factors that will put upward pressure on costs – such as banks' stated goals of improving customer service. There are also a number of unavoidable costs associated with international developments, such as the new Basel II Capital Framework.

Against such a background, boards of directors should continue to be alert to any risk that could potentially arise

Figure 4.4

Bank-wide operating expenses to average assets



Source: Registered banks' GDS, as at 30 September.
Note: Operating expenses excludes interest costs.

because of incentive structures that reward short-term profit performance. Expense stripping, especially in support areas such as risk management and internal audit, may lead to unacceptably high levels of operational risk.

Returns on assets and on equity are still at comfortable levels

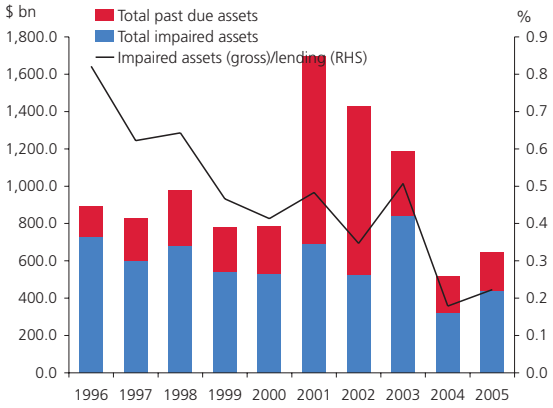
Profitability has been strong but declining for the banking sector over recent years. This has continued over the period to September 2005 with, for example, large banks generating a return on assets of 1.10 per cent (1.14 per cent for the previous period). Profitability going forward, though, is likely to be challenged with the slowing economy, further lending price competition, and increasing funding costs. In Australia the return on assets for the parent banks of the large New Zealand banks was 1.17 per cent over the same period.

For the period to September 2005 return on equity was 13.6 per cent for the large banks (excluding Westpac, which cannot be included as it does not have a separately capitalised New Zealand subsidiary). This was down on 14.5 per cent of last year, and the peak of 26.8 per cent in 2002. In Australia the return on equity for the parent banks of the four large New Zealand banks was 14.8 per cent. Both return measures for New Zealand remain at comfortable levels, implying that the banking sector as a whole remains financially sound and stable.

Asset quality still good

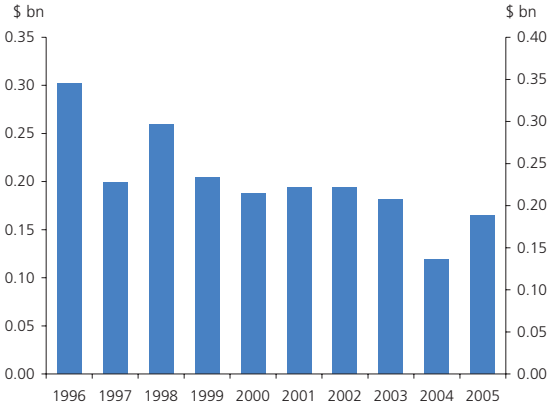
Overall asset quality is good, although impaired assets and specific provisions are rising (figures 4.5, 4.6). In New Zealand and elsewhere, bad debts have historically tended to lag the economic cycle. We expect the level of provisions to increase as the economy moves into a lower growth phase.

Figure 4.5
Bank-wide past due and impaired assets



Source: Registered banks' GDS, as at 30 September.

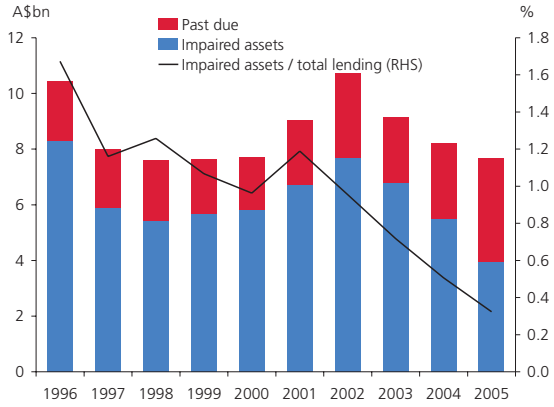
Figure 4.6
Bank-wide specific provisions



Source: Registered banks' GDS, as at 30 September.

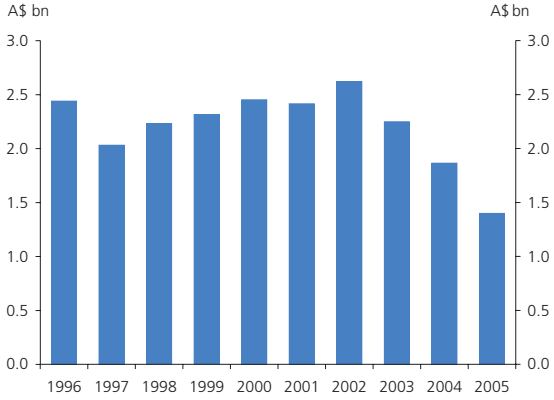
In Australia, mortgage holders are more exposed to floating interest rates, which have been rising recently, whereas residential mortgages in New Zealand are relatively more subject to fixed rates. In light of this, a housing market that appears to have passed its peak, and in an environment of a weaker economy, it is somewhat surprising that past due assets, impaired assets, and specific provisions are falling in Australia (see figures 4.7, 4.8).

Figure 4.7
Australian bank-wide past due and impaired assets



Source: Registered banks' general GDS, as at 30 September.

Figure 4.8
Australian specific provisions



Source: Registered banks' GDS, as at 30 September.

New Zealand banks have historically had ready access to overseas funding

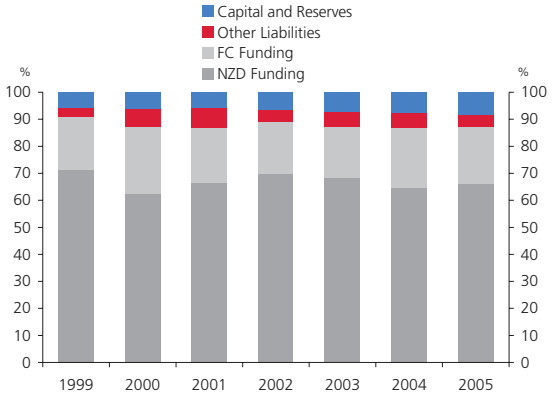
New Zealand dollar (NZD) funding accounts for 67 per cent of bank funding, while foreign currency funding accounts for just under 21 per cent (see figure 4.9). Foreign currency funding is generally hedged back to NZD. Consequently major banks have minimal net foreign currency open positions.

Banks' NZD resident claims have been growing strongly. This position has been funded to a significant extent bank-wide by foreign currency and NZD borrowing from non-residents. Since May 2004 non-resident funding has grown strongly from 24 per cent of total funding to 32 per cent at the end of February 2006.

With significant funding emanating from non-residents, the banking sector remains susceptible to cost of funding

Figure 4.9

Bank-wide funding composition



Source: RBNZ – registered banks' SSR, as at 31 December.

swings as offshore investors alter their views on the New Zealand economy. The recent depreciation in the NZD is evidence of investors adopting a less positive view of the NZD currency. As a consequence, banks may find securing funding from offshore investors more expensive.

However, reflecting banks' hedging practices, the currency risk exposure from foreign currency funding is minimal. Large banks' disclosure statements[1] report the aggregate market risk of foreign currency exposure at the end of September 2005 to be $9.2 million, which represents 0.08 per cent of capital. Peak exposure during the three months prior to reporting was $21 million, which represents 0.17 per cent of capital.

The large New Zealand banks are starting to raise funds offshore in their own names, and at competitive terms and prices that are similar to those available to their respective Australian parents. Their ability to do so results from legal umbrellas established by Australian parent banks under which New Zealand subsidiaries can raise funds directly and autonomously offshore. Whilst funding decisions are likely to be taken within group-wide asset and liability portfolio considerations that are controlled to varying degrees by Australian parents, from the New Zealand bank's perspective, there is increased autonomy and self-reliance. As this development aids funding diversification, facilitates pricing signals, and exercises skill sets, we view the development as positive from the perspective of financial stability in New Zealand.

[1] ASB Bank data refers to the June General Disclosure Statement.

Box 4

Pandemic preparedness

Over recent months the Reserve Bank has been playing an active part in the substantial whole-of-government project to help ensure that New Zealand is prepared, as much as it can be, for a possible influenza pandemic. The chance of such a human pandemic occurring in the next few years has come to prominence with the recent increasingly wide spread of the avian influenza strain H5N1. Should pandemic influenza strike, it could seriously affect whole nations through recurring waves of illness over periods of perhaps as long as 18 months.[2]

The Reserve Bank's focus has been twofold. First, we have been putting in place procedures to ensure that our own core operations can be conducted effectively throughout even a severe and protracted period of pandemic influenza. Those plans are now well advanced and will be tested wherever possible.

Secondly, we have been working closely with the banking industry to help ensure that the industry is as well placed as possible, should a severe pandemic hit. Here again there are two areas of focus. The first of these is on the ability of banks to maintain a core level of functionality throughout a period of pandemic. Banks have well-developed business continuity planning procedures as an integral part of their business management. However, whereas such planning usually concentrates on losses of key buildings or systems, the pandemic poses a different sort of risk – the widespread loss of staff, perhaps for extended periods (and the loss of staff in key suppliers, including of outsourced services). Banks appear to have made good progress in developing plans to manage core services during a pandemic period, and see such preparations as being valuable not just for an influenza pandemic, but also for any other future event (eg, a repeat of something like SARS) that significantly affected the ability or willingness of bank staff to work.

[2] The recent New Zealand Treasury Policy Perspectives Paper 06/03 "Impacts of a Potential Influenza Pandemic on New Zealand's Macroeconomy" by James Douglas, Kam Szeto and Bob Buckle provides some initial estimates of the significant economic impact of the sort of influenza pandemic government planning, including that of the Reserve Bank, is working on.

A severe and/or protracted period of pandemic would not just affect banks. Rather, the whole economy and society would be disrupted, with widespread and severe income losses for many firms and households, and international economies and financial markets will also feel the effects. It is not uncommon for lenders to allow borrowers to defer debt servicing for short periods, when the ability of otherwise creditworthy borrowers to meet commitments is temporarily disrupted by an event clearly beyond their own control (a natural disaster, for example). Most residential mortgage borrowers have a considerable degree of equity in their house – providing a significant buffer for lenders – and lenders are typically keen to maintain an ongoing relationship with good customers. Moreover, the housing market itself is likely to be highly illiquid during a pandemic period. All this suggests that most mortgage borrowers are likely to find lenders relatively supportive during a pandemic period, and many may be able to defer principal repayments and capitalise ongoing interest obligations. Of course, a pandemic would leave banks more heavily exposed to mortgage borrowers than they would be if a pandemic had not hit, emphasising the importance of securing a quick recovery in economic activity once the pandemic period is over. This, in turn, is a priority in the wider government planning for managing the economic dimensions of a pandemic.

Many firms will also be badly hit by a pandemic, and some will find that revenues dry up very quickly, while many of their outgoings are fixed. Corporate credit is considerably more heterogeneous than housing credit, and we are in ongoing discussions with banks regarding the likely treatment of corporate credit. In the interests of maintaining ongoing good relationships, banks are likely to be relatively supportive of firms needing additional credit. However, a greater aversion to risk is likely to be one of the characteristics of a period of pandemic, and in some cases firms will have little likelihood of emerging from a pandemic in sound financial health.

New Zealand banks are heavily dependent on international wholesale financial markets for funding and hedging. In a period of global pandemic, there is some risk that these markets could be disrupted, particularly given New Zealand's small size and heavy indebtedness. If that happened, banks might not be able to meet all their repayment and funding needs. We are working with the banks to encourage them to build as much resilience as possible into their funding and hedging structures.

More generally, financial market prices could be expected to shift quite markedly in a period of pandemic, with exchange rates and share prices weakening significantly in those countries hardest hit. Our previous analysis and stress-testing work suggests that such moves in New Zealand would not alone threaten the overall soundness of the financial system, but it would nonetheless be a period of heightened vulnerability.

4.2 Non-bank financial institutions

Non-bank financial institutions (NBFIs) comprise a number of institutional groups, defined by statute and business focus. There is significant diversity between and among these groups, whose assets exceed $25 billion, around 10 per cent the size of registered banks.[3]

In this *Financial Stability Report* we look at NBFIs according to how they raise funds, labelling these groups as 'issuers' and 'non-issuers'. 'Issuers' are those institutions that raise most of their funds from households by way of public prospectus of debentures and deposits. The 'issuers' group accounts for around two thirds of total NBFI assets, and mainly comprises savings institutions, and consumer and property lending finance companies.[4]

The remaining third of total NBFI assets are held by institutions that we have categorised as 'non-issuers'. 'Non-issuers' are NBFIs which fund from an overseas parent or via the domestic wholesale market (and not from New Zealand households). Non-issuers are almost all foreign-owned. They comprise a mix of 'vendor' finance subsidiaries of global

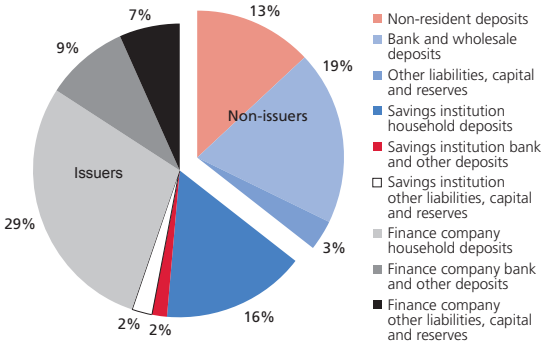
[3] See Appendix table A1.

[4] Households provide savings institutions with over $4 billion in funding, and finance companies with almost $7.5 billion in funding. These amounts compare with $60 billion in household deposits of all kinds with registered banks.

transport, machinery and office equipment companies, and specialist financiers like Bluestone, GE Money and AMEX.

In figure 4.10 we show the relative sizes of these two groups by showing the proportion (and types) of total NBFI funding that is currently attributable to each.

Figure 4.10
NBFI sources of funds, December 2005



Source: RBNZ – NBFI SSR and annual NBFI surveys.

By dividing the institutions into these two groups we can separately consider the risks to each. Institutions within both groups have experienced high growth rates in assets, which may imply greater risks in assessing credit quality and the potential for acquiring unproven business (see table 4.1). However, institutions in the non-issuers group also have certain characteristics that may mitigate risk. For example, non-issuers have asset allocations more heavily weighted to relatively less risky categories of housing and consumer finance. In contrast, the issuers group appears to be more exposed to property investments, which potentially carry higher levels of risk. Furthermore, the households who are funding the issuers group may not always be well-placed to identify and hence manage their risk exposures. In order to better focus on risks to 'issuers' we next look at three subgroups within this category: savings institutions, consumer, and property lending finance companies.

Table 4.1
Non-bank financial institutions' average annual growth rates in total assets since 2001

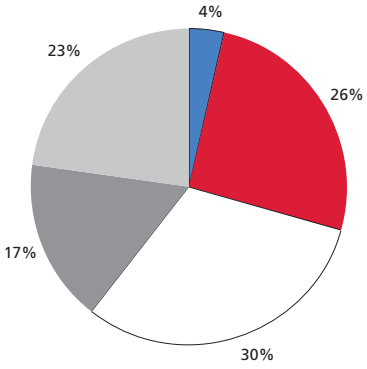
Issuers group	18
Savings institutions	14
Finance companies	20
Finance companies with more than a third of loans for consumer goods	16
Finance companies with more than a third of loans in property	25
Non-issuers group	20

Source: RBNZ – NBFI SSR and annual NBFI surveys.

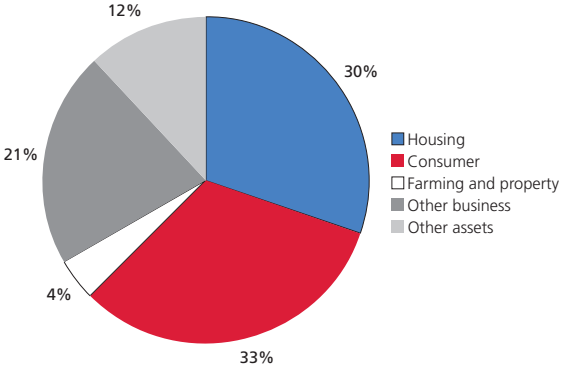
Savings institutions: building societies, PSIS, and credit unions

Since the surge in household borrowing began in 2001, savings institutions have raised their market share, with total assets reaching over $5 billion at December 2005. These institutions have been confronted with competitive pressure from bank residential mortgage fixed loan pricing, and with deposit rates rising. However, in the 2005 financial year they were able to maintain their 2004 ratio of net after tax profit to average total assets. In aggregate this was very close to the 'benchmark' 1 per cent rate often regarded as a sound long-run average.[5]

Figure 4.11
Asset allocation of 'issuers' group



Asset allocation of 'non-issuers' group

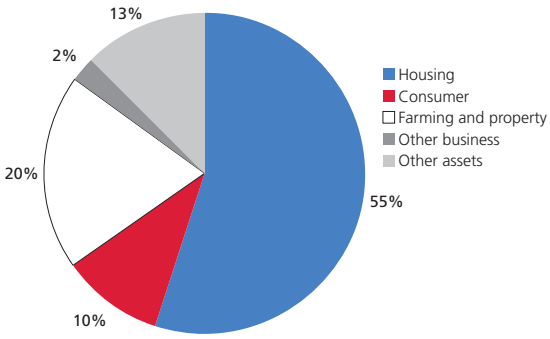


Source: RBNZ – NBFI SSR and annual NBFI surveys.

Savings institutions are relatively liquid (credit unions especially), with the majority of loans secured over residential property.[6] These features reflect favourably on the ability of savings institutions to withstand the downturn in credit quality and increased profit pressure that is expected to occur during a slower growth period.

Consumer finance companies

Figure 4.12
Asset allocation for savings institutions



Source: RBNZ – NBFI SSR and annual NBFI surveys.

At December 2005 there were nine larger finance company issuers where consumer loans represented over a third of loan portfolios.[7] Car loans represented 45 per cent ($1 billion) of the loan portfolio for these nine companies, and for four finance companies car loans exceeded half the loan book.

Finance companies with good balance sheet strength and a track record in sound consumer finance lending can be expected to cope with a weakening car and general retail goods market. However, several consumer finance companies have doubled or tripled the size of their loan book over the past two years. The speed of this growth will have put pressure on management to assess risks adequately.

Significantly higher loan losses have recently been reported by some companies which have experienced fast growth, one of which was recently put into receivership. In contrast, larger and longer-established competitors have grown much more slowly. In order to maintain soundness, it is important for investors to continually be aware of factors that impact on their risk-adjusted returns.

Property lending finance companies

Over the past five or so years, residential property development has been reflected strongly in the business of finance companies. Strong property loan growth began in the late 1990s for apartment development, multi-dwelling 'terrace' housing, and building booms in holiday and tourism locations. From 2001 residential dwelling construction and dwelling values also began to rise sharply, creating widespread loan demand for finance and an environment in which 'specialist' property lending finance companies grew quickly.

At December 2005 the finance companies surveyed quarterly by the Bank had about $3 billion lent for property in New Zealand. This amount increases to almost $3.5 billion if lending in Australia is included. Most of this total amount can be accounted for by a smaller group of 'property specialists' (who have more than one third of their loan portfolios in property lending), and who fund almost entirely from the household sector (more than 95 per cent).[8]

The total assets of these property specialists have grown very quickly (see table 4.1). In the fifteen months to March 2006, the medium and smaller size property specialists' property portfolios grew by more than a third. In contrast, the three largest property finance companies' domestic property loan portfolios increased by around 10 per cent. While this disparity in growth rates doubtless relates to the particular property market focus of different companies, it raises questions about some companies' credit risk assessment and whether they have adequately priced their property lending risk.

Over 2005, however, a few property finance companies have more than doubled their lending to the Australian property market to several hundred million dollars.
New Zealand households have funded this lending at a late

5 See KPMG "Savings Institutions 2005–2006 Early Release" and the "Report of the Registrar of Friendly Societies and Credit Unions" for the year ended 30 June 2005.

6 On average over 60 per cent of loans are first mortgages over residential property, ranging from 70 per cent to 95 per cent in the case of the four large savings institutions with a household lending focus.

7 By 'larger', we mean companies with assets over $100 million.

8 The smaller group of 'property specialists' accounts for over $2.5 billion of the $3.5 billion total.

stage in the Australian property cycle. Evidence has been emerging of considerable stress in the apartment markets of some large Australian cities, and New Zealand-based finance company lenders have not gone unscathed.

The latest audited accounts available for these companies are for the March or June 2005 year. However, strong half year profit reports and the low levels of bad and doubtful debts reported to date in this sector cannot be taken as unqualified indicators of its current state of health. While no untoward levels of bad and doubtful debt disclosures are anticipated in the 2006 year, given the stage in the property cycle a rise from 2005 is to be expected.

Summary

Many finance companies have achieved their current scale during recent years of very strong loan demand. Management teams in these companies may not have experience conducting finance company business through a slowdown. Given the recent history of very rapid credit growth for many finance companies, there is the potential for failures to occur, as demonstrated by the recent collapse of a small consumer finance company. However, isolated and individual failures are unlikely to represent a risk to the overall stability of the financial system.

While there are indications that NBFIs are adequately capitalised and managed, the major area of uncertainty in the sector is the adequacy of pricing and management of credit risks – especially in property lending. Property lending losses typically take much longer to emerge than consumer credit problems and can be more severe. Ex post assessment of how well the sector as a whole has priced and managed its property loan credit risk will largely depend on how sharp an adjustment occurs this year and next in the residential property market.

Several finance companies are listed on the stock exchange, with its enhanced disclosure requirements providing further information about the industry. We note also that over the past six months there has been some consolidation among finance companies. This development may signal the emergence of a slowing, more competitive market, and to a degree mitigate risk. We would additionally expect investors to get sound and impartial advice about the safety of their investments. Ratings from reputable agencies can have a useful role here, if well understood and founded.

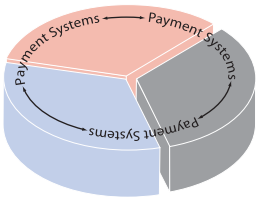
Recent research shows that the rate of interest paid for debentures and deposits by the more risky finance companies is higher. This suggests that the prospectus disclosure regime aids investors in the identification of risk (Hess and Feng, 2005).[9] Overall, however, as interest rates have risen over the past year, the spread between the most competitive bank and finance company deposit rates (one and two years respectively) has narrowed. This appears to be due to slowing growth in credit demand experienced by finance companies.

In New Zealand there remain a number of desirable improvements in the regulatory framework, especially with regard to timeliness and currency of information available. A Government review of regulation in this area is under way; see Chapter 6, section 2.

[9] Hess and Feng (2005) "Is there market discipline for New Zealand NBFIs?" Forthcoming in *Journal of International Financial Markets, Institutions & Money*.

5 New Zealand's payment systems

In previous Financial Stability Reports *we have discussed developments in New Zealand's wholesale ('high-value') payment system. In this chapter we look mainly at the retail payment system and comment on work being done by the industry and the Reserve Bank in relation to failure-to-settle arrangements, access, and governance.*[1]



As noted in our May 2005 *Financial Stability Report*, over recent years there has been a significant reduction in risk associated with New Zealand's high-value payment and settlement systems, to the point where the most significant risks have been eliminated from those systems. Real-time gross settlement (RTGS) and delivery-versus-payment (DvP) arrangements have now been features of the high-value systems for funds and securities transfers for some time. More recently, payment-versus-payment (PvP) arrangements have been introduced for the settlement of foreign exchange transactions involving the New Zealand dollar (NZD), through the introduction of NZD settlement into the CLS system[2] in December 2004. Around 70 per cent of all NZD foreign exchange transactions are now settled via CLS.

RTGS, DvP, and PvP are all means of reducing risks to participants generated by payment and settlement processes. We note with interest that the benefits of PvP were demonstrated recently when Refco, a US financial institution, failed. During this episode, the PvP arrangements within the CLS system performed as expected in ensuring that any unsettled trade with Refco was only completed if both sides of the trade could be paid.

Risk reduction has also been a focus in the (mainly retail) payment systems that use deferred net settlement. In such systems the identification, allocation and, as appropriate, the management of settlement risk is very important because deferring settlement means settlement risk is present for longer than would otherwise be the case (the longer the settlement cycle, the longer the risk is present). In addition, deferred net settlement may generate credit risk between the participant banks (eg, through certain means of netting, such as payments netting).

The soundness and efficiency of the retail payment system is obviously important to direct participants in the payment system. It is also important to the wider economy. A large number of businesses and individuals, who collectively make millions of retail payments per day, rely on the soundness of the retail payment system. Efficiency in the retail payment system also matters because transaction costs are multiplied across those millions of transactions. A sound and efficient retail payment system is thus a key part of the financial infrastructure in New Zealand, enabling and supporting overall economic activity and growth.

The ISL Switch[3] is a focal point for the New Zealand retail payment system. It is the single point of interchange for all cheques, direct credits, direct debits, automatic payments, ATM transactions, and instructions by telephone banking and internet banking where the payer and the payee use different banks. The ISL Switch is therefore far-reaching in terms of the number of end users who rely on it and who are affected by it. Figure 5.1 overleaf provides an overview of the interchange and settlement of retail payments that pass through the ISL Switch.

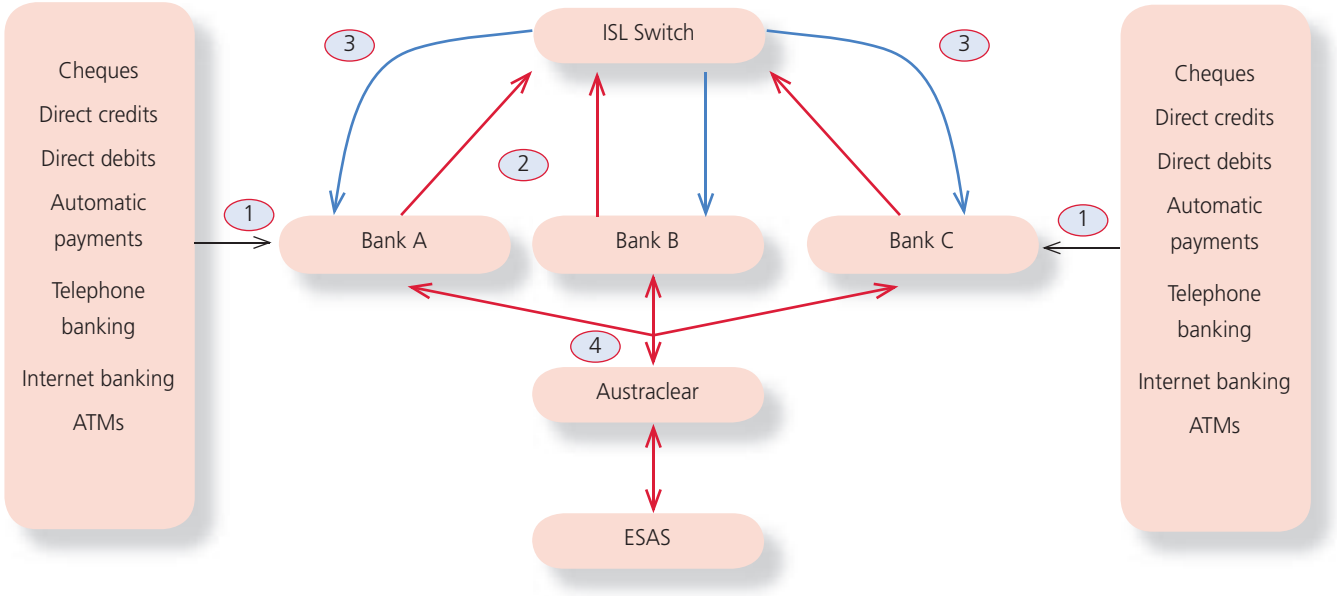
1 The Reserve Bank's payment system oversight role is more generally explained in our "Statement of Principles: Payment System Oversight (PS1)", released in August 2005. See http://www.rbnz.govt.nz/finstab/payment/1911038.html.

2 For a description of the CLS system see Box 2 at page 36 in our October 2004 *Financial Stability Report*.

3 The ISL Switch is operated by Interchange and Settlement Limited (ISL), a company owned by eight banks.

Figure 5.1

Transactions passing through the ISL Switch



Key:

1 Banks collect customer payment instructions throughout the day.

2 Each bank sends interchange files to the ISL Switch throughout the day. These files contain payment instructions affecting each bank's own customers and also the customers of other banks.

3 The ISL Switch sends interchange files back to each bank with the payment instructions affecting the recipient bank's customers, and calculates the net settlement obligation between each pair of banks arising from those banks' customers' instructions.

4 The banks' payment obligations arising from their customers' instructions are settled across ESAS (New Zealand's Exchange Settlement Account System) at the end of the banking day, by the banks sending instructions to the Reserve Bank via the Austraclear system. Settlement occurs on a bilateral net basis – that is, one net payment between each pair of banks at the end of the day settles all of that day's individual obligations for those two banks.

The rules that govern the processing of payments through the ISL Switch have been developed by the New Zealand Bankers' Association (NZBA) and its members over a number of years and are spread through a number of NZBA documents: the Interchange and Settlement Rules, the Interchange and Settlement Code, and the NZBA Constitution. Currently, only NZBA members can directly participate in the ISL Switch, though current market practice is that 'agency' interchange and settlement services for retail payments are provided by members to non-members on a commercial basis, which allows non-bank entities to participate indirectly.

The Reserve Bank is actively engaged with the NZBA on two NZBA-led projects to address some of the soundness and efficiency issues that exist currently in relation to the processing of retail payments through the ISL Switch – the Failure to Settle Project and the Access and Governance Project.

The Failure to Settle Project

Consistent with the Reserve Bank's Statement of Principles: Payment System Oversight, a broad objective of the Reserve Bank is that payment systems should not generate excessive levels of risk, and that any risks that are generated are appropriately identified, allocated, and managed. An important achievement of the NZBA's Failure to Settle Project in this respect was the adoption last year of revised Interchange and Settlement Rules. Under the revised Rules, participants are better placed to manage the risks they face in using the ISL Switch because the risks have been more clearly identified and allocated. The revised Rules provide more certainty and clarity than was previously the case regarding:

- the point at which interbank credit exposures arise in the retail payment system as a result of customer transactions;

- the legal effectiveness of the netting arrangements in the Rules;
- the point at which payment instructions become unconditional and irrevocable between banks; and
- the point at which banks are obliged to process customer transactions (until that point, customers bear the settlement risk).

As part of the Failure to Settle Project, the NZBA has also been reviewing interchange and settlement processes to identify how settlement risks might be reduced in the retail payment system. Given the risk issues noted above in relation to deferred settlement, the Reserve Bank's engagement with the NZBA in this area is focused on the scope for increasing the frequency of settlement (ie. from one to several settlement cycles per day), which would reduce the length of time settlement risk persists, and on the possible mechanisms to control how much settlement risk can build up in a given settlement cycle.

In a related vein, it is currently the case that fairly high-value transactions are routinely settled via the retail payment system. This is an ongoing issue for the Reserve Bank. It is generally better from a systemic point of view that high-value transactions be settled in real time, via the high-value systems that are designed for that purpose, than via the deferred settlement retail system. As part of the Failure to Settle Project, the NZBA's members agreed in principle that interbank transactions in excess of $1 million should be processed through the RTGS systems. Although this has to some extent reduced the gross values going through the retail system, a significant number of high-value customer transactions continue to be processed through the retail system, which raises concerns about customer and bank exposures.

As noted above, settling transactions by deferred net settlement rather than by RTGS prolongs settlement risk. Settling high-value transactions in particular by deferred net settlement can in addition lead to greater volatility or less predictability of the banks' net settlement exposures. The reason for the continued use of the retail system for high-value payments appears to be that it is cheaper for the customer in terms of transaction costs, and cheaper for the banks in terms of the liquidity needed to support settlement obligations. Furthermore, participants sending high-value transactions through the retail system increases the incentive on all other participants to do likewise, because a participant putting through high-value transactions increases the likelihood it will be a net payer in that settlement cycle (noting that it is the net payee, not the net payer, who bears the interbank settlement risk).

It is not clear whether bank customers are aware that they bear settlement risk for longer through the deferred net settlement of their payments instructions in the retail system (as opposed to the settlement of those payments through RTGS systems). Even if they are aware of the risks, bank customers are likely to be poorly positioned to effectively manage that prolonged risk, relative to the banks.

Although settlement risk is an issue for all types of payment instruction, it is more acute for high-value transactions. Also, practically speaking, RTGS processing is probably an option for high-value transactions only, for cost reasons. Overall, the Reserve Bank sees net benefits in either preventing high-value transactions from going through the retail payment system, or by the system or direct participants more actively managing settlement risk for high-value transactions in the retail system (noting that more active management should result in costs to customers for processing high-value transactions through the retail system better reflecting the overall cost to the system of such processing).

Finally, a matter under current development with the NZBA in regard to failure-to-settle is the interaction between the Rules governing interchange and settlement of retail payments, and the Reserve Bank's responsibilities and objectives regarding failures of registered banks. One vital element in the containment of the systemic damage that could arise from the failure of a registered bank is the ability for a bank in statutory management to have immediate and continued access to the retail payment system. The Reserve Bank has been actively working with the NZBA to bring about changes to the Interchange and Settlement Rules to expressly accommodate the Reserve Bank's failure management responsibilities and objectives.[4]

The Access and Governance Project

As discussed in the Statement of Principles: Payment System Oversight, in assessing soundness and efficiency in New Zealand's payment systems the Reserve Bank is guided by the Core Principles for Systemically Important Payment Systems promulgated by the Committee on Payment and Settlement Systems (CPSS).[5] The Core Principles include guidance on access and governance. Core Principle IX states that payment systems should have objective and publicly disclosed criteria for participation, which permit fair and open access. Core Principle X states that a payment system's governance arrangements should be effective, accountable, and transparent. The Reserve Bank believes that observance of Core Principles IX and X will go a long way to facilitating market-led solutions to a range of soundness and efficiency issues. Appropriate access and governance arrangements are particularly relevant to payment system efficiency, as they contribute to the contestability of the markets for payment services, and can help to address information asymmetries and externalities. The Reserve Bank is actively engaged with the NZBA in relation to the NZBA's Access and Governance Project to promote appropriate access and governance arrangements.

Addressing access issues to ensure that retail payments arrangements do not unduly inhibit open access has not been entirely straightforward. Engagement with the NZBA has suggested that there are interdependencies with more complex issues of governance, and issues associated with the relevant rules and codes being spread through a number of NZBA documents, as noted earlier. Also, existing participants have been cautious about more open access because it may result in participants bearing settlement risk in relation to a greater range of institutions. Settlement risk is currently being addressed, in isolation, in the Failure to Settle Project, discussed earlier in this chapter. If risk management mechanisms are also considered it may make it easier to address access issues in their own right.

4 Under the Reserve Bank's outsourcing policy for registered banks, a large bank will need to demonstrate that in the event of failure, the bank's clearing and settlement obligations due on a day can be met on that day, and the bank's customers can be given access to payments facilities on the day following failure and on any subsequent days. Access to retail payment systems will be important to achieving that outcome. Chapter 6 of this *Financial Stability Report* discusses the outsourcing policy.

5 The CPSS serves as a forum for the central banks of the Group of Ten countries (G10) to monitor and analyse developments in domestic payment, settlement, and clearing systems, as well as in cross-border and multicurrency settlement schemes. Increasingly, non-G10 central banks are also participating in the work of the CPSS. The CPSS Core Principles for systemically important payment systems are a comprehensive statement of soundness and efficiency objectives for payment systems. The Core Principles are set out and extensively discussed in CPSS "Core principles for systemically important payment systems", CPSS Publications No. 43 (January 2001), available on the website of the Bank for International Settlements, www.bis.org/publ/cpss43.htm.

6 Recent developments in financial regulation

A common theme in the wide-ranging recent developments in New Zealand's financial regulation can be found in the promotion of soundness and efficiency in New Zealand's financial system. Within the realm of banking regulation, a policy on outsourcing by banks has been finalised and is in the implementation phase, and implementation of the 'Basel II' Framework for bank capital adequacy is proceeding also.

Reviews of the prudential regulation of the non-bank financial sector, and of New Zealand's arrangements for anti-money laundering and combating the financing of terrorism, are also continuing, with further public consultation intended over coming months.

Work has begun towards amending New Zealand and Australian law to enable the Reserve Bank and the Australian Prudential Regulation Authority to support each other in the exercise of their prudential responsibilities.

6.1 Prudential regulation of banks

Outsourcing

Outsourcing occurs when a firm uses an outside provider – either independent or a related party – to perform functions that the firm could otherwise perform itself. In New Zealand, many banks outsource to related parties overseas. A prevalent form of outsourcing by the large banks in New Zealand is arrangements for parent banks in Australia to perform a range of functions on behalf of the New Zealand bank.

In October 2005 the Bank issued for comment a draft policy on outsourcing by banks. Having taken account of submissions on that draft, the Bank finalised the policy in January and is now implementing the policy. The outsourcing policy seeks to limit the damage to the financial system that could arise if a large bank were unable to perform certain core functions because the bank or its service provider has failed.

The functions that are of most interest under the policy are those needed for a bank to achieve a set of outcomes required by the policy. Those required outcomes are the continued management of financial risk and provision of payments services to the economy. Banks defined as 'large' under the policy[1] must have sufficient control over those functions that the outcomes can be achieved both under normal business conditions, and in the event that the bank or a service provider to the bank should experience stress or should fail. To support that requirement, the policy also requires that those managing and governing the bank do not have any divided accountabilities that might undermine the bank's ability to achieve the required outcomes. The policy's requirements will be enforced through banks' conditions of registration.

The Reserve Bank is now engaging with large banks individually to discuss any compliance issues that might exist regarding their current arrangements and, where there are issues, how compliance will be achieved. The affected banks have been asked to identify the areas where their existing arrangements might not be consistent with the policy, and to develop plans for modifying their arrangements to comply with the requirements. A given bank's existing arrangements and its compliance plan, if any, will likely be specific to that bank, reflecting its particular business strategy.

[1] The policy defines a large bank as one whose New Zealand liabilities, net of amounts due to related parties, exceed $10 billion. At present, the large banks in New Zealand are ANZ National, ASB, BNZ and Westpac.

The compliance discussions with banks will continue over coming months. For banks with compliance gaps to close, the essential elements of a bank's compliance plan will be built into transitional conditions of registration for that bank. Once the bank has achieved compliance, its transitional conditions of registration will be replaced by generic conditions of registration requiring the bank's ongoing ability to comply with the policy.

Basel II

Banks hold capital as a buffer against unexpected losses and as a basis for medium-term growth of the business. From the point of view of the banking system overall, adequate capital is essential for the system to be able to absorb losses arising from a wide range of adverse events, and thus to be able to continue to circulate liquidity and provide funding for economic activity throughout the business cycle. Bank capital adequacy is thus a cornerstone of prudential regulation directed towards the promotion of a sound and efficient financial system and, ultimately, growth in the economy.

Although banks would hold capital regardless of any regulatory requirement to do so, most banking regulators around the world specify minimum levels of capital that banks must hold under normal circumstances. In addition, regulators usually specify the minimum quality of capital that should be held, where quality is measured in terms of the capital instrument's loss-absorption capacity.

The Reserve Bank, along with other regulators around the world, has been working for some time towards implementing a new framework for bank capital adequacy. The new framework, commonly known as 'Basel II', seeks to better align a bank's minimum capital requirements with the risks that the bank is taking. Basel II also envisages that regulators will allow banks optionally to use their own internal statistical models and processes (known as 'internal ratings based' (IRB) approaches) to calculate their minimum capital requirements – provided that the models and processes meet certain minimum quality requirements.[2]

In New Zealand, banks will not be required to use IRB approaches, and those that do not will use a simpler approach, called the Standardised approach, which links minimum capital requirements to types of exposure and external credit ratings.

Regulatory capital requirements for banks incorporated in New Zealand will be calculated under Basel II from January 2008. Because most banks in New Zealand are part of international banking groups, the Reserve Bank will be communicating and coordinating the New Zealand implementation closely with relevant foreign supervisors. Engagement with the Australian Prudential Regulation Authority (APRA) will be particularly important, because of the significant place of banks in New Zealand's banking system (including the four major banks) owned by Australian parent banks.

Banks applying to be 'accredited' to use an IRB approach to calculate minimum capital requirements will need to submit their applications to the Reserve Bank by July this year. A key focus for the Reserve Bank in assessing accreditation applications will be on how a bank's proposed IRB approach addresses the bank's exposure to losses on housing loans, because housing loans make up the largest part of banks' exposures in New Zealand. New Zealand banks are, through the extension of housing loans, potentially vulnerable to fluctuations in household income, interest rates, and the level of household debt. With the economy's strong performance over recent years, there has not been stress due to these factors on the ability of households to service their mortgages, hence the experience of default on housing loans has been minimal. However, as noted above, the focus of capital adequacy is not on favourable or benign economic conditions, but on unexpected loss associated with severe downturns in the economy's performance – which may be even more debilitating if the downturn leads borrowers' risks to correlate more closely, undermining the diversification strategies rightfully adopted by banks to manage risk in normal times. Experience both in New Zealand and overseas shows that a downturn in the housing market can cause significant losses to banks and to the financial system as a whole.

[2] The Basel II framework has been promoted internationally by the Basel Committee on Banking Supervision (BCBS), a committee of senior banking supervisors from the G10 countries. See "Basel II: A New Capital Framework", Reserve Bank of New Zealand *Bulletin*, September 2005, Vol 68 No 3, for an more detailed explanation of Basel II and the Reserve Bank's approach to implementing it.

As well as making minimum capital requirements more sensitive to the risk of unexpected loss, Basel II also includes the principle of sharpening the focus of engagement between supervisors and banks on ensuring that a bank's capital management adequately accounts for the risks of unexpected loss. The quality of a bank's internal capital management processes will thus be a key part of the assessment for a bank wishing to be accredited to use an IRB approach. A bank that is unable to satisfy the Reserve Bank that its internal models and processes are of adequate quality will not be accredited and will be required to use the Standardised approach.

Another major issue in the implementation of Basel II is to ensure that capital adequacy settings should be stable through the business cycle, or at least not exacerbate the cycle through inadvertent promotion of lending growth during upturns and lending contraction during downturns. The Reserve Bank will be working to ensure that any accredited IRB models produce estimates of capital requirements that have been appropriately adjusted for the effects of the business cycle, and that banks' capital requirements overall will be stable through the business cycle at levels exceeding any cyclical peaks in minimum requirements.

In this manner, the Reserve Bank will be working to ensure that the implementation of Basel II in New Zealand fits well with and supports the Reserve Bank's primary function of maintaining price stability through monetary policy.

Bank crisis management preparedness

There are occasions – fortunately quite rare – when a financial institution does get into severe distress or fails. On those occasions, the Bank's role is to respond to the situation in ways that minimise damage to the financial system, preserve public confidence, and facilitate an orderly and efficient resolution of the situation.

In order to ensure that the Bank can perform its crisis management functions effectively, we have undertaken a number of measures to enhance our crisis management capacity. These measures have included:

- holding internal workshops on bank crisis management issues for senior staff;
- developing policies and procedures for dealing with a range of crisis situations; and
- holding a bank crisis simulation exercise, involving senior Bank staff and staff from other relevant agencies, to test the capacity to respond quickly and effectively to a bank distress or failure event.

Further work is planned in this area over 2006 and into 2007. This will include refinements to the Toolkit to make it more suitable for use in a crisis situation, the further development of policies and procedures for dealing with aspects of financial crises, building on existing trans-Tasman arrangements to enhance the ability to respond to a trans-Tasman banking distress situation, and holding another bank crisis simulation in 2007.

6.2 Review of regulation in the non-bank financial sector

Review of financial products and providers

In May 2005, the Government announced a review of the regulation of a range of financial products and their providers. The review is led by the Ministry of Economic Development (MED), with input from the Reserve Bank, The Treasury, the Ministry of Consumer Affairs, and the Securities Commission.[3]

The main financial products and providers covered are:

- non-bank financial institutions;
- insurance;
- superannuation schemes; and
- offerings of securities and collective investment schemes.

As noted in earlier editions of the *Report*, the review group's initial report to the Government concluded that, although regulation of the non-bank financial sector is not fundamentally flawed, there are a number of areas where regulation could be improved. The Government subsequently asked officials to identify options for reform. The Government has also decided in principle that a single agency should prudentially regulate and supervise the financial sector, and

[3] Information about the review can be found on the Ministry of Economic Development's website, at http://www.med.govt.nz/templates/ContentTopicSummary____479.aspx.

that that agency should be the Reserve Bank, though the details of the proposed institutional arrangements are still to be worked through. Advisory groups comprising key industry participants were established in November 2005 to provide input into the process of developing options.

The Government expects to release a public consultation paper on the reform options in July/August 2006. Detailed policy proposals will then be developed, with a view to policy proposals being taken to Cabinet at the end of 2006, and any resulting legislation being implemented in 2008.

6.3 Trans-Tasman regulatory coordination

In February 2005, the Australian Treasurer and New Zealand's Minister of Finance established the Trans-Tasman Council on Banking Supervision (TTC) and directed it, among other things, to report on legislative changes that might be needed to ensure that the Reserve Bank of New Zealand and the Australian Prudential Regulation Authority (APRA) could support each other in the performance of their existing regulatory responsibilities at the least regulatory cost. The mandate for the TTC reflected the strong linkages between the banking and financial systems of New Zealand and Australia.

Responding to the TTC's report, in February 2006 the two Ministers announced their agreement to promote legislative changes that would require the Reserve Bank and APRA to consider the effects of their own regulatory actions on financial system stability in the other country, and where reasonably possible consult each other when taking regulatory actions that might be detrimental to financial system stability in the other country. A statutory manager or administrator would have to inform the local regulator if the statutory manager or administrator felt that its actions might be detrimental to financial system stability in the other country.

The Ministers also agreed that the future work programme of the TTC would address trans-Tasman cooperation on crisis management, the facilitation of effective service provision to customers on both sides of the Tasman, and the sharing of experiences on improving the quality of insurance regulation.

6.4 Anti money-laundering and combating the financing of terrorism

There has been a growing international interest in recent times in preventing financial crimes such as money laundering ('anti-money laundering'; AML) and combating the financing of terrorism (CFT). The Government is working to improve compliance with the Financial Action Task Force (FATF)[4] recommendations on AML/CFT, and the Ministry of Justice is leading a New Zealand inter-agency working group, including the Reserve Bank and the Ministry of Economic Development, that is considering options for improved compliance with the FATF recommendations. The work comprises two main streams:

- a review of the Financial Transactions Reporting Act 1996 (FTRA); and
- a review of the supervisory and monitoring framework that is used to limit these two kinds of financial crime.

The working group is tasked with ensuring that the reforms to New Zealand's AML/CFT framework are consistent with New Zealand's wider framework for financial-sector regulation; that compliance and administration costs are minimised; and that the financial sector is adequately consulted before any legislation is enacted.

An initial round of consultation was conducted in August 2005. This round described amendments to the FTRA that might promote New Zealand's compliance with FATF requirements, and suggested that, to meet FATF recommendations, New Zealand needed a comprehensive framework for monitoring the compliance of financial institutions with AML/CFT standards.

The Ministry of Justice will lead further consultation, and Cabinet will make final decisions towards the end of 2006.

[4] The International Monetary Fund's report, "New Zealand: report on observations of standards and codes, FATF recommendations for anti-money laundering and combating the financing of terrorism (ROSC)" is available at http://www.justice.govt.nz/fatf/index.html. The report evaluates New Zealand's situation against the FATF's recommendations on anti-money laundering measures and measures for combating the financing of terrorism.

7 Towards a framework for promoting financial stability

In promoting and making assessments of financial stability, the Reserve Bank does not have a single quantitative objective – unlike, say, for monetary policy and the Bank's inflation target. Instead, the Bank draws on a variety of information, practices, and ongoing research to make its assessments. In particular, the Bank conducts regular surveillance of financial risks, and reports on its assessments in the Financial Stability Report.

This special chapter outlines some of the broad concepts that the Financial Stability Report *draws on in order to carry out surveillance of financial stability. This chapter follows a recent Reserve Bank* Bulletin *article and associated speech, which outlined a conceptual framework for guiding the Bank's policy actions in the promotion of financial stability.*[1]

The financial system

The financial system enables the vast majority of economic exchange to occur – both multilateral and multi-period – and plays a pivotal role in the efficient allocation of economic resources and risk. The financial system comprises three interconnected components:

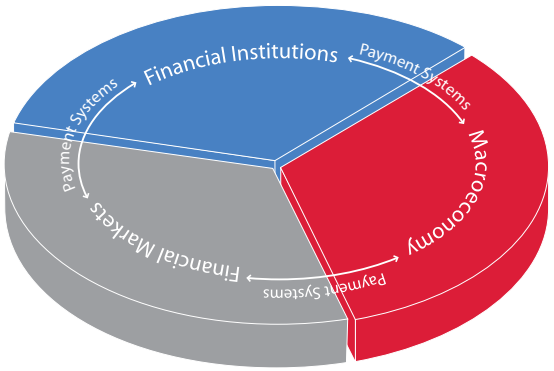
- financial markets in which financial contracts are entered into or traded directly between buyers and sellers (or borrowers and lenders);
- financial institutions which intermediate between borrowers and lenders (including the central bank) and provide financial services; and
- payments systems which allow financial transactions within markets and with institutions to be settled.

If any one of the components of the financial system is impaired then the system can become unstable and will not operate to allocate resources efficiently, imposing potentially significant costs and risk.

Efficiency and stability

The efficiency of the financial system relates to both its role in allocating risk and resources throughout the economy (ie, allocative efficiency), as well as the economic costs of doing so (ie, productive and dynamic efficiency). In general terms, if the financial system is efficient then it is also stable.

Figure 7.1
The financial system



We view a stable financial system as one that has the resilience to continue to efficiently provide financial services in a plausible range of circumstances. That is, a plausible range of financial and economic loss should be able to be absorbed by the system and its users without major disruption. The financial system could be considered unstable when, for example, a material number of users

[1] Hunter, Orr and White (2006), "Towards a framework for promoting financial stability" Reserve Bank of New Zealand *Bulletin* Vol 69 no 1, http://www.rbnz.govt.nz/research/bulletin/2002_2006/mar2006.html, and Orr (2006) "Towards a framework for promoting financial stability", Speech presented to The Institution of Professional Engineers New Zealand, March 22, 2006, by Adrian Orr, Deputy Governor Reserve Bank of New Zealand, http://www.rbnz.govt.nz/speeches/

incur significant losses from exposures to financial system risk that they could not have been expected to be aware of or manage.

The preconditions for financial system stability could thus be defined as existing when all financial system risks are adequately identified, priced, allocated, and managed. These preconditions have microeconomic underpinnings relating to the optimal level of production and allocation of resources (and risk) over time.

We summarise the main types of financial system risk as:

Credit risk: The risk that contracts represented as payable as a fixed sum of money in the future will not be paid in full on maturity.

Market risk: The potential for the market value of an asset to fluctuate because of, for example, changed credit risk assessment, changed assessments of the future income flow from the asset, or a change in the rate of exchange between currencies.

Liquidity risk: A loss that might be incurred as the result of a forced sale.

Operational risk: Economic loss caused by a process breakdown (eg, computer failure, human error, and fraud).

These financial system risks relate to all components of the financial system as listed above – ie, markets, institutions, and payments systems.

Instability and volatility

Even if the preconditions for financial stability are in place, volatility and sharp adjustments in financial prices (and/or quantities) can still occur. These adjustments are often an important part of the adjustment process in a sound and stable system. For example, short-term volatility is often caused by the 'price discovery' or 'quantity adjustment' process that occurs as economic circumstances change. Such volatility is, however, less likely to lead to financial instability or necessitate some form of non-market or crisis intervention if the preconditions for financial stability are in place.

Furthermore, financial crises can and will still occur. Financial crises are caused by a combination of unlikely events where the correlations were not obvious ex ante. Hence financial crisis management capabilities must still be in place, including capital buffers and pre-positioned loss allocation mechanisms, and/or failure resolution mechanisms.

Financial system instability and market failure

A stable and efficient functioning of the financial system is conditional on assumptions about the economic environment which do not always hold. These assumptions include the existence of markets that can allocate all forms of financial risk; clear property rights and ownership of both financial risk and reward; and investors having adequate information with which they make their financial decisions. One could argue, for example, in a perfect market with full information, adequately 'priced' risk would also imply adequately identified, allocated, and managed risk (in which case adequate pricing alone would be the only relevant precondition for financial stability).

In particular, the financial system is prone to two main types of structural market failure:

- asymmetric information where, for example, the complexity of the lending proposition is such that financial intermediation doesn't occur at an efficient price; and
- externalities (or 'free-rider' opportunities), where for example, the risk of a financial transaction is not allocated to either the lender or borrower, leading to excessive risk taking and an inefficient allocation of risk and return.

These market failures can thus lead to situations where financial system risks are not adequately identified by market participants and/or not priced correctly – implying the preconditions for financial stability do not hold. Hence, on balance some form of cost-effective non-market intervention may be necessary to promote financial stability. This can take many forms, ranging from bolstered self and market disciplines (such as disclosure of information and director attestations), through to mandated bank capital reserves and various financial crisis management capabilities within government.

However, the Reserve Bank is acutely aware that just as markets can fail, so can non-market interventions. Excessive intervention can constrain the ability and desire of firms to deliver financial services (ie, reduce productive efficiency), which can ultimately reduce the efficiency of the economy over time. Significant moral hazard problems can also arise, where over-regulation can remove the financial risk from the owner of the asset, institution, or market, or payment system. We also recognise that markets and institutions can and do generate their own solutions to what otherwise would be information asymmetries or market failures (financial intermediaries themselves are a market response to asymmetric information). In addition, there are a number of monitors of financial system stability, including shareholders and their representatives (eg, boards), creditors, rating agencies, and various regulators.

Our experience thus suggests that market-based solutions – sometimes with regulatory prompting and encouragement – can often result in a better-performing financial system. The general principles the Reserve Bank aspires to with our promotion of financial stability activities thus include:

- keeping efficiencies at the centre of our attention;
- utilising the synergies that exist amongst our monetary policy, macro-prudential, supervision, and market operations;
- seeking to utilise market forces as far as possible;
- recognising we have many common interests with supervised institutions;
- using incentive-based techniques as much as feasible; and
- making sure that we maintain high analytical standards in our regulatory designs and activities.

The Reserve Bank's role in promoting financial stability

The Reserve Bank has a number of roles that relate to maintaining financial stability. The overall role of the Reserve Bank can be viewed in terms of promoting the stability of New Zealand's monetary and financial system – comprising the monetary unit of account, and the markets, institutions, and systems that make monetary exchange possible.

These roles evolve from the regular activities of central banking, for example:

- supplying notes and coins (ie, monetary policy aimed at low inflation);
- acting as a banker to the banks and government (ie, prudential policy, bank failure management capacities, and 'lender of last resort');
- using and providing various payments systems (ie, overseeing the payments system and operating some critical infrastructure); and
- maintaining a reserve of foreign currency (ie, crisis management capacity).

In summary, the Reserve Bank has 'preventive', 'corrective' and 'crisis management' legal powers and purposes that are used to promote financial stability. In undertaking these market-intervention roles, the Reserve Bank aims to ensure a cost-effective regulatory balance exists between the self and market disciplines that naturally exist in the economy, and the need for regulatory assistance.

A broad framework the Reserve Bank uses when considering its role in promoting financial stability is outlined in table 7.1, overleaf.

Table 7.1

Framework overview

Financial system	Risks	Identify	Price	Allocate/ Manage	Intervention capacities	Actions
		The preconditions for financial stability exist when risks are adequately identified, allocated, priced, and managed				
Markets Institutions Payment systems	Liquidity Credit Operational Market	Identify relevant risks and who is bearing them.	Assess market conditions for pricing and allocating risks. Assess if market failure prevalent and its causes. Assess significance of market failure to financial stability.	Form view of whether risks are allocated to those best able to manage them. Form view of whether market intervention is necessary and in what form.	Assess RB Act (legal) RB capital and balance sheet (financial) RB expertise and comparative advantage (operational)	Prevention Correction Crisis management

Graphical appendix[1,2]

International

Figure A1a

Real GDP growth

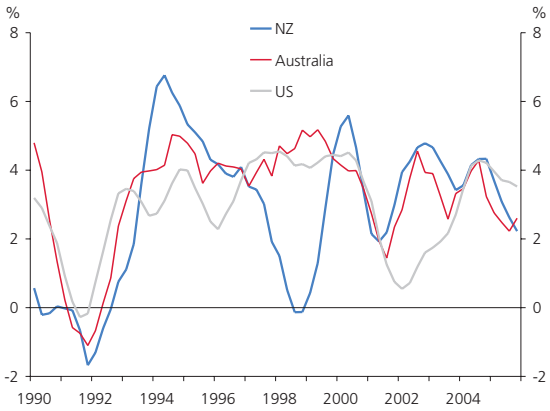


Figure A1b

Real GDP growth

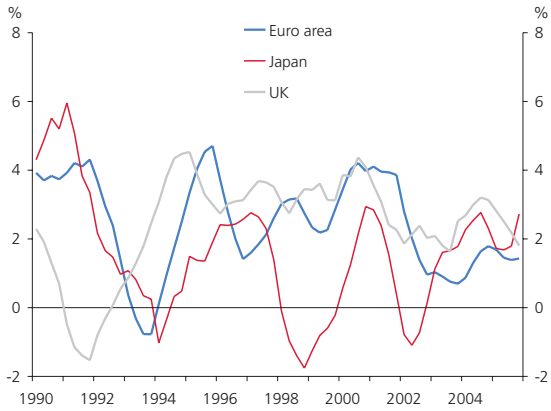


Figure A2a

Current account balance

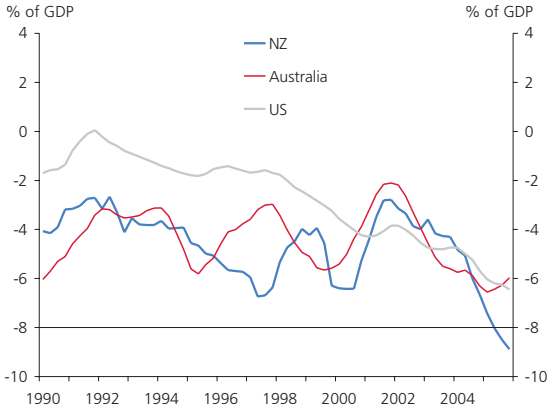


Figure A2b

Current account balance

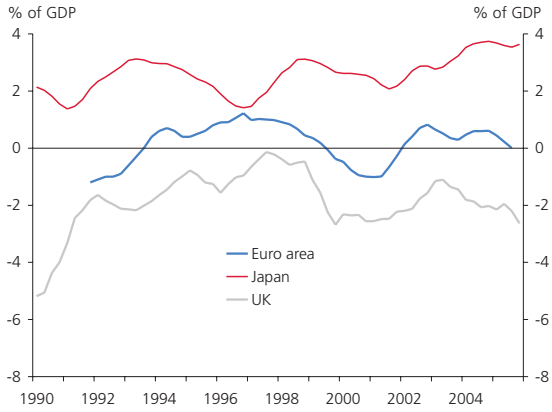


Figure A3

Trade-weighted exchange rate indices

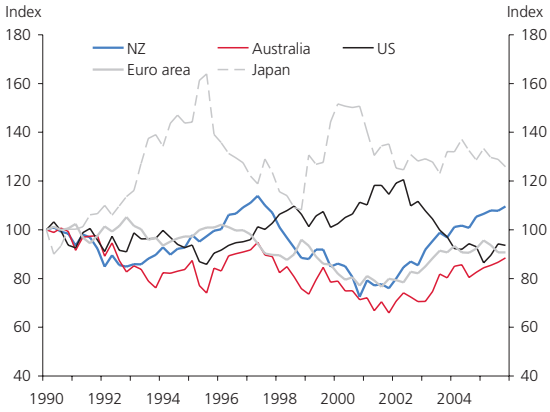
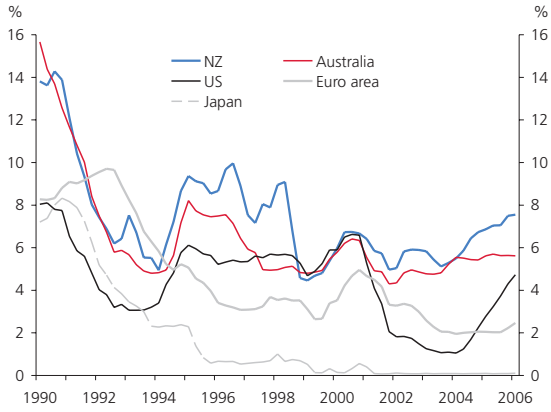


Figure A4

Short-term interest rates



1 The data contained in this Appendix were finalised on 21 April 2006.

2 Definitions and sources are listed on pages 53–54.

Asset prices

Figure A5

Equity market indices

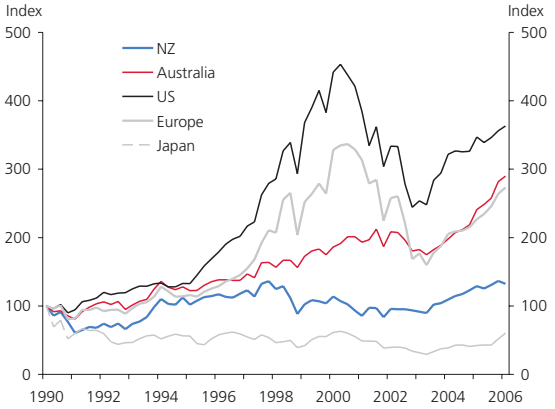
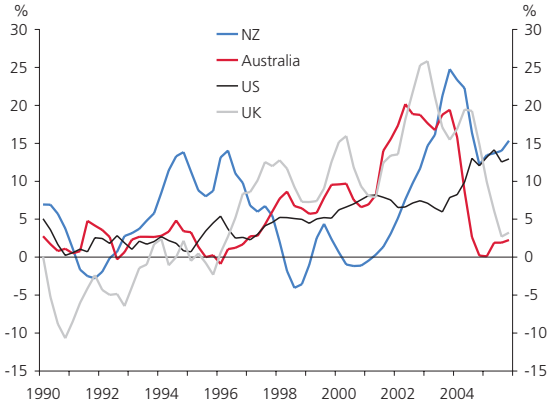


Figure A6

House price inflation



New Zealand

Figure A7

Household debt and servicing costs

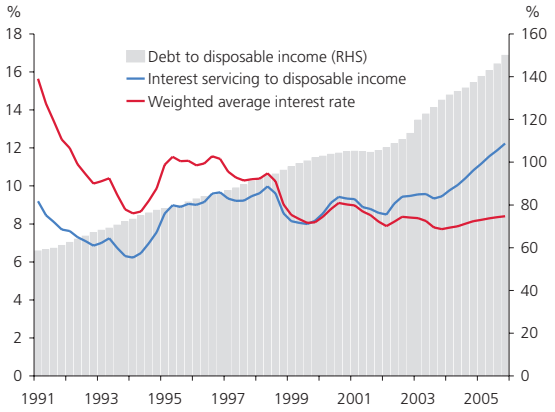


Figure A8

Household assets and liabilities

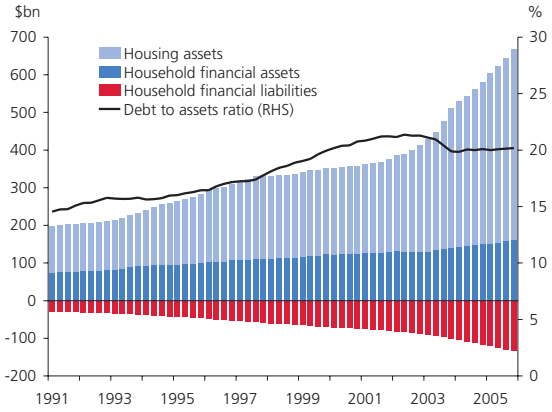


Figure A9

Property price inflation

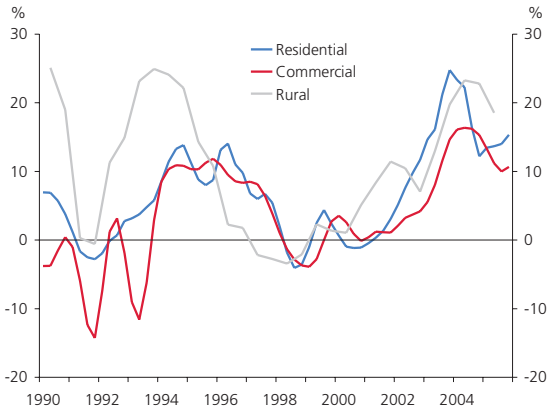
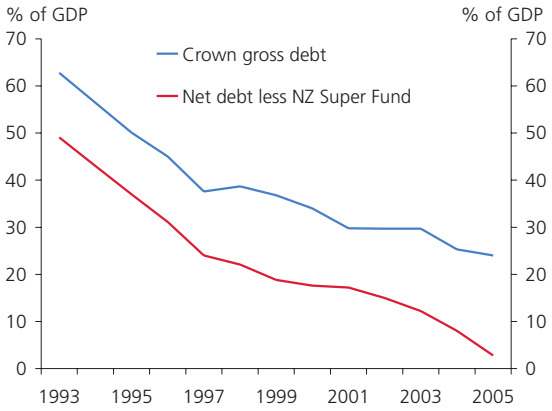


Figure A10

Government debt



New Zealand financial markets

Figure A11

Government bonds on issue and turnover

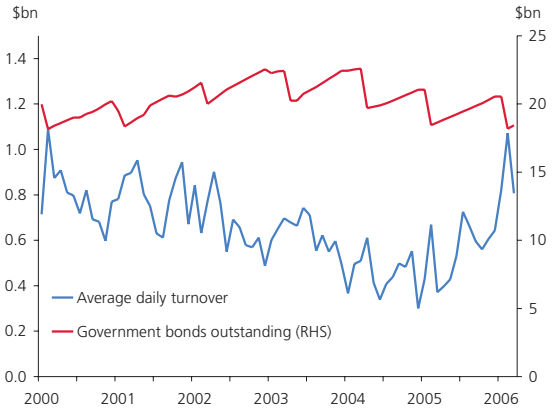


Figure A12

Ten-year government bond spreads

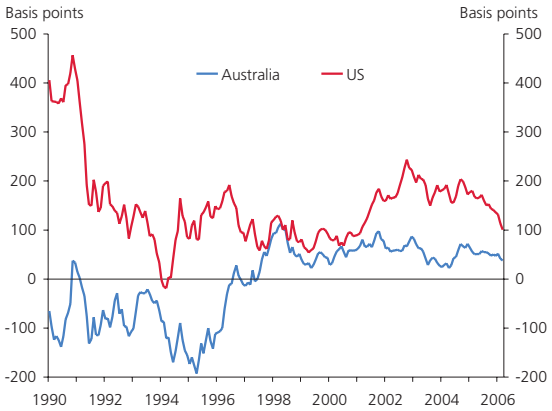


Figure A13

NZD/USD turnover in domestic markets

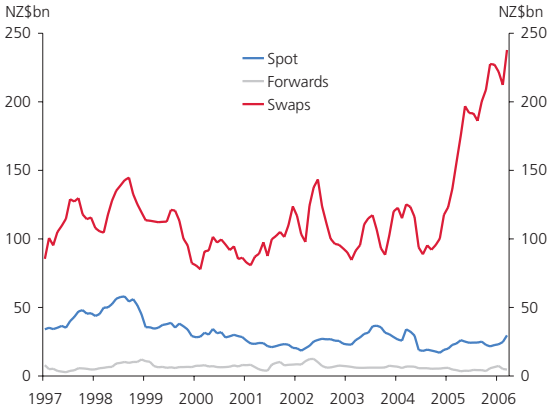


Figure A14

NZD/USD and implied volatility

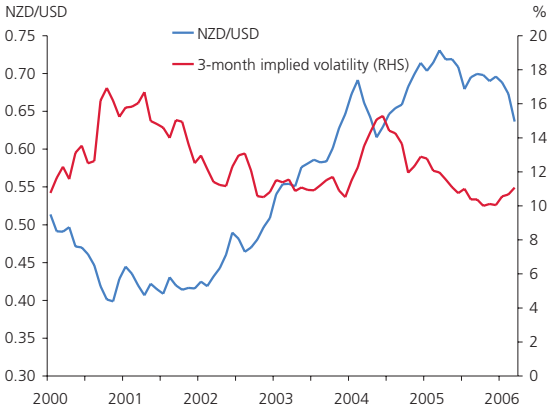


Figure A15

Equity market capitalisation to GDP

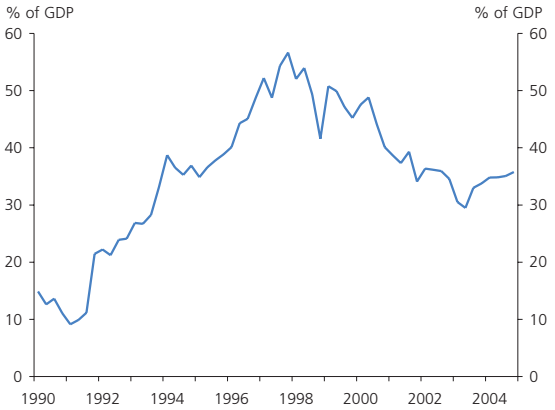
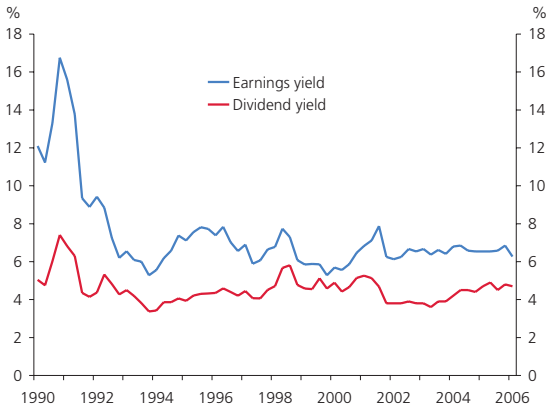


Figure A16

Earnings and dividend yields



New Zealand financial system assets and liabilities

Table A1

Financial system liabilities

$billion	1990	1995	2000	2001	2002	2003	2004	2005
Banks								
Households	28	37	41	45	49	52	56	61
Other residents	25	30	55	59	63	72	74	84
Non-residents	11	22	56	64	64	64	77	85
Other liabilities	14	14	28	22	29	34	35	24
Total	78	103	180	190	205	221	242	254
Other deposit-taking institutions								
Households	2	3	5	6	7	8	10	12
Other residents	3	2	3	4	4	5	6	7
Other funding and liabilities	1	1	2	3	4	6	6	7
Total	6	6	10	12	15	19	22	26
Funds under management								
Household assets	25	41	56	56	50	52	53	56
Other sector assets	2	1	4	4	5	6	7	8
Total	27	42	60	60	55	58	60	64
Total financial system liabilities	111	151	250	262	275	298	324	344

As at 31 December. Source: RBNZ surveys and registered bank disclosure statements.

Note: Figures for other deposit-taking institutions incorporate the value of related off balance sheet assets (securitised assets). Counterpart funding is included in 'other residents'. For these institutions, securitised assets represent over 15% of total assets in 2004 and 2005. This treatment applies at all relevant dates and has resulted in revisions from 2000. For registered banks, securitised assets represent less than 2% of total assets and figures remain those reported in GDS under current accounting standards.

Table A2

Financial system assets

$billion	1990	1995	2000	2001	2002	2003	2004	2005
Banks								
Households	20	42	66	71	77	89	103	119
Other residents	36	45	72	77	78	79	90	102
General government	8	6	7	6	8	8	6	6
Non-residents	2	2	17	24	29	27	27	12
Other assets	12	8	18	12	13	18	16	15
Total	78	103	180	190	205	221	242	254
Other deposit-taking institutions								
Households	2	3	5	5	7	9	11	12
Other residents	3	2	4	5	6	8	9	11
Other assets	1	1	1	1	2	2	2	3
Total	6	6	10	12	15	19	22	26
Funds under management								
Domestic fixed interest	na	na	27	26	25	24	24	25
Domestic equities	na	na	7	7	6	8	8	8
Domestic other	na	na	4	4	4	4	5	6
Overseas investments	na	na	22	23	20	22	23	25
Total	27	42	60	60	55	58	60	64
Total financial system assets	111	151	250	262	275	298	324	344

As at 31 December. Source: RBNZ surveys and registered banks' general disclosure statements.

Note: Figures for other deposit-taking institutions incorporate the value of related off balance sheet assets (securitised assets). Counterpart funding is included in 'other residents'. For these institutions, securitised assets represent over 15% of total assets in 2004 and 2005. This treatment applies at all relevant dates and has resulted in revisions from 2000. For registered banks, securitised assets represent less than 2% of total assets and figures remain those reported in GDS under current accounting standards.

Table A3

New Zealand registered banks as at 30 September 2005

Registered bank's name	Market share (1)	Credit ratings			Ultimate parent	Country of parent
		S&P	Moody's	Fitch		
ABN AMRO Bank NV	0.4	AA-	Aa3	AA-	branch (2)	Netherlands
ANZ National Bank Limited	34.2	AA-	Aa3	-	ANZ Banking Group Limited	Australia
Commonwealth Bank of Australia	1.1	AA-	Aa3	AA	branch (2)	Australia
ASB Bank Limited	16.2	AA-	Aa3	-	Commonwealth Bank of Australia	Australia
Bank of New Zealand	17.6	AA-	Aa3	-	National Australia Bank	Australia
Citibank N A	1.0	AA	Aa1	AA+	Citigroup Inc.	USA
Deutsche Bank A G	4.7	AA-	Aa3	AA-	branch (2)	Germany
Kiwibank Limited	0.8	AA-	-	-	New Zealand Post	New Zealand
Kookmin Bank	0.1	A-	A3	-	branch (2)	South Korea
St. George Bank New Zealand Limited (3)	0.2	BBB-	-	-	St George Bank Limited	Australia / New Zealand
Rabobank Nederland	0.2	AAA	Aaa	AA+	branch (2)	Netherlands
Rabobank New Zealand Limited	1.6	AAA	-	-	Rabobank Nederland	Netherlands
The Bank of Tokyo-Mitsubishi UFJ, Ltd	0.1	A	A1	-	branch (2)	Japan
The Hongkong and Shanghai Banking Corporation Limited	2.6	AA-	Aa3	AA	HSBC Holdings	UK
TSB Bank Limited	1.0	BBB-	-	-	Taranaki Community Trust	New Zealand
Westpac Banking Corporation	18.1	AA-	Aa3	AA-	branch (2)	Australia

(1) Registered banks' assets as a proportion of the total assets of the banking system, as at 30 September 2005.
(2) The New Zealand registration is for a branch of the ultimate parent.
(3) A joint venture with Foodstuffs NZ Ltd, but controlled by St George Bank Ltd.

Source: Registered banks' general disclosure statements.

Table A4

Large bank asset volumes and yields – loans and advances

	Loans and advances $million				Yield %			
	Mar-04	Sep-04	Mar-05	Sep-05	Mar-04	Sep-04	Mar-05	Sep-05
ANZ	59,430	60,728	64,985	69,592	7.51	7.94	8.10	8.20
ASB (1)	25,459	28,789	31,554	34,978	6.90	7.10	7.50	7.70
BNZ	33,097	34,065	36,055	37,928	7.50	7.90	8.00	8.00
WPAC	35,226	36,370	39,201	37,395	7.80	7.90	8.40	8.40
	153,212	159,952	171,795	179,893	7.47	7.77	8.04	8.10

(1) ASB Bank GDS data are for June and December.
Source: Registered banks' GDS.

Table A5

Smaller retail banks' selected financial indicators (1)

As at 30 Sep 2005		2001	2002	2003	2004	2005
Total assets	($m)	1,553	2,062	2,892	3,972	5,093
Total lending	($m)	854	1,127	1,824	2,600	3,881
Residential lending	($m)	747	994	1,688	2,433	3,679
Annual residential lending growth	(%)	20	33	70	44	51
Net profit after tax	($m)	16	10	3	16	27
Impaired assets/ total lending	(%)	0.13	0.05	0.00	0.01	0.08
Return on average asset	(%)	1.12	0.53	0.11	0.47	0.61
Cost/ income	(%)	49.1	81.5	89.2	78.8	74.8
Interest rate margin	(%)	3.03	3.04	2.87	2.66	2.52
Total capital adequacy ratio	(%)	14.5	20.2	18.2	16.3	13.5

(1) Small banks comprise Kiwibank Ltd, TSB Bank Ltd, St George Bank New Zealand Ltd.
Source: Registered banks' GDS. As at 30 September.

Table A6

Large bank net interest – earnings assets and spreads

	Net interest earning assets $				Net interest spread %			
	Mar-04	Sep-04	Mar-05	Sep-05	Mar-04	Sep-04	Mar-05	Sep-05
ANZ	7,383	7,780	7,434	8,501	2.53	2.47	2.13	2.00
ASB	2,621	2,906	3,485	3,593	2.64	2.76	2.51	2.50
BNZ	3,054	2,947	3,003	3,030	3.19	3.49	2.71	2.41
WPAC	6,625	6,308	6,559	5,151	3.57	3.70	2.85	2.56
	20,275	20,481	20,481	20,275	2.91	3.01	2.91	2.91

(1) ASB Bank GDS data are for June and December.
Source: Registered banks' GDS.

Table A7

Large bank asset volumes and yields – all interest earning assets

	Interest earning assets $million				Yield on interest earning assets %				Incremental income $million	Volume (2)	Price (3)	Volume	Price
	Mar-04	Sep-04	Mar-05	Sep-05	Mar-04	Sep-04	Mar-05	Sep-05	Mar 04 to Sep 05	effect $	effect %	Prop. %	Prop. %
ANZ	69,157	66,838	72,341	78,562	7.13	7.82	7.94	7.98	1,339	670	668	50.07	49.93
ASB (1)	30,041	32,713	36,203	38,395	6.68	6.95	7.40	7.63	923	558	365	60.43	39.57
BNZ	36,017	36,956	39,898	41,668	7.30	7.72	7.80	7.87	647	413	234	63.81	36.19
WPAC	38,333	39,347	42,715	41,675	7.59	7.78	8.24	8.24	525	254	272	48.28	51.72
	173,548	175,854	191,157	200,300	7.19	7.88	7.63	7.94	3,434	1,923	1,511	56.00	44.00

(1) ASB Bank EDS data are for June and December.
(2) The volume effect is calculated as 7.19 % x ($200,300 - $173,548).
(3) The price effect is calculated as $200,300 x (7.94 % - 7.19 per cent).
Source: Registered banks' GDS.

Table A8

Large bank interest paying liability positions and yields

	Interest paying liabilities $million				Yield on interest paying liabilities %				Incremental cost $million	Volume (2)	Price (3)	Volume	Price
	Mar-04	Sep-04	Mar-05	Sep-05	Mar-04	Sep-04	Mar-05	Sep-05	Mar 04 to Sep 05	effect $	effect %	Prop. %	Prop. %
ANZ	61,774	59,058	64,907	70,061	4.60	5.35	5.81	5.98	1,348	381	967	28.27	71.73
ASB	27,420	29,807	32,718	34,802	4.04	4.20	4.89	5.12	675	298	377	44.16	55.84
BNZ	32,963	34,009	36,895	38,638	4.11	4.23	5.09	5.45	750	234	517	31.12	68.88
WPAC	31,708	33,039	36,156	36,524	4.01	4.08	5.40	5.68	800	193	607	24.16	75.84
	153,865	155,913	170,676	180,025	4.27	4.62	5.39	5.64	3,574	1,118	2,456	31.29	68.71

(1) ASB Bank GDS data are for June and December
(2) The volume effect is calculated as 4.27 % x ($180,025 - $153,865)
(3) The price effect is calculated as $180,025 x (5.64 % - 4.27 %)
Source: Registered banks' GDS.

Table A9
Selected NBFI assets and liabilities

	Overseas-owned NBFIs			Domestically-owned NBFIs			Building societies and PSIS			Total NBFIs		
	$m	$m	Growth	$m	$m	Growth	$m	$m	Growth	$m	$m	Growth
	Dec-04	Dec-05	% pa	Dec-04	Dec-05	% pa	Dec-04	Dec-05	% pa	Dec-04	Dec-05	% pa
NZD funding	558	681	22%	4771	5951	25%	3049	3386	11%	8378	10018	20%
NZ resident households	3483	4252	22%	2265	2424	7%	210	292	39%	5958	6968	17%
Other funding	2947	3043	3%	146	203	39%	72	88	22%	3165	3333	5%
Non-residents	6987	7976	14%	7182	8577	19%	3332	3766	13%	17501	20320	16%
Total NZD funding												
	218	178	-18%	67	113	68%	0	0	0	285	291	2%
Foreign currency funding	579	703	21%	294	454	54%	59	115	96%	932	1271	36%
Other liabilities	50	114	130%	959	1077	12%	267	296	11%	1276	1487	17%
Capital and reserves	7833	8971	15%	8444	10106	20%	3657	4177	14%	19935	23254	17%
Total liabilities												
NZD lending												
Farm lending	91	118	30%	816	891	9%	440	463	5%	1347	1472	9%
Business lending	2338	2337	0%	3845	4376	14%	568	628	10%	6751	7342	9%
Housing lending	1977	2751	39%	263	268	2%	2,152	2,499	16%	4392	5518	26%
Consumer lending	2326	2491	7%	2583	2917	13%	181	186	3%	5089	5594	10%
Total NZD loans by sector	6732	7698	14%	7506	8453	13%	3341	3775	13%	17579	19925	13%
Foreign currency loans	121	209	72%	64	59	-8%	0	0	0	186	269	45%
All other loans and assets	980	1064	9%	873	1594	83%	316	402	27%	2170	3060	41%
Total assets	7833	8971	15%	8444	10106	20%	3,657	4,177	14%	19935	23254	17%

Source: RBNZ – NBFI SSR. Includes NBFIs with total assets exceeding $100 million. Totals may not add due to rounding.

Banking sector indicators

Figure A17
Capital adequacy ratios

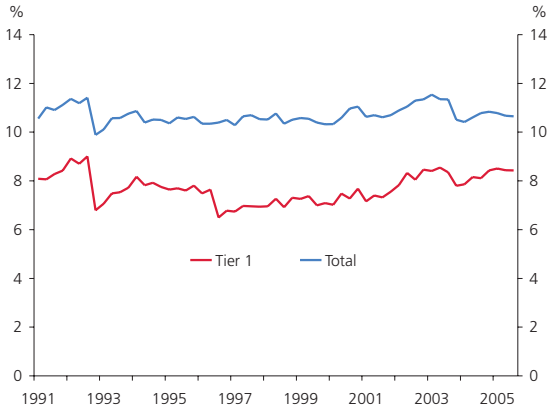


Figure A18
Asset quality

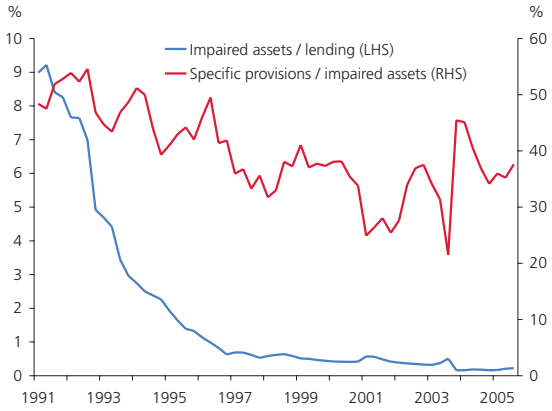


Figure A19
Return on assets

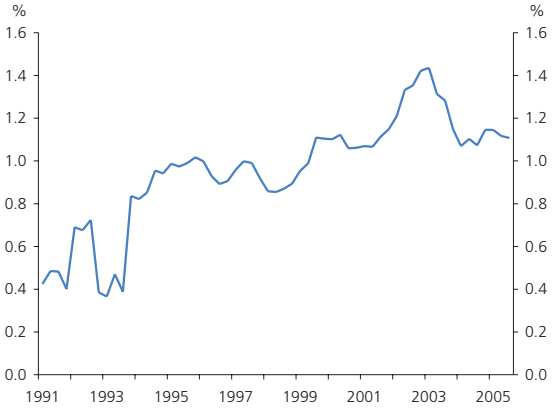


Figure A20
Operating costs to income

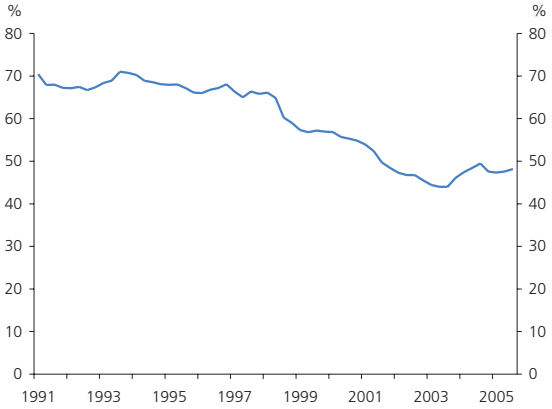


Figure A21
Aggregate lending margins

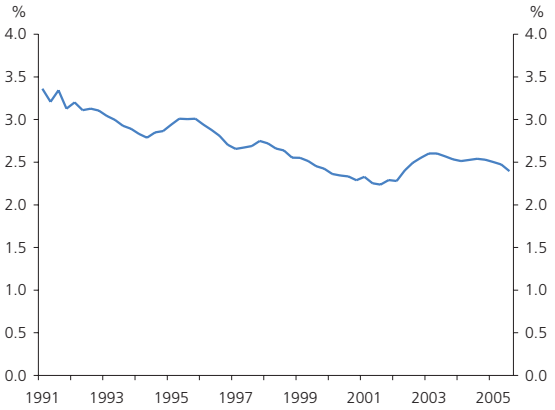


Figure A22
S&P credit ratings for registered banks

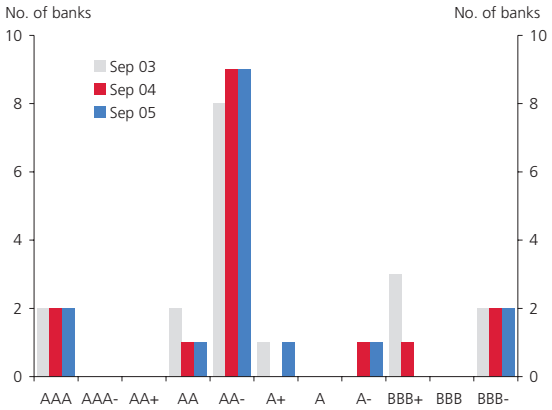


Figure A23

Bank asset composition

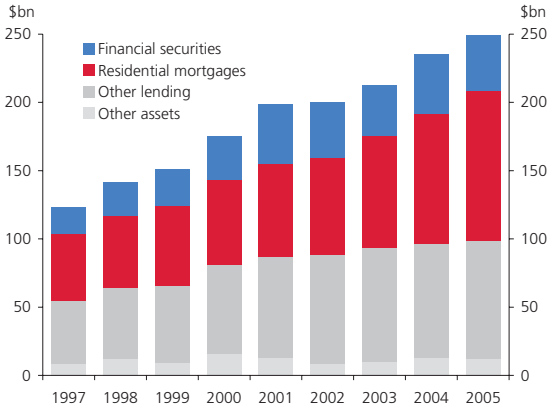


Figure A24

Bank funding composition

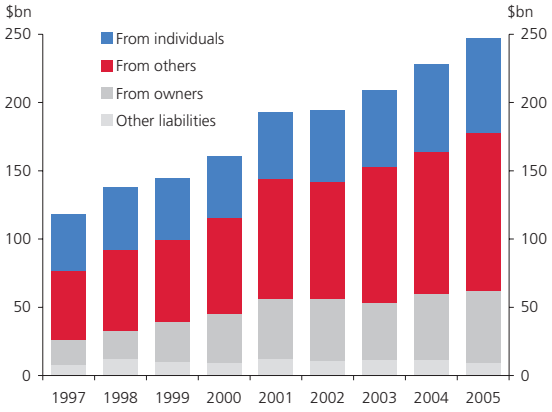


Figure A25

Bank asset growth

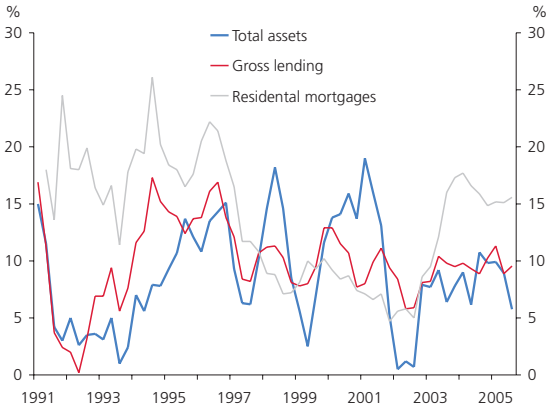


Figure A26

Bank market share

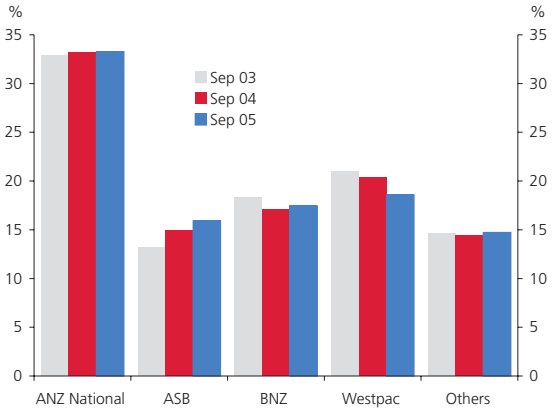


Figure A27

Bank-wide capital adequacy ratios

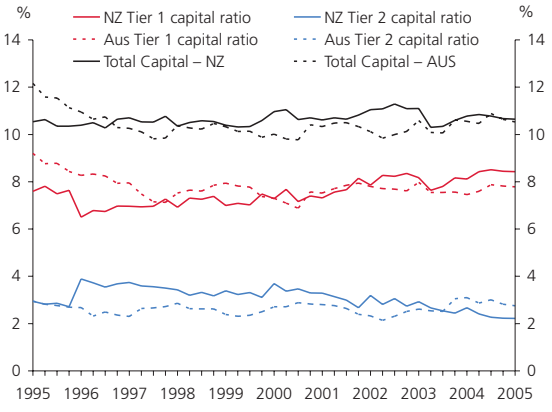
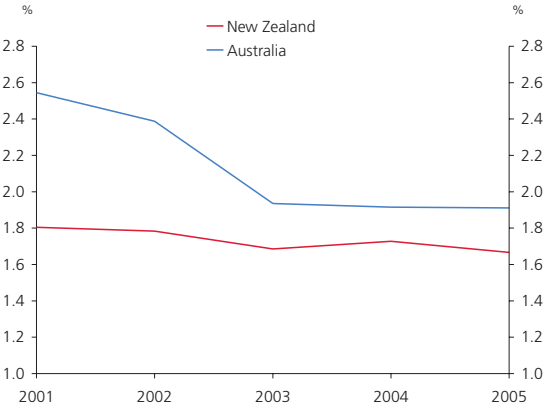


Figure A28

Large bank operating expenses to average assets



Non-bank financial institutions

Figure A29

NBFI asset composition

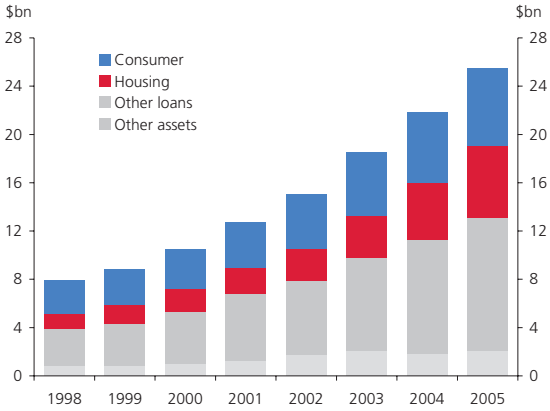
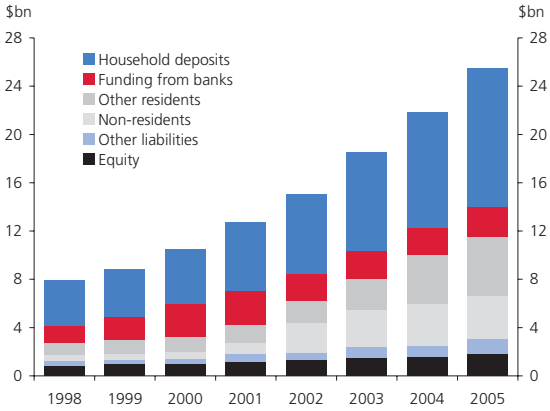


Figure A30

NBFI funding composition



Notes to the graphical appendix

The appendix contains a suite of charts that will appear regularly in the *Financial Stability Report*. They provide an overview of developments in a set of key economic and financial indicators. Definitions and sources (in italics) are noted below. The data for the charts in this *Report*, including those in the graphical appendix, are available on the Reserve Bank website.

1	Real GDP growth	Annual average percentage change in real GDP. *Datastream*.
2	Balance of payments	Current account balance as a percentage of GDP, four-quarter total. *Datastream*.
3	Trade-weighted exchange rate indices	Trade-weighted indices, 31 March 1990 = 100. *Bank of England*.
4	Short-term interest rates	Yields on 90-day bank bills. *Datastream*.
5	Equity indices	Morgan Stanley Capital Indices, 31 March 1990 = 100. *Datastream*.
6	House price inflation	Year-on-year change in national house price indices. *Datastream*.
7	Household debt	Household debt excludes student loans. Household disposable income is gross before deduction of interest paid, and is interpolated from March year data from *Statistics New Zealand*, with *RBNZ* 2006 and 2007 forecasts. The weighted average interest rate is published *RBNZ* residential mortgage rate data with an estimate for consumer loan interest rates.
8	Household assets and liabilities	Housing assets are aggregate private sector residential dwelling value. Data are from *Quotable Value Ltd* from 1995, with *RBNZ* estimates based on the HPI for prior years. Household financial assets are as published annually by *RBNZ*, with aggregate quarterly figures interpolated prior to 1995, based on component estimates from then. Household liabilities are from *RBNZ* series as for figure A7.
9	Property prices	Year-on-year change in property price indices. Commercial and rural property prices are interpolated from semi-annual figures. *Quotable Value Ltd.*
10	Government debt	*The Treasury*.
11	Government bonds issued and turnover	*RBNZ*: total government securities on issue (D1) and New Zealand government bond turnover survey (D9).
12	Ten-year government bond spreads	Yield on ten-year benchmark New Zealand government bond, less yield on US and Australian equivalents. *RBNZ*.
13	NZD/USD turnover in domestic markets	*RBNZ* survey.
14	NZD/USD and implied volatility	Standard deviation used to price three-month NZD/USD options. *UBS Warburg*, *RBNZ*.
15	Equity market capitalisation to GDP	Total market capitalisation of firms listed on New Zealand Stock Exchange, as a percentage of annual nominal GDP. *Datastream*.
16	Earnings and dividend yields	Earnings and dividends as a percentage of total market capitalisation. *First New Zealand Capital*.
17	Capital adequacy ratios	Tier 1 and Tier 2 capital as a percentage of risk-weighted assets, for all locally incorporated banks. *General Disclosure Statements* (*GDS*).
18	Asset quality	Impaired assets as a percentage of total lending; specific provisions as a percentage of impaired assets; for all registered banks. *GDS*.

19	Return on assets	Net profits after tax and extraordinary items, as a percentage of average total assets, four-quarter average, for all registered banks. *GDS*.
20	Operating costs to income	Operating expenses as a percentage of total income, four-quarter average, for all registered banks. *GDS*.
21	Lending margins	Net interest income as a percentage of average interest earning assets, four-quarter average, for all registered banks. *GDS*.
22	Credit ratings	Standard and Poor's credit ratings on New Zealand dollar long-term senior unsecured obligations in New Zealand. *GDS*.
23	Bank asset composition	As at 30 September. *GDS*.
24	Bank funding composition	As at either 31 March or 30 June. *GDS*.
25	Asset growth	Year-on-year change in total assets of all registered banks. Gross lending is before provisions. *GDS*.
26	Market share	Bank assets as a percentage of total assets of registered banks. September 2003 share for ANZ National Bank is the combined shares of ANZ Bank and National Bank. *GDS*.
27	Capital adequacy ratios	Capital is a percentage of risk-weighted assets for all locally incorporated banks. As at 30 September. *GDS*.
28	Operating expenses	Excluding interest costs. For the period ended 30 September for ANZ, BNZ / National Australia Bank and Westpac. For the period ended 30 June ASB / CBA. *GDS*.
29	NBFI asset composition	*NBFI SSR and annual NBFI Returns* as at December 31, 2005.
30	NBFI funding composition	*NBFI SSR and annual NBFI Returns* as at December 31, 2005.