Financial Stability Report

May 2008

Contents

The charts and tables in this report use data available as at 18 April 2008. More recent statistics may be quoted in the text. This report and supporting data are also available on www.rbnz.govt.nz.

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1 Summary and assessment

New Zealand's financial system has so far withstood a severe test of global financial markets, initially triggered by losses in the US sub-prime mortgage market. These losses have cascaded through a wide range of credit markets, a process facilitated by some complex financial engineering over recent years. Many financial institutions, including some of the world's largest banks, have incurred substantial losses. Amid lingering uncertainty over the scale and distribution of these losses, international money markets have remained under pressure and some financial institutions have encountered significant liquidity pressures. Bank funding costs have increased in the US, Europe, and Australasia.

The New Zealand financial system has had very little direct exposure to structured products linked to the US mortgage market and New Zealand's banks have not developed the complex financial instruments at the heart of the current financial problems in the US. The same is also largely true of the Australian parent banks. However, the banks in both New Zealand and Australia source a significant amount of their funding from global financial markets with much of it at relatively short maturity. The banks are currently facing a higher cost of funds and reduced liquidity in some markets, particularly for term funding. As a consequence, there has been an increase in the cost of borrowing for both households and businesses and the banks appear to be tightening the availability of credit. These conditions have led to increased uncertainty among financial institutions, households and businesses.

In current circumstances, a more cautious approach to lending on the part of the banks appears prudent. However, there is a risk that if credit conditions are tightened excessively, the slow-down in the economy will be exacerbated, putting additional financial pressure on households and businesses.

New Zealand's banks appear well positioned to absorb the range of credit losses that can reasonably be expected over the course of the economic cycle, with all banks holding a sufficient capital buffer. The banks are less favourably positioned to withstand a scenario under which funding becomes more difficult to access in global markets. Although such funding has been readily available in the past, recent events show it may not always be as accessible as previously thought. The banking system is very reliant on non-resident funding given the country's high net external indebtedness and ongoing large current account deficits.

In early May, the Reserve Bank announced some further changes to its liquidity management arrangements designed to help ensure adequate liquidity for New Zealand financial institutions in the event that global market disruptions were to intensify. These measures included expanding the range of acceptable securities for domestic market operations to include New Zealand dollar, New Zealand registered AAA-rated Residential Mortgage Backed Securities (RMBS). These measures aside, the banks need to ensure that they adopt strategies that will help to reduce their overall exposure to disruptions in global funding markets. The Reserve Bank is currently reviewing its prudential liquidity policy for banks and is closely monitoring financial system liquidity. Part of the prudential liquidity review is likely to be focussed on ensuring that the banks diversify their funding sources and lengthen the maturity structure of their debt.

The IMF has recently described unfolding events in global markets as the largest financial shock since the

Great Depression.[1] The adjustment process, which involves widespread de-leveraging, could prove protracted. Further volatility in world equity markets, exchange rates and debt markets is likely. The outlook for global economic activity has deteriorated with a sharp deceleration now clearly evident in the US economy. In response to financial stresses and the downside risks to growth, the US Federal Reserve has substantially lowered its policy interest rate over the past few months and, like many other central banks, has taken actions to ease money market liquidity.

Partly reflecting the weaker global outlook, the New Zealand economy is entering a period of slower growth, which is particularly evident in the housing sector. The slow-down is expected to assist in unwinding some significant economic imbalances that have built up over recent years, and have left the economy more exposed to adverse financial or economic shocks. These imbalances have been reflected in household dissaving and increases in both domestic and external indebtedness. While most projections are for a relatively moderate slowdown, there is a risk that the adjustment is sharper, causing financial strains in the household and business sectors as well as the broader financial system.

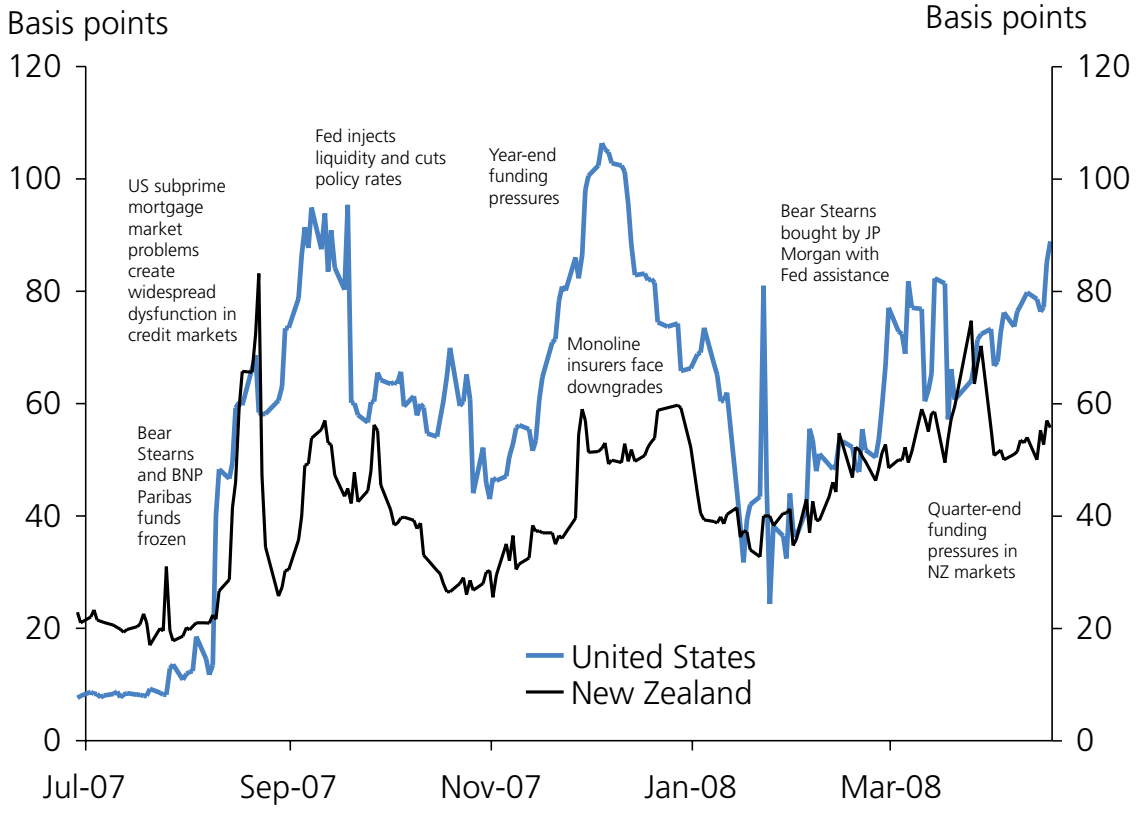
These macro-financial risks would be greater in the event that the global economic slow-down, currently centred in the US, Eurozone and UK, were to become more broadly based. Encouragingly, economic growth in the Asian region (excluding Japan), which has an important bearing on New Zealand's economic prospects, has continued to display considerable momentum. Activity in Australia has also been strong, but has recently shown signs of softening. The extent to which the economies of Asia-Pacific will be affected by developments in the rest of the world remains unclear.

Although the banks have enjoyed a very benign period of low credit losses in recent years, there is increasing evidence that losses are starting to increase. In implementing the new Basel II regime, the Reserve Bank has been mindful

Figure 1.1

A timeline of global market pressures

(US and New Zealand Libor-OIS spreads, as indicators of funding pressure)



[1] See *The World Economic Outlook*, IMF, April 2008.

that the relatively benign credit conditions will not continue indefinitely and an objective has been to ensure that banks' minimum capital requirements are appropriately calibrated against the risks they face through the cycle in their various lending markets. This will remain a key focus of prudential policy.

Parts of New Zealand's non-bank financial sector continue to face considerable upheaval, with further finance companies placed in receivership or reporting difficulties since our last *Report* in November. Some companies continue to face liquidity pressures due to lower reinvestment rates. Current financial market pressures have also reduced the capacity of some institutions to obtain funding from other sources, including the banking system. However, we remain of the view that these disruptions are unlikely to have widespread effects on the financial system and that their effects on the economy are likely to be relatively contained.

Figure 1.1 provides a timeline of global market pressures over the past year. The chart shows the spread between the London Interbank Overnight Rate (Libor) and Overnight Index Swaps (OIS) rates for both the US and New Zealand. This spread provides an indication of liquidity within the market in question.

Alan Bollard

Governor

Box A

Financial Stability Report objectives and Reserve Bank policy actions

The *Financial Stability Report* provides an assessment of historical developments and risks in the New Zealand financial system. The financial system comprises financial institutions, financial markets, and payment and settlement systems.

The Bank considers the financial system to be stable when relevant financial risks are adequately identified, priced, and allocated to those best able to manage them.

The Bank has undertaken, or plans to undertake, a range of measures to promote financial system soundness and efficiency. These include:

- Some further changes to its liquidity management arrangements designed to help ensure adequate liquidity for New Zealand financial institutions in the event that global market disruptions were to intensify.
- A planned review of prudential liquidity policy for banks.
- The implementation of the new Basel II regime for the determination of minimum regulatory capital.
- The Reserve Bank's new role as regulator of non-bank deposit takers.
- The Reserve Bank's new role as regulator and supervisor of the insurance sector.

Further details are set out throughout this document.

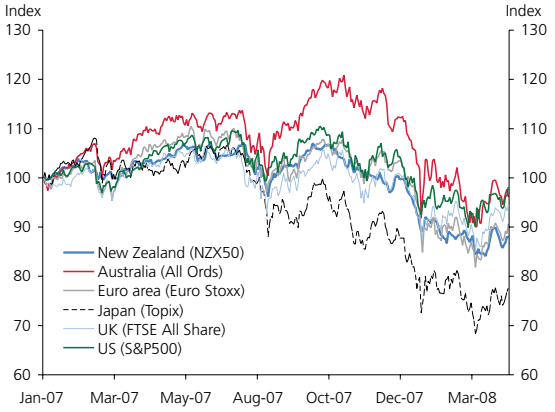
2 The global economy and financial markets

Developments in the world economy and financial markets have an important bearing on New Zealand's economy and financial system. The outlook for the world economy has deteriorated over the past six months with successive waves of uncertainty and elevated risk aversion continuing within financial markets Growth forecasts for the major northern hemisphere economies have been revised downward amid continuing financial market turbulence. The US economy has decelerated sharply, led by a steep downturn in the housing market and tighter credit conditions as banks repair balance sheets weakened by losses on securities backed by sub-prime mortgages. Similar forces are at work in parts of Europe. The economies of the Asia-Pacific region (excluding Japan) remain robust but may be vulnerable to a downturn in the rest of the world.

2.1 International financial markets

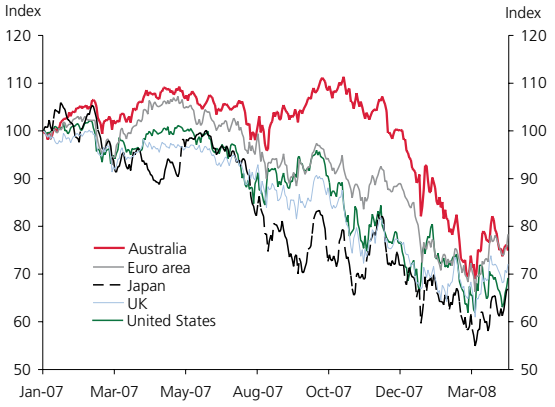
Conditions in global financial markets[1] have remained very stressed since the previous *Report*. Major equity market indices have generally fallen by 10 percent or more (figure 2.1). The declines have been led by falls in financial sector stocks (figure 2.2). Many financial institutions have reported substantial losses and write-downs as a result of their exposure to the US housing market. Equity prices for 'monoline' or bond insurers have declined dramatically as they face the prospect of being downgraded by credit- rating agencies. Many financial institutions, including Citigroup, Merrill Lynch, Morgan Stanley, UBS and Wachovia, have

Figure 2.1
Equity indices
(January 2007=100)



Source: Bloomberg.

Figure 2.2
Bank equity price indices
(January 2007=100)



Source: Bloomberg.
Note: All indices are sub-components of the broad market indices used in figure 2.1. The US measure is a weighted average of the S&P500 sub-indices for diversified banks, investment banks, and other diversified financial firms.

[1] A more detailed discussion of recent global financial events is contained in the IMF's April *Global Financial Stability Review*.

required capital infusions, often from sovereign wealth funds, after announcing substantial losses. In March, Bear Stearns received emergency funding from the Federal Reserve and seems likely to be sold to JP Morgan.

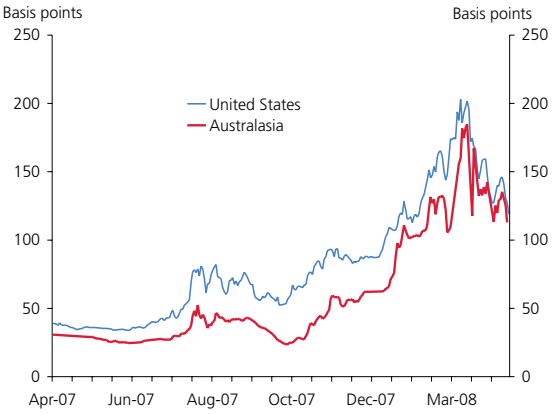
Bank equity prices have fallen sharply in most major markets, including Australia, and swap spreads have widened.[2] Market stresses have also been evident in fixed income markets and a slow-down in corporate deal-making activity. Tighter credit conditions have meant that private equity activity has stalled, and merger and acquisition activity has been greatly reduced. Some firms are holding unwanted loans or other assets on their balance sheet to avoid selling them at weak prices which reflect the market stress.

The problems in the US housing market have lead to concerns about the collateral used in many asset backed commercial paper and mortgage backed security products, and issuance and trading in these instruments has fallen substantially. Banks that have been reliant on securitisation as a source of funding have had to obtain funds from other sources.

These liquidity problems have occurred in waves. Liquidity conditions tightened during early December as a result of financial institutions' lending constraints over the year end (see figure 1.1). These tensions subsided and spreads declined after the announcement of Term Auction Facilities (TAF) by several major central banks in December. However, liquidity problems have continued in recent months, exemplified by the rescue of Bear Stearns and leading to the introduction of further Federal Reserve liquidity facilities. Credit risk perceptions (as measured by Credit Default Swaps) have also remained elevated (figure 2.3), although they have narrowed somewhat in recent weeks.

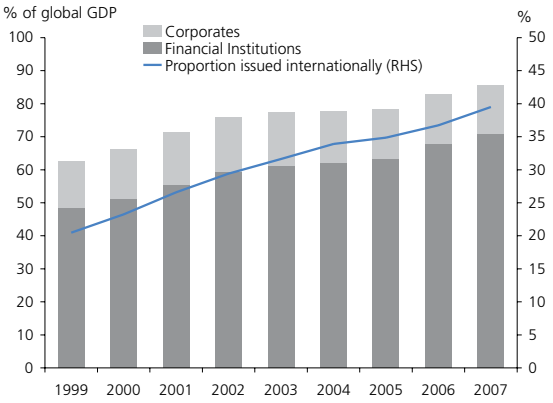
This stress and illiquidity are symptoms of the end of a multi-year period in which there was an unusually low level of risk aversion, and quite widespread weaknesses in the assessment and management of financial risks. A prolonged period of macroeconomic stability, and a large demand for financial assets (partly relating to sovereign wealth funds, as well as managed exchange rates leading some countries to accumulate substantial reserves) drove down global interest rates, and increased appetite to take on risk and earn additional returns. During this period, there was a significant increase in debt levels and financial leveraging in most developed countries (figure 2.4).

Figure 2.3
Composite indicators of credit risk (CDX and Itraxx indices)



Sources: Bloomberg and Reuters.
Note: The series shown for the US is the CDX 5 year North American Investment Grade Index. It is constructed from the Credit Default swaps of 125 investment-grade companies. The series for Australasia is the Itraxx 5-year Australian index, which is constructed from the credit default swaps on debt of 25 investment grade companies.

Figure 2.4
Global stock of debt securities outstanding, by type of issuer



Sources: Bank for International Settlements, IMF World Economic Outlook and RBNZ calculations.

[2] **Note that a reduction in policy interest rates has meant that the overall cost of funds has not necessarily risen in all countries.**

Low risk aversion and an appetite for yield appears to have encouraged weak lending standards (eg, so called 'covenant lite' lending to private equity firms), which were justified based on optimistic assumptions about future loan performance (e.g. in the work of credit-rating agencies). Financial innovation created new risks that counterparties could fail (eg, that a financial insurer might be overwhelmed in a stress event) or act against the lender/investor's interests (eg, a mortgage originator helping borrowers create fraudulent applications). Some of these risks were not well identified and are now being realised, creating unanticipated financial losses.

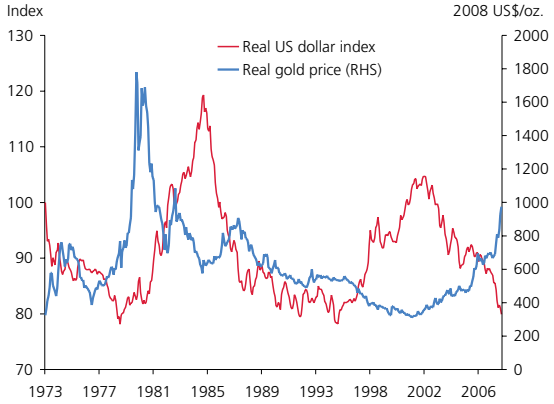
In response to a deteriorating economic climate, some central banks have responded with cuts in policy rates, as well as substantially extending their liquidity facilities. At the time of writing, the Federal Reserve has cut the Fed Funds Target rate by 325 basis points since September last year. In addition to the monetary policy stimulus, the US government has also approved a USD 120 billion fiscal stimulus package of tax credits and rebates. Possible measures aimed at stabilising the housing and mortgage markets are also under consideration.

Official interest rates have also been lowered in several other major economies, including the UK and Canada. The extent to which monetary policy can be eased further may be limited, however, by persistent inflationary pressures related to recent strong gains in energy and food prices.

Increasing monetary policy divergence has resulted in a sharp widening in the interest rate differential between the US and most other major economies,[3] which has in turn resulted in a steady decline in the inflation adjusted value of the US dollar to levels not seen in decades (figure 2.5). Since the November *Report*, the US dollar has fallen by more than 6 percent against a basket of other major currencies. The depreciation has been orderly thus far, and contributed to a gradual narrowing of the US current account deficit. Nevertheless, global balance of payments imbalances remain significant (see figure 2.10) and the risk of a more disorderly unwinding cannot be ruled out, particularly if international investors' appetite for US assets were to decline sharply. The volatility and rise in the price of gold (especially in USD terms) illustrates the degree of risk aversion in markets and probably also shows rising concern about inflation.

In April there were tentative signs of normalisation in some of the markets discussed above. But there remain risks that further news could re-intensify the current difficulties. This could happen if, for example, one of the larger bond insurers were forced into a disorderly wind-down, or if it became evident that loan origination in non-US markets in recent years faced similar issues to the US. While there are weak housing markets in Europe (eg, Spain, Ireland, the UK) there has been less evidence of weak loan origination practices to date.

Figure 2.5
Real trade-weighted value of the US dollar, and real price of gold



Sources: Bloomberg, US Federal Reserve and RBNZ calculations.
Note: Real value of the USD is measured as an index against a broad basket of currencies (January 1973=100).

2.2 Global economic activity

The world economy has softened since the November *Report* and growth forecasts have been revised down amid expectations that global financial market turmoil and tighter credit conditions will dampen activity. In the US, annualised GDP growth was just 0.6 percent in the first quarter of 2008 and further weakness is expected through the remainder of the year. Growth forecasts have also been revised lower in Europe and Japan, but the outlook for the remainder of

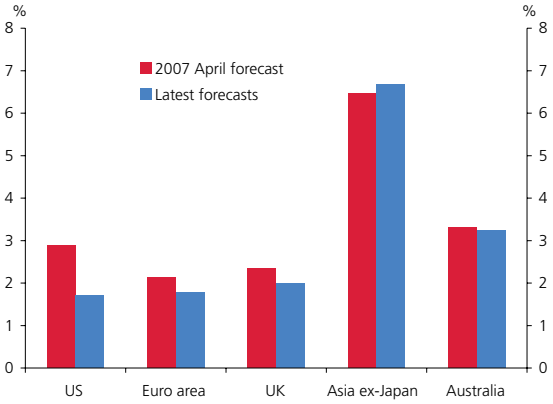
[3] Note, however, that interest rates have been raised in some developing and emerging countries in recent months due to inflation concerns and/or other factors.

the Asia-Pacific region remains positive (figure 2.6). These forecasts are, however, subject to an unusually high level of uncertainty, and the balance of risks lies firmly to the downside. A gradual and orderly slowing in the world economy remains the most likely outcome. Nevertheless, the risk of a sharp international downturn has increased. Against the backdrop of continuing strains in global credit markets, a sustained period of weakness in the world economy would present a severe test of international financial stability.

Figure 2.6

Global growth forecasts for 2008 and 2009

(average annual percent change in real GDP)

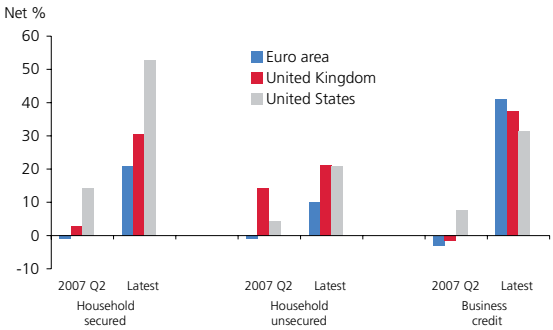


Sources: Consensus Economics and RBNZ calculations.

Figure 2.7

International credit conditions

(survey measures)



Sources: Bank of England, European Central Bank and US Federal Reserve

Note: Net percentage of lenders reporting tighter loan standards and/or reduced availability of credit over the quarter. Latest data refer to 2008 Q1 for the United Kingdom and 2007 Q4 for the United States and the euro area.

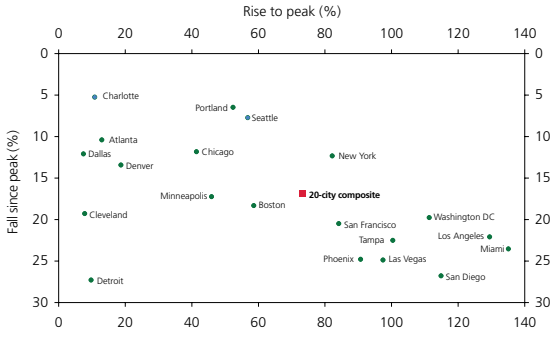
Credit conditions have purportedly tightened in the US and Europe, with surveys suggesting more stringent lending criteria for households and firms (figure 2.7). House prices are declining in the United States and the United Kingdom. At the same time, labour market conditions are deteriorating in the US, with employment falling. This has been matched by a slow-down in household spending, as housing wealth declines and real disposable incomes are eroded by the impact of higher food and energy prices.

Developments in the US housing market continue to exert significant influence on the world economy. After rising strongly through the early part of the decade, average US house prices fell by around 10 percent in 2007, the largest nominal fall in decades. Declines have been substantially larger in certain regions, typically (but not always) those that earlier experienced the greatest increases (figure 2.8).[4] Housing markets in several other countries (including the UK, Ireland and Spain) are also under pressure.

The November *Report* described how mounting evidence of deteriorating credit quality in assets backed by sub-prime mortgages triggered a period of intense turbulence in global credit and money markets during July and August last year.

Figure 2.8

Rise and fall in real US house prices, by region



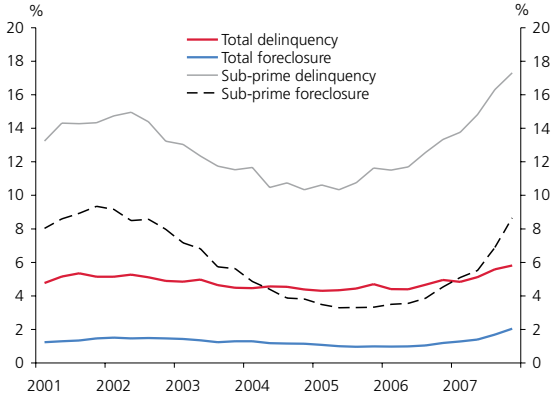
Sources: Bloomberg, Standard & Poor's/Case-Shiller and RBNZ calculations.

Note: Rise to peak measured relative to post-January 2000 trough; decline since peak measured to January 2008.

[4] This measure of house prices is the Case Shiller index, which measures prices for the 20 largest cities.

Since that time, mortgage delinquency rates have continued to rise (figure 2.9) and financial markets have remained fragile. Recent estimates suggest that total credit losses on sub-prime mortgages may reach US$400 billion while the IMF estimates that broader credit losses could reach USD1 trillion. Excess housing supply and increased numbers of distress sales are likely to result in further price declines in the period ahead, further eroding household wealth and acting as a drag on economic growth.

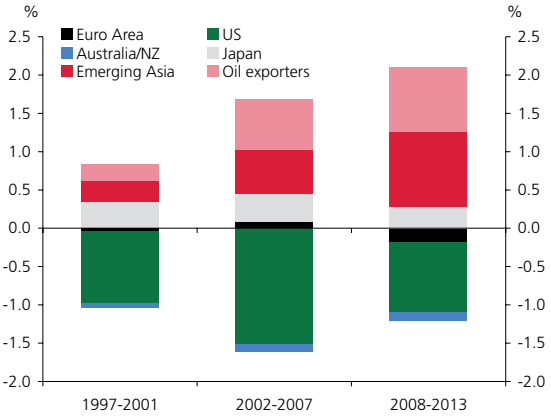
Figure 2.9
Delinquency and foreclosure rates on US mortgages
(percent of total loans outstanding)



Source: Mortgage Bankers Association/Bloomberg.
Note: Delinquency rates seasonally adjusted.

Weakness in the United States has not, thus far, had a significant impact on growth in the Asia-Pacific region. Emerging economies such as China and India continue to grow very rapidly, which has continued to underpin global commodity prices. Many Asian and oil exporting countries are continuing to generate significant current account surpluses, providing much of the financial capital required to finance current account deficits in countries such as the US, Australia and New Zealand (figure 2.10).

Figure 2.10
International current account positions
(percent of global GDP)



Source: IMF World Economic Outlook.
Note: April 2008 IMF forecasts for 2008-2013, assuming real exchange rates remain at recent levels.

Activity has also been strong in Australia, but recent indicators suggest some slowing is in prospect. The Reserve Bank of Australia's March *Financial Stability Review* noted that the outlook for the Australian economy remained fairly positive, with the strength of commodity prices and the labour market underpinning economic activity. However, the RBA suggested that "pockets of stress" have appeared in the otherwise positive Australian outlook, particularly for heavily leveraged households and firms. This partly relates to the strain in global short-term funding markets, which has forced some firms to get bank funding to replace market-based funding that has dried up, making credit harder to obtain. More generally, recent activity data has been softer, although inflation pressures remain intense.

3 New Zealand economy and financial markets

The global financial market stresses outlined in chapter 2 have been reflected in the New Zealand dollar and domestic money markets. A falling US dollar has underpinned the Kiwi dollar and lower liquidity in both the foreign exchange market and domestic interest rate markets remains an issue. Meanwhile the cost of funds for New Zealand's banks in global markets remains elevated leading to a higher cost of borrowing for households and firms. These developments are occurring at a time when the New Zealand economy is slowing after a sustained period of strong growth. While this slowdown is expected to be modest and orderly, the outlook remains contingent on the extent to which New Zealand's trading partners – particularly in the Asia-Pacific region – are affected by recent developments in global financial markets and the slowdown in the Northern Hemisphere.

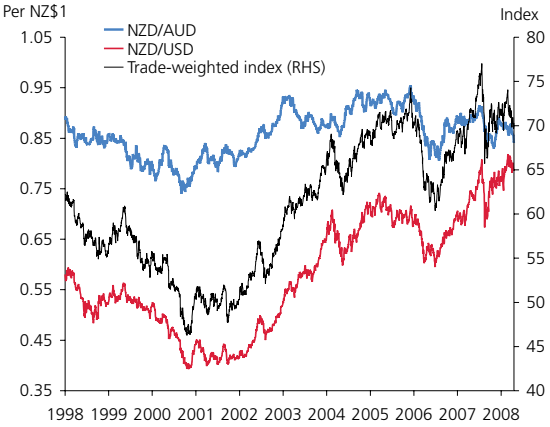
3.1 The foreign exchange market

The US dollar (USD) has depreciated sharply against most other currencies since late 2007, reflecting concerns about deteriorating US economic conditions. This has seen the New Zealand dollar (NZD) rise sharply relative to the USD (chart 3.1). The NZD is around three percent higher relative to the USD compared to the time of the previous *Report*, reaching a post-float high on February 27 of around 82 US cents. Although the NZD is around one percent lower on a trade-weighted basis, it remains high relative to its long-term average.[1]

The NZD has also been underpinned against the US currency by growing yield differentials, which have widened as policy interest rates have been cut in the United States, and expectations of further easing have been priced into the US yield curve. The spread between the Official Cash Rate (OCR) and the Federal Funds Target rate is at its widest level since the OCR was introduced in 1999. However, the level of the currency is below the level expected based on its historical relationship with yield differentials, as global risk appetite has fallen since the financial market crisis began in mid-2007. As risk appetite has fluctuated in response to news, high-yield currencies such as the NZD and the Australian dollar (AUD) have been volatile relative to major currencies, although volatility has abated to some extent since the end of last year. New Zealand dollar movements have become highly correlated with movements in global equity prices in recent months. For example, changes in the NZD/USD exchange rate have been closely in line with movements in the S&P500 equity index.

Figure 3.1

NZD exchange rates



Source: RBNZ.

Lower liquidity remains an issue in foreign exchange markets, with average bid-offer spreads still elevated relative to spreads prevailing up until August last year, when pressures in the market intensified. Likewise, the daily

[1] **Although higher relative to the USD, the NZD has weakened against the yen and the euro by around 7.0 percent, as global risk appetite has declined.**

movement in the NZD/USD per NZ$1 million traded remains above its recent historical average.

At current levels, New Zealand's exchange rate remains high relative to its long-term average. As discussed in box B, uncertainty about the path of the exchange rate remains elevated, but market perceptions of risk are weighted toward a depreciation of the exchange rate in the medium term. There is a risk that such an adjustment could be abrupt, particularly if the slow-down in the economy proves more pronounced than expected or if current turbulence in global markets intensifies.

Although the NZD has weakened against the yen as global risk appetite has fallen, other factors suggest continued demand for the NZD from Japanese investors. Issuance of Uridashi bonds (bonds denominated in foreign currencies sold to Japanese households) has rebounded since the middle of last year, with market contacts suggesting Japanese investors are substituting away from volatile equities and towards bonds. Uridashi bonds denominated in NZD have accounted for around half of all new Uridashi issuance since the beginning of this year. This rebound in issuance has helped support liquidity in New Zealand interest

Box B

Exchange rate uncertainty

Options prices can be used to derive estimates of the probability distribution[2] for the forward path of the NZD/USD exchange rate. Implied volatilities on options provide a measure of the standard deviation of the distribution, which can be interpreted as the uncertainty surrounding the path for the currency. These show that market uncertainty around the outlook for the currency has generally risen at both short-term (3-month) and longer-term (1-year) horizons (chart B1).

'Risk reversals' provide a measure of the skewness in the probability distribution for the exchange rate – whether the balance of risks is to the upside or the downside.[3] Figure B2 shows that the market perception of downside risk to the NZD/USD currency pair is currently relatively high, albeit less so than earlier last year. This assessment is consistent with a cooling economy at a time when the exchange rate remains well above its long-term average. The risk reversal on the NZD/USD has been persistently negative since mid-2003.

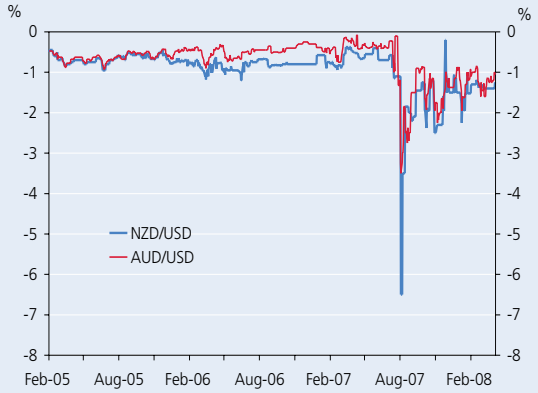
Figure B1

Implied volatilities on NZD/USD currency options

Source: Bloomberg.

Figure B2

3-month risk reversals



Source: Bloomberg

Note: Risk reversals are 25 delta measures (an indication of how 'out of the money' the options are). See Hawkesby, C (1999), "A Primer on Derivatives Markets", Reserve Bank of New Zealand *Bulletin* 62 (2), pp.24-43.

[2] These distributions are based on 'risk-neutral' probabilities, rather than the actual 'real-world' probabilities that events will occur.

[3] Risk Reversals are calculated as the implied volatility on an out-of-the-money call option minus the implied volatility on an equivalently out-of-the-money put option.

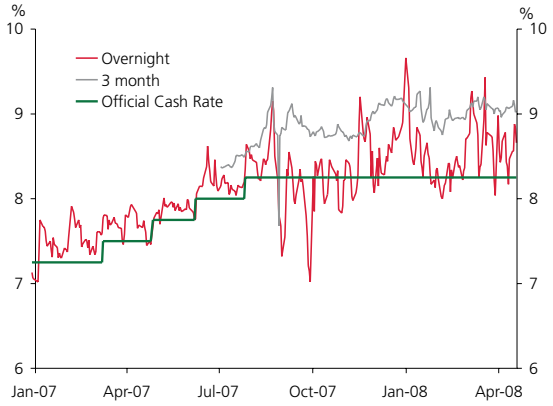
rate swap markets.[4] In addition to Uridashi issuance, there has been some recovery in the level of net long positions of NZD held by Japanese households through margin trading accounts.

3.2 Interest rate markets

Higher levels of risk aversion have persisted in capital markets since our previous *Report*. This has promoted periods of volatility and relative illiquidity in domestic interest rate markets. There has been a continued reluctance to issue and hold commercial paper under these conditions. The elevated cost of term liquidity in offshore markets has seen pressure maintained in domestic money markets. Elevated levels of risk aversion have limited the demand for New Zealand dollars in the FX swap market, and it remains relatively expensive to convert funds raised in USD money markets into New Zealand dollars (figure 3.2). This has continued to place upward pressure on local bank bill yields, as the higher cost of funding for domestic banks in offshore markets becomes reflected in a higher cost of funding in domestic markets.

Figure 3.2

The official cash rate and the implied cost of funding through the FX swap market



Source: RBNZ. Some data estimates.

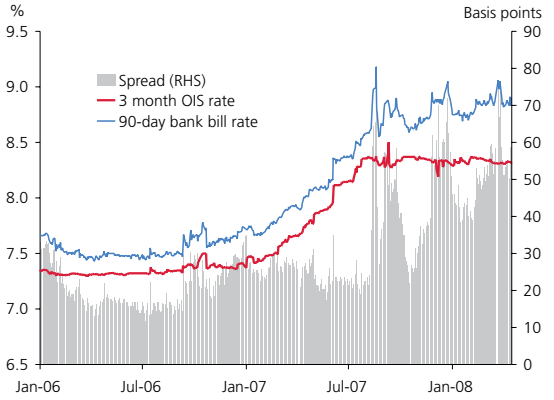
These pressures, along with heightened cash requirements, constrained institutions' willingness to lend over the year-end, which saw 90-day rates increase substantially over the end of 2007. The spread between bank bill and OIS rates (an indicator of domestic market liquidity) widened to record levels towards the end of December (figure 3.3). This spread has since narrowed, but it remains substantially above levels seen prior to the onset of financial market turbulence in late August. The Reserve Bank implemented a number of measures to limit pressures in Overnight Cash and short-term money markets following the onset of financial market disruption in August.[5] Some further measures were announced in early May (see Chapter 6).

New Zealand banks have not had to access central bank liquidity facilities to the same extent as their offshore counterparts. New Zealand's financial system was liquefied well in advance of the credit crisis following an earlier review of the Reserve Bank's liquidity management regime. As the crisis took hold, the range of instruments banks were allowed to pledge in exchange for cash was widened temporarily to include bank bills and to include supranationals on a permanent basis. Thus far, banks have not used these securities to raise cash.

Liquidity in New Zealand interest rate markets remains lower than would normally be the case. This relative illiquidity is attributed to market participants reducing the amount

Figure 3.3

Spread between 90-day bank bill rate and 3-month overnight index swap (OIS) rate



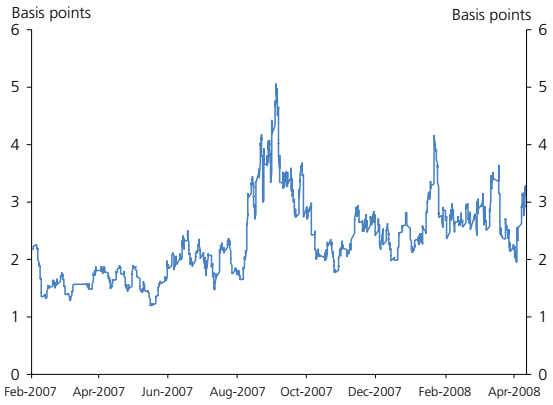
Source: RBNZ.

[4] Issuers of Uridashis provide the role of counterparties in swap transactions with New Zealand banks borrowing abroad who then swap the proceeds and the associated stream of interest payments into NZD funding. For an explanation of the relationship between the Uridashi bond and interest rate swap markets, see Drage, D, A Munro and C Sleeman (2005) 'An update on Eurokiwi and Uridashi bonds', Reserve Bank of New Zealand *Bulletin*, 68 (3).

[5] See Reserve Bank of New Zealand: *Financial Stability Report*, November 2007 for a summary of actions by the Reserve Bank of New Zealand to improve interbank liquidity.

of risk they are willing to take in New Zealand's financial markets, given ongoing turbulence in global financial markets and New Zealand's position as a peripheral market for many investors. However, market participants report there have been some improvements in liquidity conditions in 90-day bank bill future and interest rates swap[6] markets recently. Transaction volumes in the bank bill futures market have increased over 2008, while average bid-offer spreads[7] have narrowed over the period (figure 3.4).

Figure 3.4
Average bid-ask spread across 1st four 90-day bank bill futures
(5-day moving average)

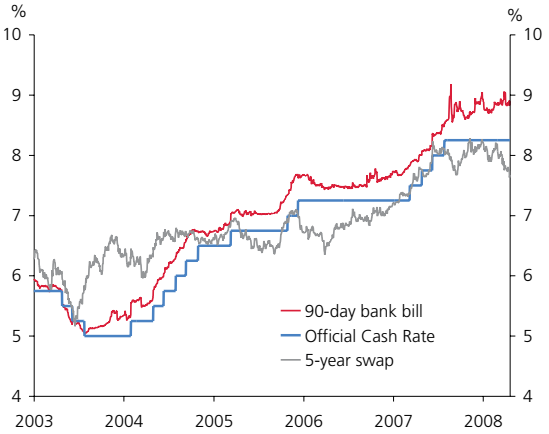


Source: RBNZ estimates.

Market participants have also reported a similar improvement in swaps market liquidity over the period. Data on the spread between the daily high and low swap yield traded over the past few years gives some indication of the volatility in the interest rate swaps market, which tends to be higher during periods of illiquidity. This spread has narrowed since late November, and is now consistent with levels prevailing over the last few years. The recent increase in Uridashi and Eurokiwi issuance over the past few months is further evidence of an improvement in interest rate swap market liquidity, as this issuance typically involves transactions in New Zealand's interest rates swaps market.

Swap rates in New Zealand have risen steadily over recent years as monetary policy has tightened (figure 3.5). However, increased market expectations of a policy easing in the future have seen swap rates decline in recent months. Consistent with developments in other countries, it is likely that the risk premium demanded by investors in the swaps market has increased recently despite the overall fall in swap rates. Unlike in some other countries, the spreads between swap rates and government bond yields are likely to be a poor indicator of this risk premium in New Zealand given the relative illiquidity of the government bond market.[8] However, the increase in Credit Default Swap (CDS) spreads on Australian parent banks is consistent with the idea that risk premia are elevated. While Australasia was initially seen as insulated from financial developments in late 2007, more recently Australasian bank risk implied in the CDS market has been closer to that implied for large US and European financial institutions.

Figure 3.5
Interest rates
(OCR, 90-day bank bill and swap rates)



Sources: Bloomberg and RBNZ

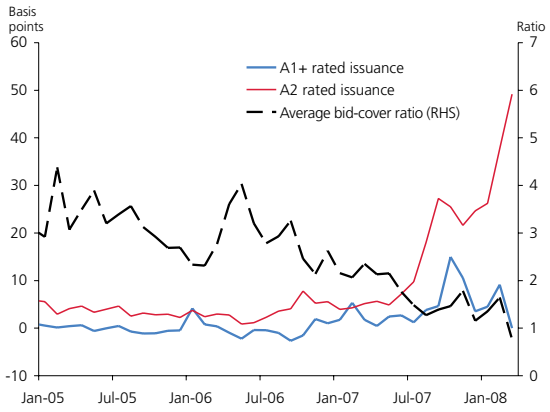
[6] **An interest rate swap is a derivative instrument under which parties agree to exchange a stream of fixed interest payments on a notional amount of capital with a stream of floating interest payments, over a certain time horizon.**

[7] **A bid-offer spread is the difference between the best sell price in the market (the 'offer') and the best buy price in the market (the 'bid') at a point in time.**

[8] **This illiquidity is a result of the relatively low stock of government bonds. A large proportion of these bonds are held offshore and many offshore investors do not tend to trade these securities.**

Global funding and credit market pressures have also pushed up funding costs for local corporate borrowers and have led to weaker investor appetite for NZD commercial paper. Commercial paper issuance in the local market has occurred at substantially higher margins above domestic bank bill yields in recent months (figure 3.6) and issuance has been relatively light. This reflects weaker demand for the paper as well as companies scaling back commercial paper programmes due to the high cost of funding, relying instead on bank funding.

Figure 3.6
Spreads between commercial paper and bank bill rates



Sources: Reuters and RBNZ.

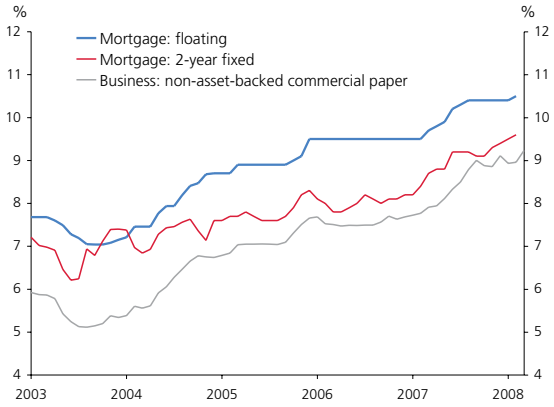
3.3 Domestic environment

The New Zealand economy has experienced sustained growth in recent years, which has been reflected in strong growth in business and household incomes and very low unemployment. While the tight labour market, a strong terms of trade, higher government spending and the likelihood of personal income tax cuts will provide support to the economy, a period of slower growth is in prospect. Indeed, the outlook has deteriorated since our last *Report*, given a weaker outlook for world growth, tighter credit conditions and a marked softening in the housing market. Although many businesses and households are well placed to withstand the effects of a weaker economy, there is an increased likelihood of some financial strains in these sectors over the next few years.

As explained in our March 2008 *Monetary Policy Statement*, there is a risk that the downturn in the world economy proves more pronounced than expected, which would affect New Zealand in a variety of ways, including through reduced export demand and a sharp correction in the exchange rate. Some uncertainty must also be attached to the path of house prices over the next few years, with the possibility of a larger decline than in most forecasts.

Both households and businesses are currently facing higher interest rates (figure 3.7). Interest rates have increased gradually in recent years reflecting ongoing increases in the OCR. More recently, higher funding costs as a result of global market conditions have led to further increases in interest rates despite an unchanged OCR. Credit availability also appears to have tightened.

Figure 3.7
Indicative cost of borrowing for New Zealand households and businesses

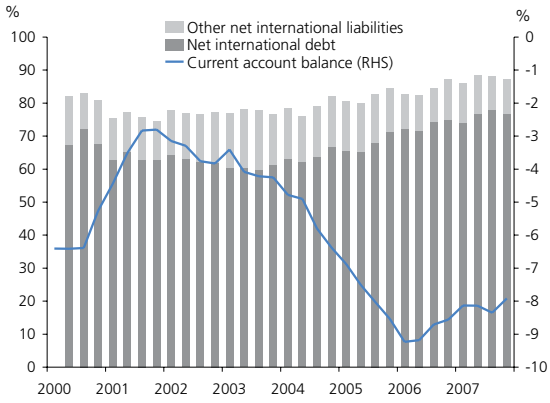


Source: Reuters and RBNZ calculations.
Note: Data on commercial paper rates include local authority issuance.

Another factor shaping New Zealand's economic environment has been a steady rise in New Zealand's net foreign liabilities (figure 3.8) consistent with ongoing current account deficits in recent years. Strong domestic demand – seen in household dissaving and strong business investment – has been a key factor behind these deficits. In practice, much of this extra external debt has been intermediated via the banking system to fund domestic lending. A softer

economy is expected to see some narrowing in current account deficits over the period ahead. However, as explained in Chapter 4, the banking system is likely to remain very reliant on foreign funding in the foreseeable future.

Figure 3.8
New Zealand's external position
(percent of GDP)



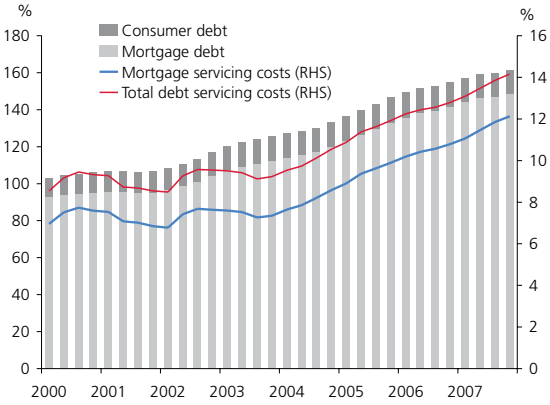
Source: Statistics New Zealand.
Note: Other net international liabilities include foreign direct investment and holdings of equity securities.

3.3.1 Developments in the household sector

New Zealand households have become increasingly indebted over recent years. A period of strength in the housing market has driven rapid growth in mortgage debt, with the total value of outstanding mortgages in New Zealand reaching more than $155 billion by December 2007 - more than twice its level at the end of 2002. Other forms of household borrowing (including credit card debt) have also recorded steady growth. The ratio of total household debt to disposable income is estimated to have risen to around 160 percent by March this year, up from 100 percent in the late 1990s (figure 3.9). A similar trend has been observed in several other countries that have experienced strong house price increases in recent years, including Australia and the UK.

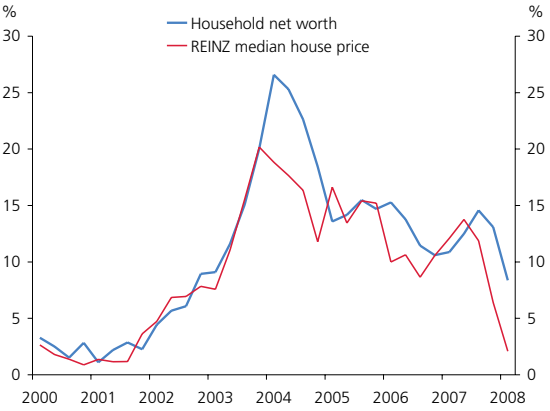
Until very recently, household balance sheets have been underpinned by rapid house price inflation and a steep rise in the value of housing assets (figure 3.10). Household net worth increased at an average annual rate of approximately 9 percent in the ten years to the end of 2007 (table 3.1). Some of these gains are, however, likely to be eroded in

Figure 3.9
Household indebtedness
(percent of disposable income)



Source: Statistics New Zealand and RBNZ calculations
Note: Household disposable income is gross before deduction of interest paid and consumption of fixed capital. Quarterly data are interpolated from March-year national accounts data.

Figure 3.10
Household net worth and residential house prices
(annual percent change)



Sources: Real Estate Institute of New Zealand (REINZ) and RBNZ calculations.

the period ahead as weakness in the housing market reduces property valuations. Annual house price inflation has declined sharply since the middle of 2007, and leading indicators, including recent data on house sales, suggest further weakness ahead (figure 3.11). Moreover, standard metrics of housing affordability remain substantially above their long-term averages (figure 3.12).

Table 3.1

Household assets and liabilities

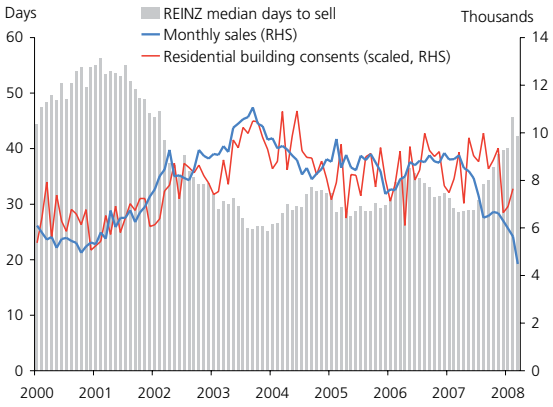
As at December	$ billion 2007	Share of total assets 2007	Year-ended growth (annual percentage) 2006	2007	Average growth rate (1998-2007)
Total household assets	814	100	11.4	8.9	9.5
Dwellings	614	75.4	10.5	9.8	10.8
Financial assets	200	24.6	14.1	6.3	6.3
Total household liabilities	170	20.9	12.7	11.9	11.2
Housing related	156	19.2	13.6	12.6	11.5
Consumer	14	1.7	3.4	3.8	8.2
Household net worth	644	-	11.0	8.2	9.1

Source: RBNZ.

Note: The table captures the major components of household financial assets, but excludes unlisted equities and some assets held overseas. We have not included an estimate of consumer durable wealth, unlike in previous FSRs.

Figure 3.11

Housing market indicators



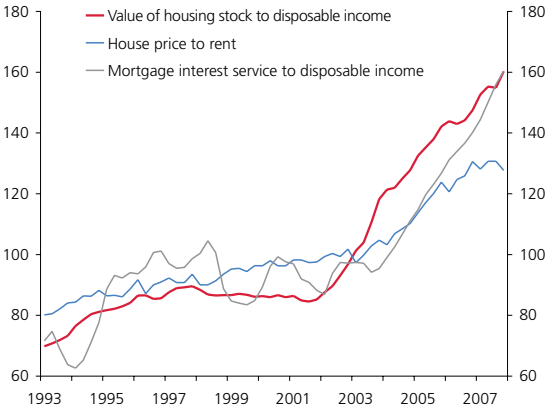
Sources: Statistics New Zealand and REINZ.

Note: Median days to sell and monthly sales volume seasonally adjusted. Building consent series has been rescaled for comparison to sales data.

Figure 3.12

Housing affordability ratios

(sample averages = 100)



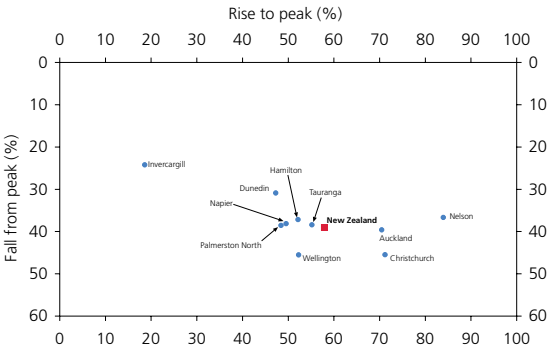
Sources: Ministry of Housing, Quotable Value Ltd, Statistics New Zealand and RBNZ calculations.

Declining nominal house prices will reduce household net worth and the value of the security on mortgage debt. A sufficiently large decline could, in principle, result in some New Zealand households experiencing 'negative equity' – a situation in which the market value of a property drops below the outstanding mortgage secured on it. Recent homebuyers with large mortgages are most at risk, but even for these borrowers, a substantial fall in house prices would be required to generate widespread negative equity. We are not forecasting such a fall, but it remains a risk. Moreover, examination of New Zealand's worst post-war housing market downturn (in the mid-1970s, figure 3.13)[9] suggests that house price declines can be significantly worse in some regions than in others, and this is consistent with international experience, including the recent US experience discussed in chapter 2.

[9] **Note that the run-up in house prices over recent years has been significantly greater than was seen during the 1970s. The illustration of the 1970s house price cycle is purely to highlight the tendency for significant regional dispersion in house price movements, not to project likely developments in the current cycle.**

Figure 3.13

Real house prices in New Zealand during the 1970s, by region



Sources: Quotable Value Ltd, Statistics New Zealand and RBNZ calculations

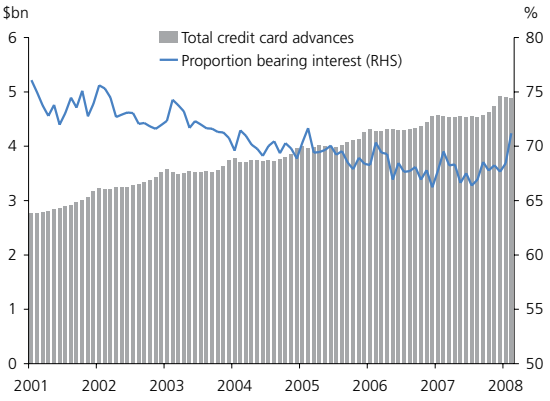
Note: Rise to peak measured from post-1970 trough to decade high; decline measured from peak to June 1980.

Record low unemployment and steady growth in hourly earnings has underpinned New Zealand households' capacity to service rising amounts of debt. However, the combined effects of larger debt burdens and rising interest rates have resulted in a sharp rise in households' debt-servicing costs relative to disposable income (figure 3.9). Almost all of the increase is due to higher payments on mortgage debt, which now account for more than 12 percent of the disposable income of the average New Zealand household. Since not all households have mortgages, this figure is likely to be considerably higher for many households.[10]

The backdrop of a weaker housing market and a slower economy could affect servicing capacity for some households in the period ahead. Some households may be exposed in the event of any economic shocks that affect household incomes – most notably a rise in unemployment. Past experience and New Zealanders' strong aspirations regarding home ownership suggest that many home-owners experiencing financial difficulties will tend to prioritise mortgage repayments on their own house over other obligations. On this theory, a sharp rise in consumer debt, especially credit card debt, could be indicative of emerging strains in the household sector. However, abstracting from seasonal fluctuations, outstanding balances on personal credit cards have continued to grow relatively modestly and the proportion incurring interest remains below the levels observed earlier in the decade (figure 3.14). Other consumer credit has continued to grow steadily in recent times.

Figure 3.14

Credit card debt outstanding



Source: RBNZ.

Note: Personal credit cards only.

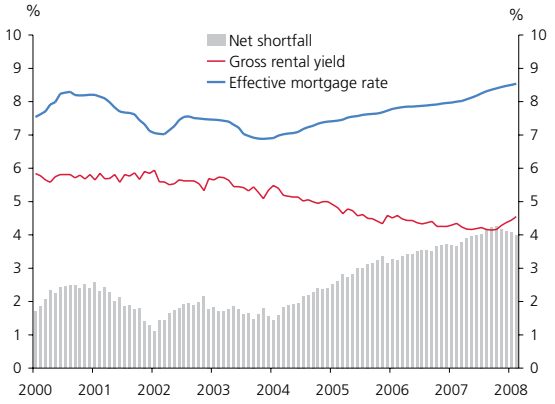
An additional effect of falling property prices is to diminish the attractiveness of housing as an investment asset. Residential property investment has accounted for a significant portion of housing market activity in recent years, with investors often relying on house price inflation to sustain positive returns against a backdrop of falling rental yields and rising mortgage rates (figure 3.15). Such investors are sometimes highly geared. It is possible that debt-servicing difficulties (or uncertainty about the path of house prices) could prompt some investors to try and sell properties, reinforcing weakness in the housing market.

The possibility of pressures on household finances over the coming years highlights the importance of the New Zealand banks and other financial institutions making adequate preparations for a rise in loan arrears (see Chapter 4).

[10] According to the 2007 Household Economic Survey, mortgage-related payments accounted for 22 percent of total net expenditure for the 32 percent of New Zealand households that own their own homes with a mortgage.

Figure 3.15

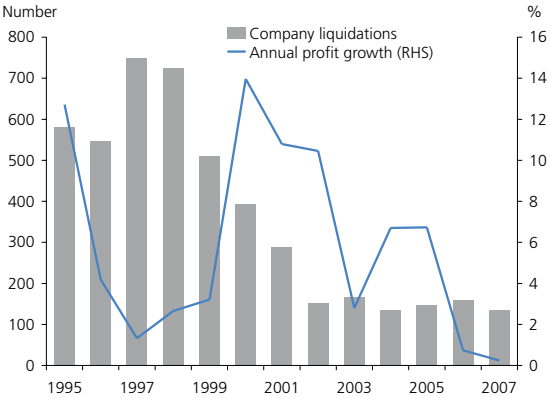
Residential rental yields and mortgage rates



Sources: Ministry of Housing, REINZ and RBNZ calculations.

Figure 3.16

Number of company liquidations and non-farm business profitability



Source: Ministry of Economic Development, Statistics New Zealand and RBNZ calculations.

Note: Annual growth in non-farm profits estimated from national accounts data under assumptions regarding sectoral contributions to the economy-wide net operating surplus.

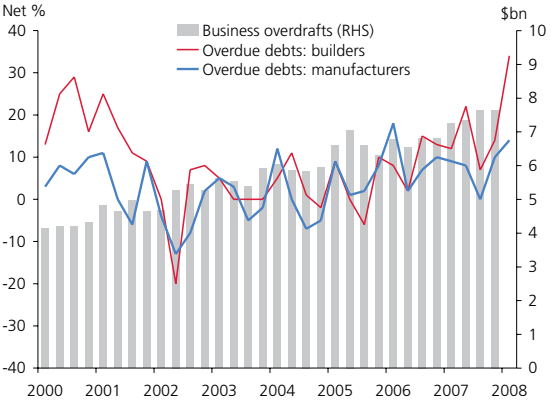
3.3.2 Developments in the business sector

Credit conditions in the business sector have tightened since the November *Report*. Ongoing disruption in global credit markets and strains in the domestic non-bank lending sector have resulted in an increase in the cost of borrowing. There is also growing anecdotal evidence that some businesses are encountering constraints on their ability to obtain to credit on affordable terms, although regular surveys of business opinion have not so far revealed availability of finance to have been a major impediment to activity.

The number of company liquidations remains at historically low levels (figure 3.16), but business profitability, which has grown rapidly in recent years, appears to be under some pressure and analyst forecasts for growth in listed company earnings have been revised downward. Recent surveys of business opinion have revealed a sharp drop in confidence and expected activity levels across the sector. Moreover, the number of construction and manufacturing firms reporting overdue payments from debtors has increased sharply in the first quarter of 2008, which may foreshadow a more general rise in financial pressures and loan delinquencies across the business sector. There has also been some increase in the use of business overdrafts recently, which is also consistent with tighter cash flows (figure 3.17).

Figure 3.17

Indicators of financial stress in the business sector



Sources: New Zealand Institute for Economic Research (NZIER) and RBNZ.

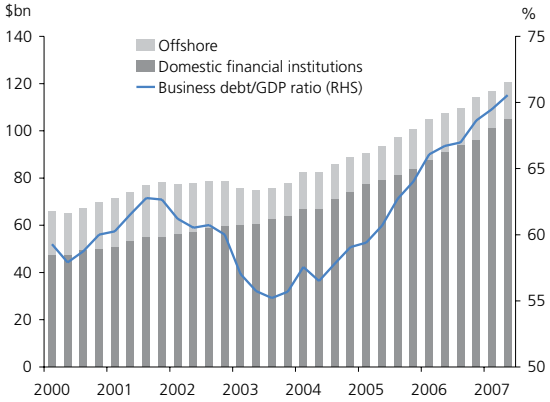
Note: Overdue debts – net percentage of respondents to NZIER Quarterly Survey of Business Opinion (QSBO) reporting late payments from debtors. Business overdrafts – non-personal overdrafts with registered banks.

Notwithstanding signs that credit conditions have recently tightened, business debt has continued to grow relatively strongly (figure 3.18). Annual growth in business borrowing (including agriculture) from domestic financial institutions has slowed only marginally, and the total debt outstanding now exceeds $100 billion. Offshore debt is less substantial and has remained relatively static since the

middle of 2007, albeit with a marked shift towards shorter-term borrowing. At the margin, as in Australia, some firms may be seeking funding from banks because debt market funding has become harder to obtain.

Figure 3.18

Business debt in New Zealand, by source



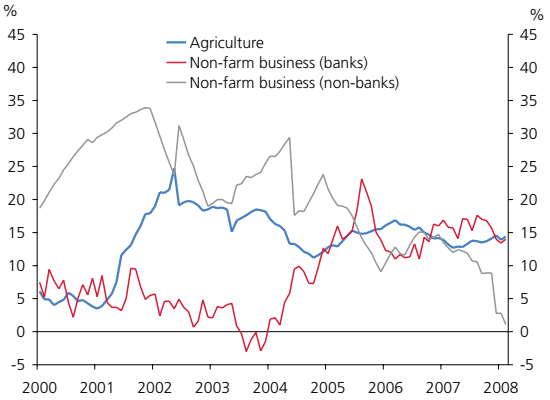
Sources: Statistics New Zealand and RBNZ.
Note: Excludes corporate bonds issued in the domestic market and held by New Zealand residents.

Debt in the agricultural sector has continued to grow at close to 15 percent annually – a trend that has persisted for the past several years. As discussed in box C, dairy farms account for around 40 percent of total agricultural debt, most of which can be readily serviced thanks to high international milk prices. Elsewhere in the agricultural sector, farm finances are under greater pressure as the strength of the exchange rate and lower production volumes have depressed incomes. Anecdotal evidence suggests that some sheep and beef farms are currently operating at a loss. Rural land prices have nevertheless continued to increase steadily, partly reflecting the potential for dairy conversions. Although the ongoing rise in rural land prices has supported the collateral securing lending to the sector, growing debt could create a point of vulnerability in the event that future earnings prospects deteriorate.

A significant factor in the rise in non-farm business debt since 2000 has been the availability of credit from the non-bank lending sector. As discussed in Chapter 4, this sector is now encountering significant financial pressures and its lending capacity has dropped sharply (figure 3.19), to the extent that growth in non-bank credit to the non-farm business sector has dropped sharply over the past twelve months.

Figure 3.19

Growth in domestic financial institution lending to the business sector

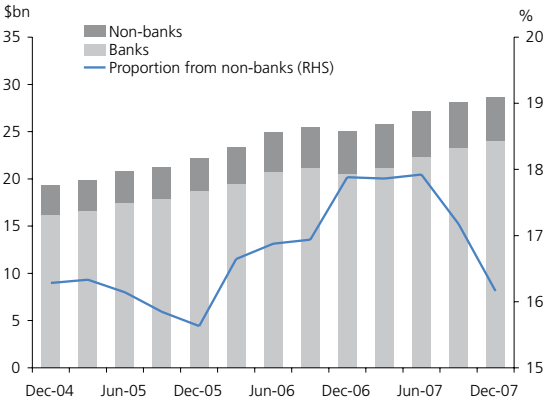


Source: RBNZ.
Note: Series for agriculture covers borrowing from banks and non-banks.

The effect of reduced credit availability from NBLIs is most significant in the property development sector, which has traditionally obtained an important portion of its total financing from these institutions (figure 3.20). Non-bank funding to the sector tends to be relatively high-risk 'mezzanine' finance. Anecdotal evidence suggests that tighter credit conditions are squeezing developers' profit margins, contributing to the cancellation or postponement of some projects.

Figure 3.20

Debt in the property and business services sector

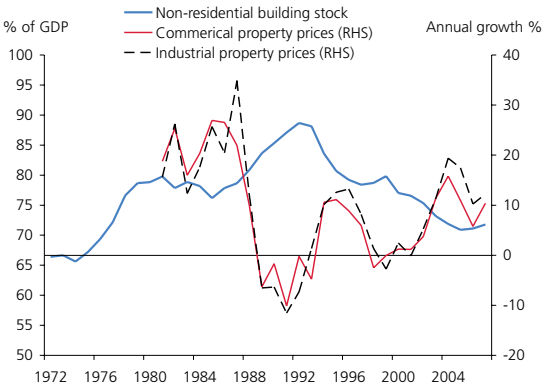


Source: RBNZ.

After growing strongly for several years (consistent with economic expansion), commercial and industrial property prices are expected to soften in the period ahead. Nevertheless, a range of reports by commercial property specialists show low vacancy rates and strong growth in rents, although market conditions are likely to vary considerably across regions. There is also limited evidence of a significant excess supply of commercial and industrial property at present, at least as measured by the ratio of the stock of non-residential buildings to GDP (figure 3.21). Nevertheless, a slowing in economic activity could create a glut of property in some segments, impacting property prices, rents and cash flows. Moreover, financing constraints could continue to weigh on the sector even if the underlying demand for property remains reasonably resilient.

Figure 3.21

Non-residential building stock and commercial and industrial property prices



Sources: Statistics New Zealand and Quotable Value Ltd.
Note: Commercial and industrial property price data not available prior to 1980.

Box C

Agricultural sector indebtedness[11]

Previous *Reports* have highlighted increases in farm indebtedness and vulnerability to rising interest rates, low commodity prices, and an overvalued exchange rate. Fluctuations in income – which influence land prices and lending growth with varying lags – give rise to risks in farm balance sheets. This box reports on some preliminary analysis of tax data from IR10 returns, which are supplied by Inland Revenue to Statistics New Zealand under the Tax Administration Act, to investigate the distribution of risk. This dataset covers approximately 65,000 farms (measured in the 2005/06 financial year). The largest sectors are sheep and beef (23,550 farms); dairy (14,322 farms); and horticulture and fruit-growing (8,961 farms).

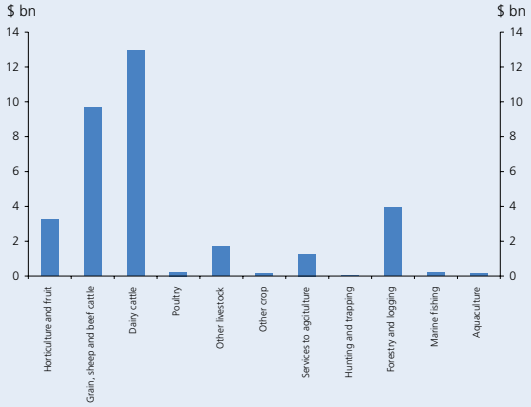
The data suggest that credit extended to the agricultural sector reached more than $36 billion as at the end of March 2006.[12] In contrast, the Reserve Bank's Standard Statistical Returns (SSR) show lending to the agricultural sector of $28 billion. However, the coverage of these two sources is quite different. The distribution of liabilities by sector given by the IR10 data set is shown in figure C1. Dairy farms account for $12.9 billion of total agricultural sector liabilities. Sheep and beef farms account for a further $9.7 billion.

Distribution of liabilities

Figure C2 shows the distribution of liabilities (excluding accounts payable) across farms. Across all farms, just 20 percent hold around 82 percent of the liabilities. Figure C2 also shows that liabilities in the dairy sector are more widely spread than among sheep and beef farms. The most indebted 20 percent of dairy farms account for 73 percent of liabilities, compared to 78 percent for sheep and beef farms.

Figure C1

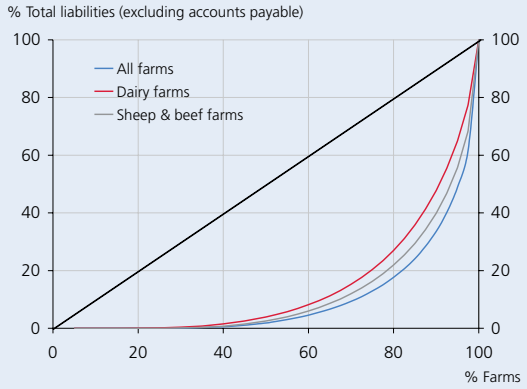
Farm liabilities by sector, 2005/06



Sources: Statistics New Zealand and RBNZ calculations.

Figure C2

Distribution of farm liabilities, 2005/06



Sources: Statistics New Zealand and RBNZ calculations.

New entrants

Rising land prices have increased farm prices, resulting in higher levels of indebtedness among new entrants. Capital investment required to convert sheep and beef farms to dairy has also increased leverage in the dairy sector. Figure C3 shows median gearing ratios by farm birth date. Farms created before 1997 have markedly lower levels of gearing than their recently created counterparts, which may enable them to better weather a period of higher exchange rates or weaker commodity prices.

[11] **Further information on the data used for this analysis (including a disclaimer) is contained in the datafile for the *Financial Stability Report* on the Reserve Bank's website.**

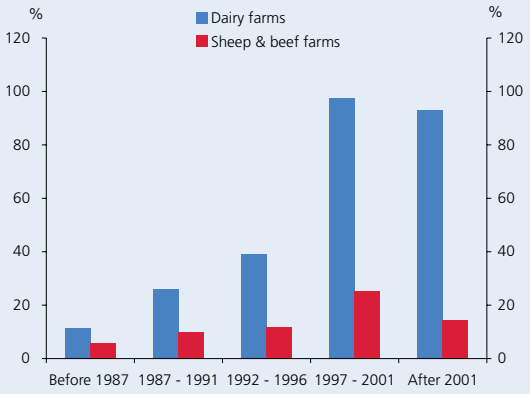
[12] **Note that the IR10 will include 'family debt' (ie, debt extended by family members, which does not ordinarily incur interest).**

Dairy farms report considerably higher gearing than sheep and beef farms, particularly farms created more recently. The median established (created before 1987) dairy farm is twice as leveraged as sheep and beef farms in the same age cohort. In contrast, recently created dairy farms have a median gearing ratio of 6.5 times that of a sheep and beef farm in the same age cohort.

Figure C3

Median gearing by birth date, 2005/06

(Total liabilities, excluding accounts payable, as a share of equity)[13]



Sources: Statistics New Zealand and RBNZ calculations.

[13] Note that the calculated equity in the farm will depend crucially on the stated land value. Land is typically revalued every one to three years for accounting purposes.

4 New Zealand's financial institutions

New Zealand's banks have not been directly affected by difficulties in the US sub-prime mortgage market nor have they developed the complex investment vehicles associated with current difficulties in that market. However, the global credit crisis has resulted in a sharp increase in the cost of funds for the Australasian banks and has reduced access to term funding in global markets. These costs are being passed on to both households and businesses and credit conditions are tightening. Looking ahead, New Zealand's banks face the challenge of diversifying sources of funding and lengthening its maturity. An outlook of weaker economic growth and a downturn in the housing market is likely to see credit losses increase over the next few years but banks have a sufficient capital buffer to absorb these losses.

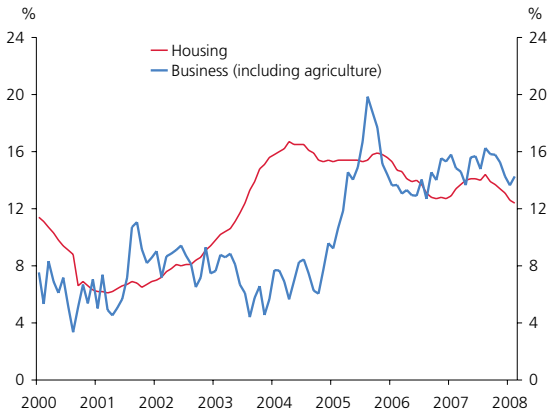
New Zealand's non-bank financial sector continues to face considerable upheaval, with additional finance companies placed in receivership or reporting difficulties since our last Report *in November. However, we remain of the view that failures in the sector are unlikely to have widespread negative effects on the financial system or broader economy, although particular pressures are evident in certain industries, such as property development.*

4.1 The banking system

The balance sheets of New Zealand's banks have expanded rapidly in recent years, with strong lending growth to both the household and business sectors (figure 4.1). Lending growth to households has been largely in the form of residential mortgages, which have increased as a share of total bank assets. Lending growth to businesses has been relatively broad-based.

The rate of growth in bank lending has slowed over the past year. With the New Zealand economy projected to grow at slower rates over the next three years, a sustained period of more moderate bank balance sheet expansion appears likely. Softer housing market activity and weaker house prices have already been reflected in a slowing in bank lending for housing. Moderation in housing credit growth will be reinforced by the recent increase in the banks' cost of funds in overseas markets – which is being passed on to domestic borrowers – and by a general tightening in credit standards as banks respond to increasing risk in their asset books. To date, the slowing in growth in lending to businesses has been more modest, with some components, such as lending to agriculture, having increased quite strongly since early 2007.

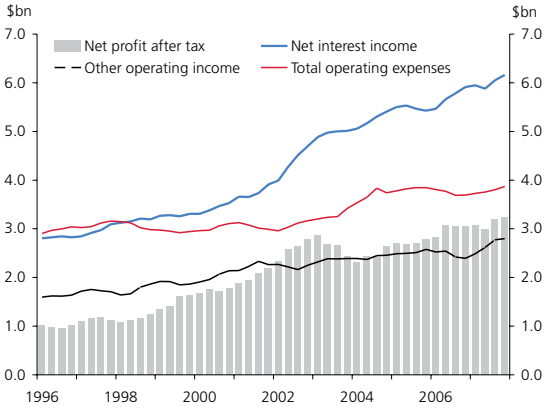
Figure 4.1
Annual growth in bank lending



Source: RBNZ.

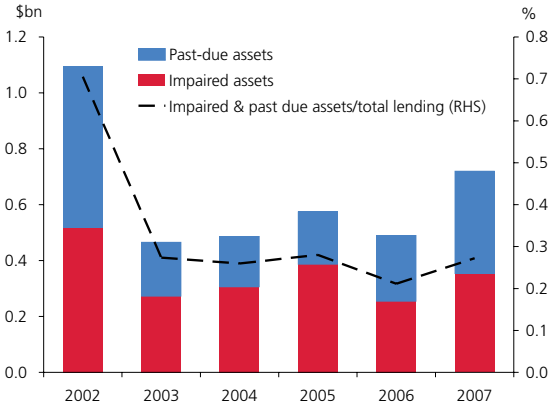
Bank profitability has been strong in recent years (figure 4.2), which has bolstered capital.[1] Indeed, all banks in New Zealand hold capital above the regulatory minima, providing them with a buffer to withstand credit losses. These losses have been very low in recent years (figure 4.3), mainly reflecting the expanding domestic economy and a strong labour market.

Figure 4.2
Banks' financial performance



Source: Registered banks' General Disclosure Statement, as at 31 December 2007.

Figure 4.3
Banks' asset quality



Source: Registered banks' General Disclosure Statement, as at 31 December 2007.

As figure 4.3 shows, the level of impaired assets has begun to edge up recently, although it remains low in absolute terms. The recent increase is consistent with slower rates of growth in economic activity, the softer housing market and particular pressures in some sectors, such as construction and property development. Given the significant increase in lending for housing over recent years and the risks of a significant correction in the level of house prices, a rise in losses on housing lending is a key risk for the banks in the period ahead. Anecdotal evidence and some partial data on mortgagee sales suggests that banks are already seeing some increase in financial strains in the household sector.

Generally, business lending quality remains strong with the New Zealand banks reporting little significant impairment. The banks will need to remain mindful of developments in the US and Australia, where corporate lending impairment has contributed to reported losses for some US banks and reduced profitability for some Australian parent banks. Some businesses could experience difficulty in replacing and servicing debt in a more expensive funding environment. This is most likely to be an issue for businesses that are highly geared. Businesses exposed to the housing cycle could also come under financial pressure. New Zealand banks could therefore experience elevated levels of business lending impairment, particularly if the global credit crisis is protracted.

As discussed further in Chapter 6, which outlines the recent implementation of the new Basel II regime for the calculation of regulatory capital, the Reserve Bank has been mindful that the relatively benign credit conditions will not continue indefinitely, and a key objective has been to ensure that banks' minimum capital requirements are appropriately calibrated against the risks inherent in their lending. It will be important that the banks continue to manage their credit risks carefully over the period ahead. In current circumstances, a more cautious approach to lending on the part of the banks appears prudent. However, there is a risk that if credit conditions are tightened excessively, the slow-down in the economy will be exacerbated, putting additional financial pressure on households and businesses.

The New Zealand banks have not had material direct exposure to those US securitised assets which have been trading at distressed prices in offshore markets. Some Australian parent banks have had some exposure to assets affected by the sub-prime crisis or related risk repricing, although the overall level of exposure appears to be contained. One Australian bank has provided for impairment

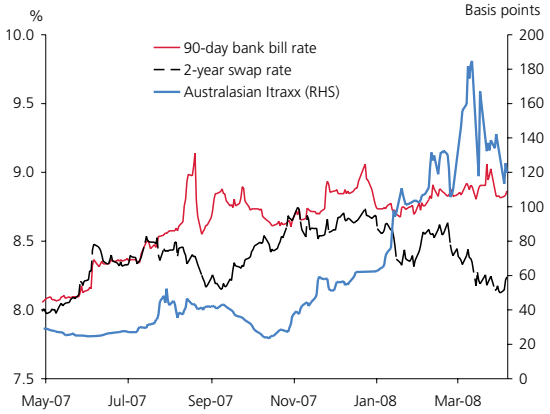
[1] The ratio of tier one capital to total risk-weighted assets for locally incorporated banks remains stable at about 8 percent. The ratio of total capital to risk-weighted assets sits at just under 11 percent.

of credit insurance cover purchased from a US monoline insurer whose rating has since been downgraded.

However, the banks in both Australia and New Zealand have not been insulated from the indirect effects of global developments. As explained in box D, the economies of both New Zealand and Australia are relatively reliant on non-resident funding, much of which is intermediated via the banking system. In overseas markets, medium- and long-term funding is currently fairly expensive for the New Zealand banks once the base interest rate, margins and the cost of swapping foreign currency to NZ dollars are taken into account. Given the more uncertain state of global markets, banks in both Australia and New Zealand have been tapping global funding markets in recent months, with banks on both sides of the Tasman taking on significant additional non-resident funding during the March quarter.

Figure 4.4

Indicators of wholesale funding costs



Source: Bloomberg. Itraxx covers Australian companies only.

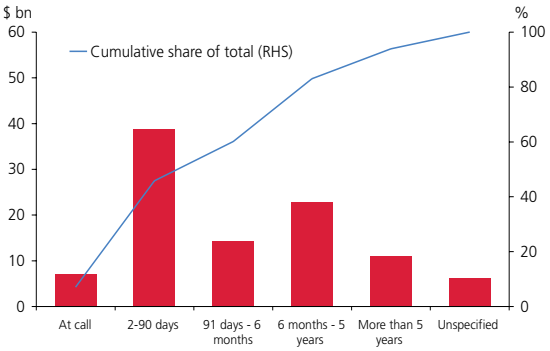
The relatively high cost of long-term funding has seen most banks looking to raise short-term debt. Australasian[2] banks are believed to be paying a larger premium over swap rates to secure term funding. A broad indication of this is provided by the substantial increase in Credit Default Swaps spreads over recent months (figure 4.4). This makes short-term funding more attractive from a pricing perspective. However, shorter-term funding costs are also higher with the spread between ninety day bank bills and the three month overnight index swap trading around 30 basis points higher than prior to the credit crisis.

Reflecting New Zealand's high external indebtedness, relative to the size of the economy, the banking system's reliance on external funding is high by international standards. In addition, a significant portion of this funding is undertaken at relatively short terms, which creates risks in the event that funding lines become impaired or significantly more costly. As at December 2007, nearly half of the banks' non-resident funding had a residual maturity of 90 days or less (figure 4.5).

Figure 4.5

The residual maturity of the banks' non-resident funding

(As at December 2007)



Sources: Statistics New Zealand and RBNZ calculations.

Changes in the availability or cost of funds create risks that all banks need to manage as part of their ongoing operations. Banks' funding models generally involve borrowing for both short and long terms, but banks do have choice over the maturity at which funding is obtained. In addition, diversification of funding sources can provide a measure of protection in the event that certain funding lines cannot be readily accessed and/or become relatively expensive. The banks need to ensure that they adopt strategies that will help to reduce their overall exposure to disruptions in global funding markets. The Reserve Bank is currently reviewing its prudential liquidity policy for banks and would encourage efforts on the part of the banks to diversify their funding sources and lengthen the maturity structure of their debt.

[2] **See, for example, the Reserve Bank of Australia's March *Financial Stability Review*. The RBA noted that Australian banks had undertaken significant bond issuance in the first quarter of 2008, but had gone for an average term around 2 years, which compares with an average term around $4^1/_2$ years prior to the recent developments.**

Box D

Trends in bank funding

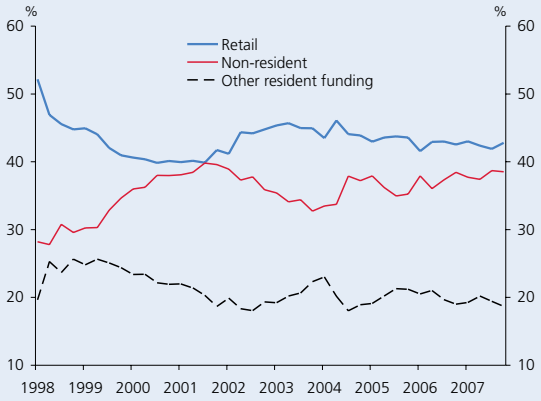
In recent years, the balance sheets of the banks have expanded rapidly given strong growth in domestic lending, particularly to households. The expansion in lending has necessarily required a substantial increase in funding. In aggregate, banks have funded the increase in lending from both domestic and non-resident sources.

Banks raise around 60 percent of their funding domestically (table D1), with around 70 percent of these funds coming from the retail market – principally deposits from households. The banking system has also had an increasing reliance on funding from abroad. Over the past decade, the non-resident funding share has been on an upward trend, rising from less than 30 percent in 1998 to nearly 40 percent currently (figure 1). Non-resident funding has grown by around $34 billion (or 48 percent) over the past three years.

The reliance on non-resident funding differs across the banks. The four largest Australian-owned banks raise more than 30 percent of their funding from abroad. Some of this funding is sourced from the parent bank in Australia, but the banks also raise significant funds on their own account. It is noteworthy that the Australian parent banks are themselves heavily reliant on the global financial markets for funding, with about 25 percent of the Australian banking system's funding sourced from global markets. The parent funding channel thus does not necessarily fully allay the risk that banks face in accessing global markets. In contrast, the New Zealand-owned retail banks raise the bulk of their funding from domestic markets.[4]

The domestic funding pool has grown quite strongly in recent years, albeit not as quickly as overall bank funding. A rise in retail funding – around $32 billion since 2004 – has generated nearly half of the overall increase in funds needed to support growth in lending. It is likely that much of this growth in retail funding has been a result of rapid domestic credit growth, which tends to boost the domestic

Figure D1
Shares of domestic and non-resident bank funding



Source: RBNZ.

Table D1
Bank funding[3]
(NZ$ billions)

	10 years ago	*Share*	Current	*Share*
Retail	50.5	*44.6%*	125.2	*42.4%*
All other resident funding	29.3	*25.9%*	53.8	*18.2%*
Resident funding	79.8	*70.4%*	178.9	*60.6%*
Non-resident funding	33.5	*29.6%*	116.5	*39.4%*
Total funding	113.3	*100.0%*	295.4	*100.0%*

[3] 'Current' as at February 2008. '10 years ago' as at December 1998.

[4] However, a presence in domestic wholesale markets means that these banks are not necessarily insulated from an increase in the cost of funds in global markets.

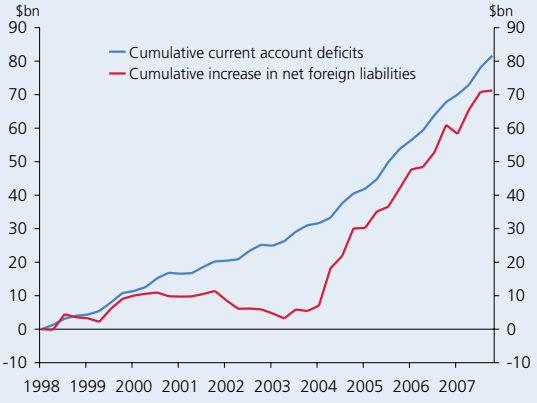
money supply as the proceeds of new loans are recycled through the economy.

Those banks raising funds from non-residents use a range of instruments. Funds may be raised in either New Zealand dollars or foreign currency, with swaps used to convert the foreign currency funding into New Zealand dollars and secure an exchange rate hedge. Most of the additional non-resident funding in recent years has been raised via foreign currency funding. Short-term debt is raised in the offshore Commercial Paper (CP) market, usually in US dollars and typically for maturities of around 90 to 180 days. Longer-dated paper is issued in the form of Medium Term Notes and Bonds. The amount of foreign currency Commercial Paper and Medium Term Notes and Bonds outstanding has grown significantly in recent years and accounts for a substantial part of the overall increase in the banks' non-resident funding.

In principle, the banking system's contribution to financing the current account deficit is represented by the change in net bank funding from non-residents over a given period (ie, gross funding from non-residents minus gross claims). Since 1998, the New Zealand banks have taken on an extra $73 billion in net funding from non residents. As figure 2 shows, this increase in funding almost matches accumulated current account deficits over the same period. The banks' borrowing from non-residents to fund domestic lending thus appears to have been the dominant channel through which New Zealand has financed its current account deficit over the past decade in lieu of other channels such as direct equity investment from overseas.

Figure D2

The funding of New Zealand's current account deficit



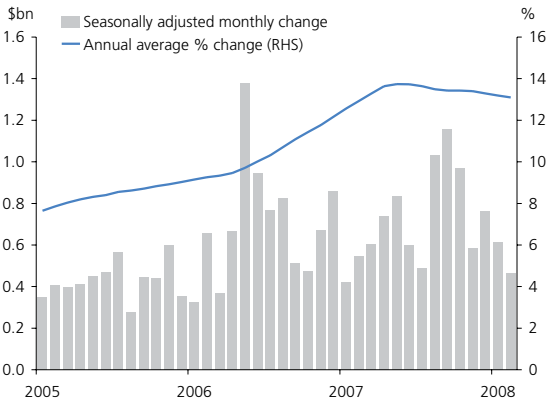
Source: Statistics New Zealand, RBNZ. 'Net foreign liabilities' are registered banks' non-resident funding less non-resident claims.

Falling reinvestment rates among some non-bank deposit-takers and higher retail deposit rates saw strong growth in household deposits at banks in the last few months of 2007 (figure 4.6). As a consequence, wholesale funding as a percentage of total funding appears to have fallen slightly. Some New Zealand banks are currently diversifying their offshore funding sources and instruments eg, using private placements. The recent issuance of perpetual non-cumulative shares, retail bonds and similar instruments reflects attempts to diversify domestic sources of funding and lengthen its maturity. Further efforts in this regard would be appropriate given the risk of ongoing disruptions to global markets and bank funding sources.

Reflecting recent increases in funding costs, the banks have increased mortgage interest margins (the spread between mortgage rates and swap rates) (figure 4.7). Banks have also been securing higher margins from business lending over recent months. Net interest margins (figure 4.8) have fallen in recent years with intense competition in mortgage lending markets. However, it is likely that recent events will lead to higher interest margins going forward.

Figure 4.6

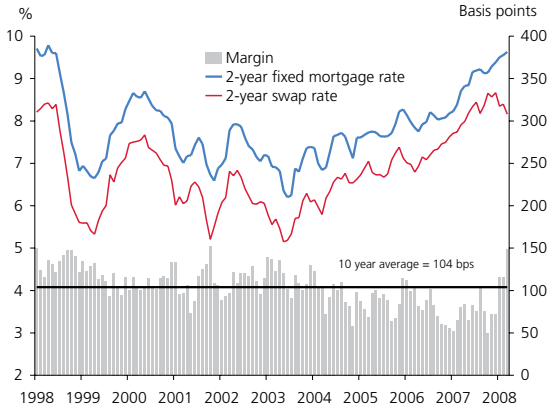
Growth in bank household deposits - monthly change and annual growth



Source: RBNZ.

Figure 4.7

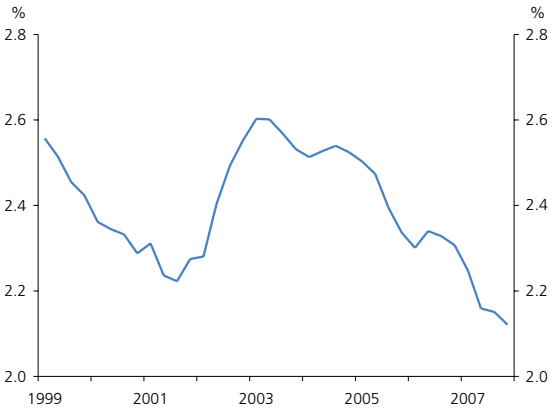
Two-year fixed-term mortgage interest rate, two-year swap rate, and margin



Sources: Bloomberg, RBNZ.

Figure 4.8

Banks' net interest margin



Source: Registered banks' GDS, as at 31 December 2007.

4.2 Non-bank lending institutions

New Zealand's non-bank financial sector continues to face considerable upheaval with additional finance companies placed in receivership or reporting difficulties since our last *Report* in November. Lower deposit re-investment rates in the finance company sector continue to place pressure on liquidity. Current financial market pressures have further reduced the capacity of some institutions to obtain funding from other sources, including the banking system. However, failures in the sector are unlikely to have widespread negative effects on the financial system or broader economy, despite some pressures in certain sectors, such as property development.

Finance companies (non-bank deposit-taking institutions excluding savings institutions) account for around 44 percent of total non-bank lending institutions' assets (table A4). Thirteen companies are in receivership affecting $1.4 billion dollars of household debentures; a further four companies have received moratoria on debenture repayments, affecting $530 million dollars of household debentures (table 4.1, overleaf). Since the last *Report* one company, Propertyfinance Securities Ltd, has been removed from receivership.

Estimates based on receivers' reports suggest that the direct loss to creditors of the finance companies in receivership ranges between $625 million at the most optimistic to $1,060 million (between 40 percent and 70 percent of total exposure). The failures that have occurred to date reflect underlying solvency problems to do with asset quality, connected lending, and credit management which have been compounded by liquidity pressures. Since the last *Report*, weaknesses in the Australian property finance market are also beginning to impact on New Zealand, with some New Zealand companies dependent on a parental guarantee from an Australian company.

Liquidity pressures resulting from low reinvestment rates and an inability to attract new funds are evident among some deposit-taking finance companies. March data show a sustained outflow of household funds from the deposit-taking finance company sector (figure 4.9, overleaf).

Current financial market pressures, and the renewed focus of investors on credit risk, have also sharply reduced the capacity of deposit-taking finance companies to obtain funding from other sources, including banks and hedge funds. Those that have been successful in obtaining finance have been required to pay higher interest rates and/or have needed to offer preferential status to lenders. Investors appear to be differentiating between finance companies with a solid asset quality and those with loans of a more uncertain quality. Those with lower-quality asset portfolios are struggling to access new funding facilities and are having to sell assets to remain liquid. Meanwhile, better quality institutions are seeking to differentiate themselves through credit ratings and to protect themselves from liquidity pressures through increases in cash holdings, committed facilities and other wholesale funding initiatives, albeit at greater cost.

Table 4.1

Finance companies in receivership (or subject to moratoria)

	Secured creditors $ mn	Dividend paid to secured creditors %	Expected recovery to secured creditors %
Finance companies in receivership			
National Finance 2000	21.8	40	44 - 47
Provincial Finance	300.0	78	78 - 95
Western Bay Finance	48.0	82	-
Bridgecorp Finance (1)	459.0	-	16 - 51
Nathans Finance (2)	149.7	-	10 - 80
5 Star Finance	43.7	18	20 - 25
Finance and investments (3)	16.0	-	-
LDC Finance Ltd.	11.1	65	75 - 100
Clegg & Co. Capital Ltd. (4)	14.0	-	70 - 85
Capital + Merchant Finance Ltd.	187.6	-	14 - 59
Numeria Finance Ltd. (5)	12.4	-	38 - 51
Lombard Finance & Investments Ltd.	127.0	-	-
Kiwi Finance Ltd.	2.0	-	-
Finance companies subject to moratoria			
Geneva Finance	141.0	-	- - -
Beneficial Finance	24.2	-	- - -
MFS Pacific (MFS NZ Ltd.)	48.7	-	- - -
MFS Boston (MFS NZ Ltd.)	319.7	-	- - -

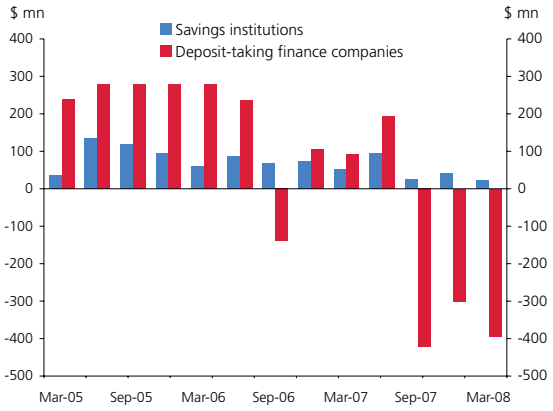
Source: Receivers' reports filed with the Companies Office, and receivers' websites, as at 18 April, 2008.

Notes: (1) Bridgecorp also has $29 million of unsecured capital notes. Expected recovery includes estimated recoveries from Momi resort in Fiji. Excluding Momi, the receivers expect recovery in the range of 16 - 27 percent.
(2) Further dividends depend on recoveries from related party loans, franchisee loans, vending machine sales and the ultimate proceeds from investments (Shop24).
(3) Finance and Investments did not issue securities to the public.
(4) Capital + Merchant Finance's secured creditors includes a $20.6 million facility with Fortress Credit Corporation (Australia) II Pty Ltd.
(5) A further 19c/dollar could be returned to investors in Numeria Finance, depending on the successful resolution of claims already in dispute with the receivers of Capital + Merchant Finance Ltd.

Payouts are on principal sums invested. Secured creditors include household holdings or debentures.

Figure 4.9

Quarterly net household deposit growth with non-bank lending institutions



Source: Non-Bank Financial Institutions' (NBFI) SSR, to March 2008.

Note: Comprises companies with assets greater than $100 million. Data adjusted for series breaks.

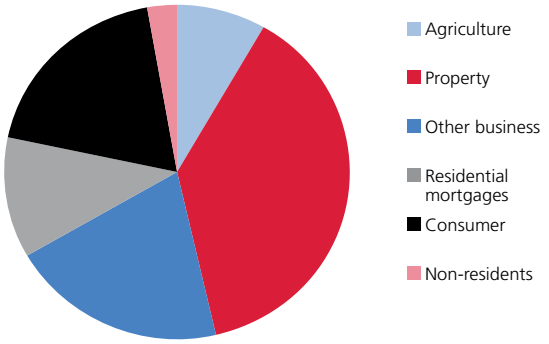
The savings institutions, which include building societies, credit unions and PSIS Ltd, are experiencing less pressure on liquidity and funding than deposit-taking finance companies. Household deposits with savings institutions continue to show small but positive growth (figure 4.9). Investor confidence is supported by the relatively low-risk profile in savings institutions' assets, which are heavily weighted toward residential first mortgages (figures 4.10 and 4.11). These institutions have also increased their level of committed funding lines from banks to a level where about a quarter of their liabilities are covered by cash or committed facilities. This helps to mitigate the risks posed by having a large portion of funding on call.

Broadly defined to include the deposit-taking and non-deposit taking finance companies and the savings institutions, the surveyed value of the non-bank lending sector's assets have continued to grow since the start of the

finance company failures in 2006 (figure 4.12). Asset growth in many parts of the sector is cyclical and closely linked to the cycles in consumer durables, business capital expenditure, and residential and non-residential investment.

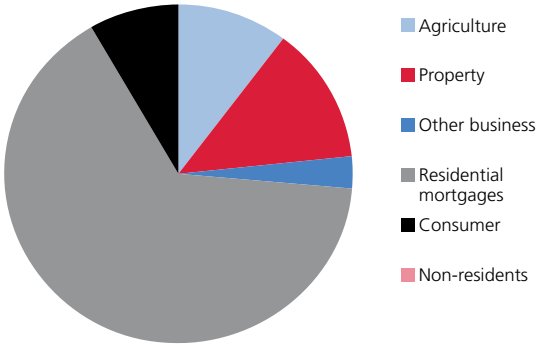
Since the last *Report*, asset growth has been concentrated in the savings institutions and non-deposit takers. At the same time, assets among deposit-taking finance companies, including failed institutions, have contracted. These trends are expected to continue. In addition to funding pressures, weaker growth in both consumer demand and business and residential investment than in recent years will constrain asset growth in deposit-taking finance companies' assets, which are concentrated in these sectors.

Figure 4.10
Deposit-taking finance company lending, by sector



Source: Non-Bank Financial Institutions' (NBFI) SSR, to December 2007.
Note: Comprises finance companies with assets greater than $100 million taking deposits from the public by way of issuing a prospectus. Includes foreign currency lending.

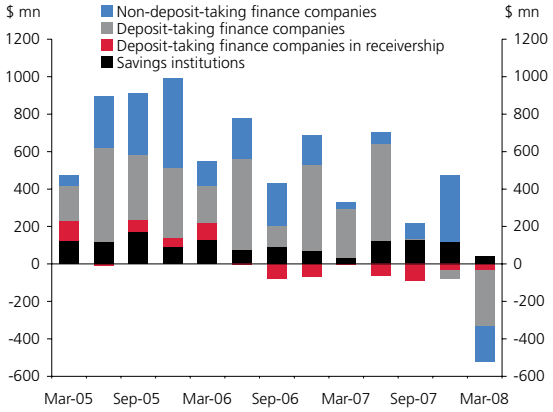
Figure 4.11
Savings institution lending, by sector



Source: Non-Bank Financial Institutions' (NBFI) SSR, to December 2007.
Note: Comprises building societies and credit unions with assets greater than $100 million and PSIS Ltd. Includes foreign currency lending.

Lending by the non-bank lending sector is small relative to total financial system lending, although it is a significant part of lending to some sectors. It is likely that some lending currently undertaken by existing deposit-taking finance companies will be gradually taken over by other institutions such as banks, non-deposit-taking finance companies and superannuation funds. This funding may be provided on different terms or through different funding instruments. In some cases, funding may involve reduced recourse to related party lending, and some projects will need a larger proportion of equity contributed by the owners in order to proceed. This will tend to help ensure risks are fairly priced and borne by investors with an ability to manage them going forward.

Figure 4.12
Net quarterly asset growth[5]



Source: Non-Bank Financial Institutions' (NBFI) SSR, to [March] 2008.
Note: Comprises companies with assets greater than $100 million. Data adjusted for series breaks.

[5] Asset values in the SSR for firms in receivership may not be updated to fully reflect market conditions (e.g. recovery estimates will largely not be reflected in recorded value). In this sense, given recent events, the survey is currently likely to understate the rate at which the non-bank sector is shrinking.

5 New Zealand's payment systems

Well-functioning payments system infrastructure is a crucial ingredient for financial stability. High-value payment systems have performed well despite financial market volatility, supported by some changes to the liquidity management regime.

Foreign exchange settlement risk has increased around the globe in recent years as foreign exchange market turnover has risen. There is a challenge for market participants, central banks, and supervisors to ensure this risk is better managed.

5.1 High-value payment system performance

Recent financial market volatility has had little impact on the operations of the Exchange Settlement Account System (ESAS), which settles all of the transactions made via Austraclear[1] and other payment switches. Payments continued to be processed smoothly, due in part to changes to the Reserve Bank's liquidity management regime in 2006, which raised the level of settlement cash in the banking system from $20 million to around $7 billion.

The settlement cash level reached a high of $10.7 billion in late August 2007 and has since been slowly trending downwards, partly due to the new tiering regime that commenced in late August. Under this regime, ESAS account holders are paid the OCR less 100 basis points on balances in excess of their assigned tier. The tiering regime was designed to encourage banks to distribute cash between them more efficiently.

While settlement cash holdings have declined from their peaks, banks are increasingly holding other liquid assets such as Treasury bills, government bonds and supranational, which can relatively easily be converted into settlement cash.

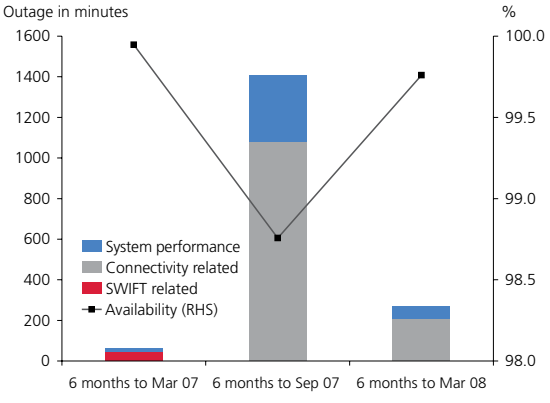
[1] **Austraclear is a real-time trade matching, transfer, clearance and settlement system for money market instruments, government and local authority bonds and notes, corporate bonds and notes, and equities.**

5.2 ESAS/Austraclear availability

As part of a technology refresh project to update the application and platform to align with current standards and best practices, the Reserve Bank upgraded the ESAS/Austraclear application in September 2007. The upgrade has been largely successful despite a few outages.

Figure 5.1 shows the availability of the ESAS/Austraclear system and the nature of the outages over the six months to March 2008 and earlier periods. The availability in the previous period was adversely affected by outages associated with the implementation of the ESAS/Austraclear upgrade. Since then, outages have reduced significantly as the initial problems related to the implementation have been resolved. The connectivity-related outages had relatively minimal impact on members.

Figure 5.1
ESAS/Austraclear availability and outages



Source: RBNZ.

5.3 High-value transactions in the retail payment system

The ISL switch[2] is the focal point for the New Zealand retail payment system. ISL allows banks to meet payment obligations on a net deferred basis to economise on liquidity holdings. While the netting feature is desirable, especially given that the majority of the payments processed through ISL are small in value (and hence the settlement risk is low), the 'deferred' feature can result in relatively prolonged and potentially significant settlement risk when individual transaction values are high. In some instances, a number of high-value transactions (defined here as transactions of value over $1 million) offset one another directly, leaving the bilateral net position at a reasonably low level. However, large transactions from one bank to another that are not offset by transactions proceeding in the opposite direction can result in significant end-of-day net bilateral exposures and potentially increase settlement risk.

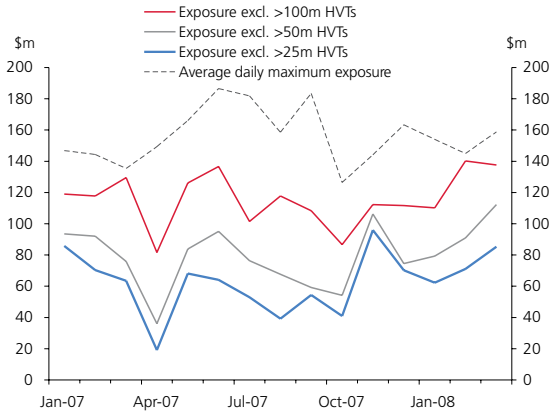
Data from the New Zealand Bankers' Association shows that the level of net bilateral exposure increases significantly when some transactions are of very high value; eg, over $25 million. Transactions at these sizes are not uncommon. Throughout 2007, there was an average of 160 transactions of $25 million or more each month. To provide context, the average transaction settled through ESAS, the real-time gross settlement (RTGS) system that is used mainly for large-value transactions, is $5 million.

Figure 5.2 shows that during January 2007 to January 2008 the average, over a calendar month, of the largest daily bilateral net exposures between any two banks:

- ranged between $130 to $190 million;
- would have declined by about 30 percent if exceptionally large transactions (ie, those above $100 million) were excluded;

Figure 5.2

Average daily maximum exposure between banks



Source: New Zealand Bankers' Association.

- would have declined by about 50 percent if transactions over $50 million were excluded.
- would have declined by 60 percent if transactions over $25 million were excluded.

It is generally considered better for systemic soundness that high-value transactions be settled in real time, via the RTGS system, rather than via a net deferred settlement system. There is evidence that these transactions do lead to rather high bilateral net exposure between banks. Moreover, the risk can also increase quickly and significantly during a period of stress, if a greater-than-usual number of high-value transactions that are usually settled in the RTGS system are diverted to ISL due to liquidity constraints. The Reserve Bank has highlighted the significance of the high-value transactions to New Zealand banks in the context of the banks' work on the Failure to Settle project. The Bank is intending to undertake further analysis to determine the significance of banks' net bilateral exposures.

5.4 Foreign exchange settlement risk

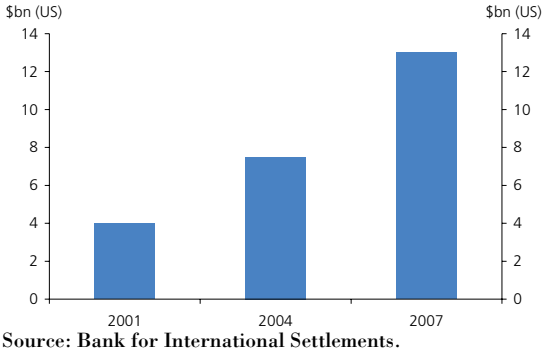
In December last year, the Bank for International Settlements released the results of the 'Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2007'.[3]

[2] **High-value transactions are routinely processed through ISL (Interchange Settlement Limited), a net deferred retail settlement system. Transactions are batched up throughout the banking day and in the evening, and at the end of the day ISL prepares a total sum of each bank's positions against other banks. The inter-bank positions are then used to work out each bank's net position against other banks (the bilateral net position). Banks then settle with each other before 8:30am on the morning of the next business day.**

[3] **The full report is available on the website of the Bank for International Settlements: http://www.bis.org/press/p071219.htm.**

This survey shows that New Zealand's FX market turnover was USD13 billion per day in April 2007. This represents an increase (in USD terms) of almost 75 percent since April 2004 and continues the strong growth recorded between 2001 and 2004 (figure 5.3). The latest result for NZ is broadly consistent with growth in FX market turnover globally.

Figure 5.3
Average daily turnover in New Zealand FX market



Source: Bank for International Settlements.

The growth in transactions implies larger amounts to be settled and thus potentially larger exposures to foreign exchange settlement risk.[4] Foreign exchange settlement risk has been an area of focus for the Committee on Payment and Settlement Systems (CPSS).[5] In July last year the Committee published the preliminary results of a survey of international FX settlement practices in 2006.[6] The results showed that around 60 percent of NZD obligations resulting from FX transactions are now settled using the Continuous Linked Settlement System (CLS). CLS is a specialised service for settling FX trades on a 'payment-versus-payment' basis that virtually eliminates the principal risk associated with settling FX trades.

However, the results of the survey also mean that 40 percent of FX obligations are still settled outside CLS and that a large proportion of these (30 percent) are settled using traditional correspondent banking. A significant proportion of such transactions are same-day overnight swaps. Settling FX obligations through traditional correspondent banking potentially exposes parties to FX settlement risk because there is no direct link between the payments of the two currency legs. The risk can materialise for various reasons – eg, because of a technical failure by a counterparty to meet its obligations on time (the typical cause of failed trades) or, more seriously, because of a counterparty's financial difficulties (including possible default because of insolvency).

An important aspect of FX settlement risk is the duration of exposure to this risk. The particular time zone that a country is in is a factor determining when exposures start and finish. For New Zealand, the durations of exposures resulting from trades settling on a given day are typically larger than those durations applying to most other countries.

In reporting on the results of the survey, the CPSS concluded that more efforts are required to better manage the FX settlement risks and that these efforts will generally need to be through direct action taken by individual institutions, new services and education efforts by industry groups, and support for all these actions by central banks. The Committee noted that central banks' and bank supervisors' involvement may include:

- Moral suasion (encouragement of continued improvement, warning against potential backsliding and heightening awareness of the need for further action).
- Identifying and taking any further action needed to support potential improvements in local payments law (eg, regarding finality) and the operations of large-value payment systems that would support the safe and efficient settlement of FX trades involving the central bank's currency.
- Exploring options that could ensure on an ongoing basis that banks apply appropriate risk management procedures to their FX settlement exposures.

The Reserve Bank will consider an appropriate response to the findings of the CPSS survey, as part of its payment system oversight role. A related initiative the Reserve Bank has taken is to become a CLS settlement member from 30 June 2008.

4 **Foreign exchange settlement risk is the risk that one party to an FX trade pays out the currency it sold but does not receive the currency it bought. It consists of both liquidity risk (the risk that the purchased currency is not received when due) and credit risk (the risk that the purchased currency is not received when due or at any time thereafter).**

5 **The Committee on Payment and Settlement Systems is a standing committee reporting to the G10 central bank governors.**

6 **The report is called 'Progress in reducing foreign exchange settlement risk – consultative report and is available on the website of the Bank for International Settlements: www.bis.org/list/cpss/tid_56/index.htm. The final version of this report is due to be released soon.**

6 Recent developments in financial sector regulation

In December 2007 the Reserve Bank accredited a number of banks to use their own models as the basis for determining their minimum regulatory capital requirements under the Basel II regime. This chapter provides the wider context to the accreditation decisions and an update on Basel II implementation in New Zealand more generally. It also contains updates on the Reserve Bank's liquidity policy and insurance work, and outlines proposed legislative changes to support the introduction of emissions trading markets.

6.1 Basel II

Locally incorporated New Zealand banks have been required to hold capital based on Basel II requirements from the first quarter of 2008.[1] Within the Basel II framework there are two approaches to measuring credit and operational risk. The default approach is the Standardised Approach, which retains the relative simplicity of Basel I, but sets some measures of risk sensitivity. The alternative approach is the Internal Models Based Approach that allows banks to seek accreditation from the Reserve Bank to base their capital requirements on their own risk-measurement models.

In December 2007, ANZ National Bank Limited, ASB Bank Limited, and Westpac New Zealand Limited were accredited to use internal models for credit and operational risk from the first quarter of 2008. In addition, the Bank of New Zealand was accredited to use internal models for operational risk from the first quarter of 2008 and is expected to apply for accreditation of its credit risk models during 2008.[2]

The Reserve Bank engaged with the banks for a period of about 18 months prior to taking accreditation decisions. In discussions with the applicant banks, the Reserve Bank was mindful that the relatively benign credit conditions experienced in recent years would not continue indefinitely and that banks' minimum capital requirements must be appropriately calibrated to plausible economic downturn scenarios.

A number of measures were put in place that satisfied the Reserve Bank that the capital holdings of those banks that were accredited would continue to be appropriately conservative (key measures in the area of housing risk are explained further below). However, in order for these banks to retain their accreditation status they must comply with a number of ongoing accreditation requirements. Some of these requirements recognise that there is still some way to go to fully embed the Basel II regime, particularly in the area of housing risk.

6.1.1 Housing issues

During the accreditation process, banks' housing models were a focus for the Reserve Bank because:

- residential mortgages comprise a significant portion of New Zealand banks' balance sheets; and
- we had concerns about the banks' housing risk models and had undertaken a significant amount of our own analytical work in this area.

[1] A more complete discussion of the importance of capital, and of the Basel I and Basel II frameworks, is contained in Yeh, A, J Twaddle, and M Frith (2005) 'Basel II: A new capital framework' Reserve Bank of New Zealand *Bulletin*, 68 (3).

[2] See Reserve Bank news release of 10 December 2007 available on the Reserve Bank website at: http://www.rbnz.govt.nz/news/2007/3186074.html.

Two of the key housing risk parameters that banks are required to model are the probability of default (PD) and the loss given default (LGD). Modelling these parameters has been challenging for banks because they generally only have relatively recent and short-term data, which does not always capture periods of economic downturn or structural risk drivers.

At the industry level, the Reserve Bank had the following issues about the banks' housing models:

- Estimates of long-run portfolio PD varied across banks more than could reasonably be expected, given that New Zealand banks generally have a similar customer base.
- The bank PD estimates were generally low in relation to comparable estimates observed internationally, and low on the basis of the Reserve Bank's own modelling results.
- Several PD models were driven heavily by short-term indicators of distress, rather than long-term risk drivers such as debt servicing capacity.
- LGD estimates were not sufficiently calibrated to economic downturn conditions and did not include loan-to-value ratio (LVR) as a risk driver.

In response to these issues, the Reserve Bank required that:

- Where needed, banks recalibrate their PD estimates to better reflect a range of economic conditions that could reasonably be expected over the medium-to-long-term.
- During 2008 and 2009, banks undertake further work to determine long-term structural drivers of default risk. In the interim, banks are required to hold additional capital equal to 15 percent of the capital they have modelled for the credit risk arising from residential mortgage lending to recognise that improvements are needed.
- Banks incorporate LVR-sensitive LGD estimates developed by the Reserve Bank into their models.
- Banks undertake further work during 2008-09 to improve the sensitivity of their own LGD models to economic risk drivers, and to ensure their own LGD models are calibrated to economic downturn conditions that incorporate a fall in average house prices of 30 percent.

Also, the Reserve Bank has required that banks' capital under Basel II be maintained at a level at least 90 percent of what it would have been under Basel I (this requirement is consistent with the approach being taken internationally).

In addition to the specific concerns noted above, the Reserve Bank has been mindful that modelling issues have been a contributing factor to the recent global financial market volatility. Although the modelling challenges facing New Zealand banks are less complex than those relevant to large global financial institutions, the Reserve Bank considers that recent events do reinforce the need for conservatism and to ensure that long-term structural models are used.

The Reserve Bank expects banks' models to further improve over time. This may allow a relaxation of the 15 percent housing capital add-on and the 90 percent capital floor in the future. In taking decisions on whether to retain or discard these requirements, the Reserve Bank will take into account advances in banks' approaches and developments in the economic environment.

6.1.2 General Basel II requirements

Within the Basel II framework, banks have requirements corresponding to three 'pillars' as follows:

- Pillar 1: Sets out how capital requirements are to be determined in relation to key bank risks, including credit risk, operational risk, and market risk. Compared with Basel I (the earlier framework), Basel II increases the risk sensitivity of capital to key bank risks, particularly credit risk. A bank's capital requirement for any particular exposure could increase or decrease as it transitions from the Basel I framework to Basel II depending on the particular risk associated with that exposure.
- Pillar 2: Ensures that banks are adequately capitalised taking account of risks not captured sufficiently in the Pillar 1 process. For New Zealand banks there are two main aspects:
  i. Each bank is required to have in place an Internal Capital Adequacy Assessment Process (ICAAP) to ensure that it has adequate capital against all material risks. As part of this, each bank is expected to determine the appropriate level of capital to

hold against 'other material risks' (ie, those risks that are not captured by the Pillar 1 regulatory capital requirement). However, capital for 'other material risks' is not added to the regulatory capital requirement. This 'disclosure only' requirement recognises the early stages of development of banks' ICAAP processes. To require banks to hold capital against these risks now might result in divergent capital outcomes that do not reflect differences in actual risk.

ii. The Reserve Bank may impose additional regulatory requirements if it is not satisfied that a bank's capital determined under Pillar 1 is adequate.

- Pillar 3: Sets out disclosure requirements to promote market discipline on banks' capital adequacy. Key features of changes to the Reserve Bank's existing disclosure requirements to reflect Pillar 3 include:[3]
  i. More comprehensive disclosure of risk information compared with earlier Basel I requirements, including more detailed disclosure of credit risk and disclosure of operational risk.
  ii. High-level disclosure of banks' ICAAP processes, and of their calculation of capital for other material risks.

The first Basel II disclosures will relate to the March 2008 quarter.[4] Although the Reserve Bank's quarterly disclosure regime has been in place for some years, the shift from Basel I to Basel II, and the introduction of IFRS, places extra demands on banks' systems. The Reserve Bank is comfortable with banks managing these demands by exercising some elements of flexibility provided for with the Orders in Council during the early stages of Basel II implementation. As noted above, some aspects of the regime are still in the early stages of development (such as the ICAAP described above), and the Reserve Bank expects to see refinements through time.

6.2 Financial system liquidity

In early May, the Reserve Bank announced some further changes to its liquidity management arrangements designed to help ensure adequate liquidity for New Zealand financial institutions in the event that global market disruptions were to intensify. These measures are outlined in Box E, overleaf.

However, as noted in the November 2007 *Financial Stability Report,* the Reserve Bank is also reviewing its approach to the prudential regulation of bank liquidity. At present, prudential supervision of liquidity is achieved through requirements that banks' directors attest to the adequacy of their banks' risk management and through requirements that banks disclose information about their risk-management policies. Liquidity risk is one of the types of risk that banks are expected to address.

Bank liquidity is essential to the smooth functioning of the economy: businesses and individuals depend on bank credit, and liquidity problems can quickly spread through the financial system. New Zealand's banking system raises much of its funding from global markets. At a macroeconomic level, this funding finances a large part of the country's current account deficit, bridging the shortfall between domestic savings and investment (see box D, Chapter 4).

The Reserve Bank's existing appetite to review liquidity regulation has been underscored by the events in the world's financial markets since mid-2007. Those events clearly show the importance of sound liquidity-risk management. Internationally, there has been a drive to review the regulation of liquidity and ensure that it is effective and addresses the features of the modern financial system.

In recent months, the Reserve Bank has been consulting with New Zealand banks to further its understanding of how they manage liquidity and funding, and of the environment in which any New Zealand liquidity regulation must operate. Combined with our wider understanding of the New Zealand system, this has enabled us to refine the scope of the review. Consultation on a draft liquidity policy is planned for mid-2008 and implementation of the new policy is planned for the second half of 2008.

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3 **Other changes have been made to the disclosure requirements recently that are not directly Basel II related. These changes have been driven by the adoption of international reporting standards, which are given effect by the New Zealand International Financial Reporting Standards (NZIFRS).**

4 **The timing of quarterly disclosures for any particular bank depends on whether reporting is in relation to a half year or full year (in which case the disclosure statements must be published no later than 3 months after the end of the period), or an 'off quarter' (in which case the statements must be published no later than 2 months after the end of the quarter, or no later than 3 months after if the disclosure is subject to external audit or review).**

Box E

Domestic market liquidity measures

The Reserve Bank has announced some further changes to its liquidity management arrangements designed to help ensure adequate liquidity for New Zealand financial institutions in the event that global market disruptions were to intensify.

The main features of this announcement include:

- The range of acceptable securities for domestic market operations will be widened to include all New Zealand dollar, New Zealand registered and issued "plain vanilla" fixed interest securities which are acceptable in Austraclear and rated AAA.
- Residential Mortgage Backed Securities (RMBS) based on New Zealand registered assets that are rated AAA will be included in the range of acceptable securities for domestic market operations.
- Securities issued by New Zealand government agencies, state owned enterprises and New Zealand local authorities which are rated AA- or higher will be acceptable for domestic market operations .
- A single margin in the overnight reverse repurchase facility (ORRF) of 50 basis points over the OCR will apply to all securities.
- A risk margin regime will operate, whereby securities offered in a repurchase transaction will have a market value greater than the cash or other securities supplied. The margin will be varied to reflect the type of security, its credit quality and tenure. This will replace the current exposure limit regime.
- The overnight reverse repurchase facility (ORRF) will be expanded to a term facility for terms of up to 30 days.

These are temporary measures, but are expected to remain in place for at least the next year. Further details are available at www.rbnz.govt.nz.

The review will focus on promoting sound management of liquidity risk in New Zealand banks. This will, of course, be primarily relevant for the banks' operations in normal times. However, it is also important for the maintenance of system liquidity that banks are prepared for periods of liquidity stress. Part of the review is likely to be focussed on ensuring that the banks diversify their funding sources and lengthen the maturity structure of their debt. Banks should also have internal processes that allow them to respond effectively to changes in market-liquidity conditions.

6.3 Insurance

As noted in the November 2007 *Financial Stability Report*, Cabinet has agreed that the Reserve Bank will be the prudential regulator and supervisor of the insurance sector.

In December 2007, Cabinet agreed to the key architectural features of the new prudential requirements for the insurance sector. The objective of these requirements will be to encourage the maintenance of a sound and efficient insurance sector that promotes policyholder confidence. The Bank's role as regulator and supervisor of the insurance sector will include licensing of insurers and enforcing disclosure requirements, including insurers' financial strength ratings, which will be a mandatory requirement (subject to an exemption threshold). Licensing will be on the basis of criteria that primarily focus on insurers' capacity to manage their business and risks and maintain sufficient financial strength.

To finalise the prudential framework, Cabinet will approve some further aspects of the regime later this year. Legislation to give effect to the prudential requirements is expected to be introduced in 2009 and brought into force during 2010.

6.4 Emissions Units Settlements Systems and Futures Bill

Late last year, the Government announced that changes would be made to the regulatory framework for securities and futures exchanges and clearing and settlement systems to support the introduction of emissions trading markets. A consultation paper and draft bill, the Emissions Units Settlement Systems and Futures Bill, were released in February. Consultation closed in March and a bill is expected to be introduced into Parliament around the middle of the year.

The proposals will see Part 5C of the Reserve Bank of New Zealand Act, which currently provides for the designation of payment systems, expanded to allow for the designation of settlement systems. The Reserve Bank and the Securities Commission will become joint regulators of designated payment and settlement systems under the new regime. Settlements made in a designated settlement system will enjoy the protections that currently apply in respect of designated payment systems, with some additional rights and protections for operators that will apply to collateral that has been posted by a participant in a designated settlement system. These will be provided by a related amendment to the Personal Property Securities Act.

Graphical appendix[1]

International

Figure A1a

Real GDP growth

(annual average percent change)

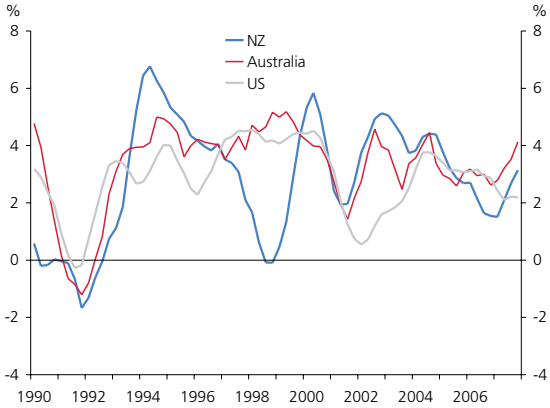


Figure A1b

Real GDP growth

(annual average percent change)

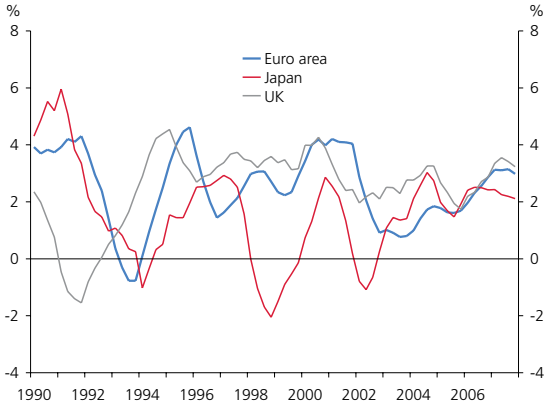


Figure A2a

Current account balance

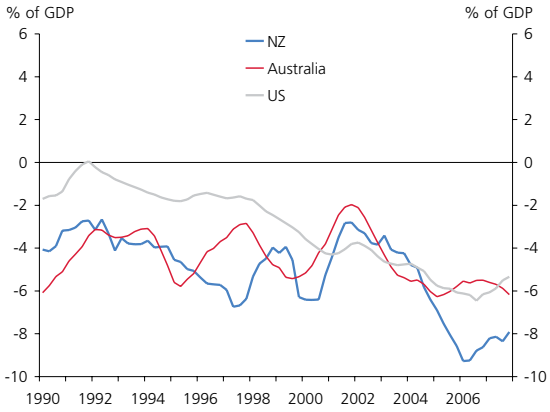


Figure A2b

Current account balance

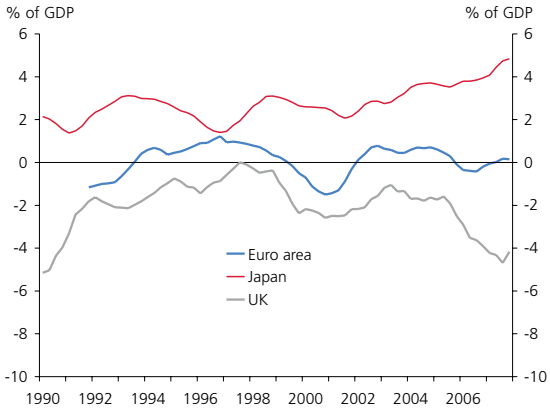


Figure A3

Trade-weighted exchange rate indices

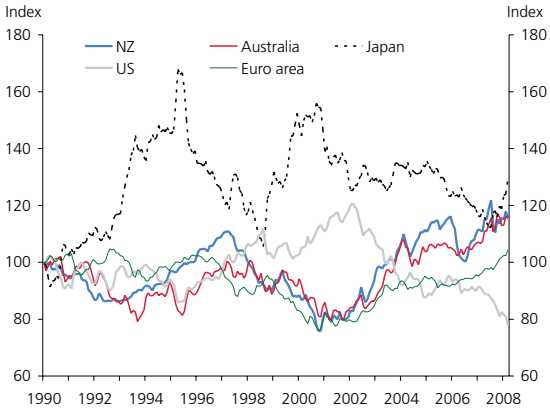
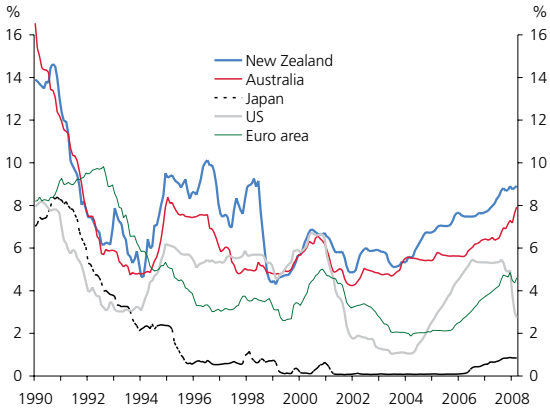


Figure A4

Short-term interest rates



[1] The data contained in this appendix was finalised on 18 April 2008, with the exception of table A4. Definitions and sources are listed on pages 50-51.

Asset prices

Figure A5

Equity market indices

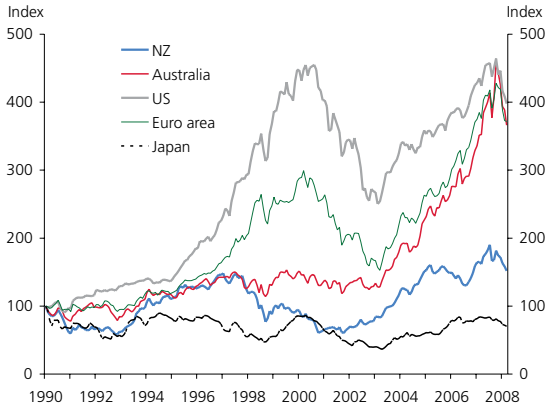
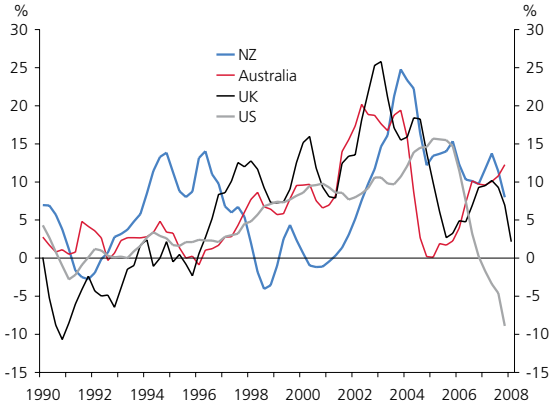


Figure A6

House price inflation

(annual percent change)



New Zealand

Figure A7

Household debt and servicing costs

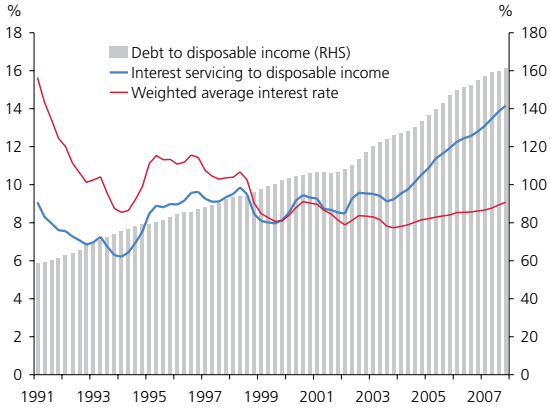


Figure A8

Household assets and liabilities

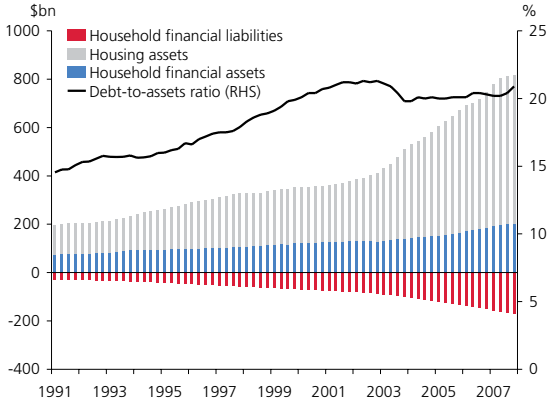


Figure A9

Property price inflation

(annual percent change)

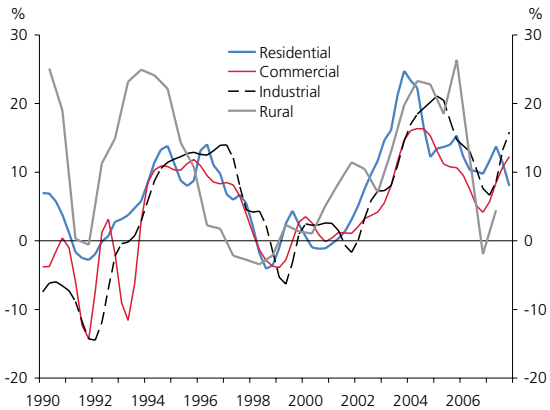
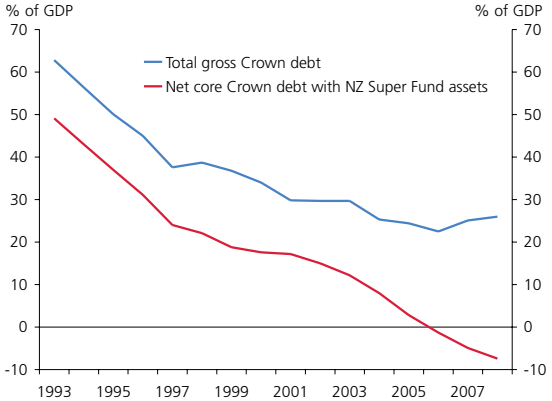


Figure A10

Government debt



New Zealand financial markets

Figure A11

Government bonds on issue and turnover

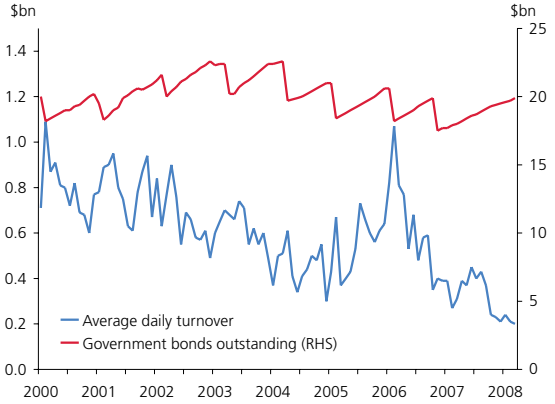


Figure A12

Ten-year government bond spreads

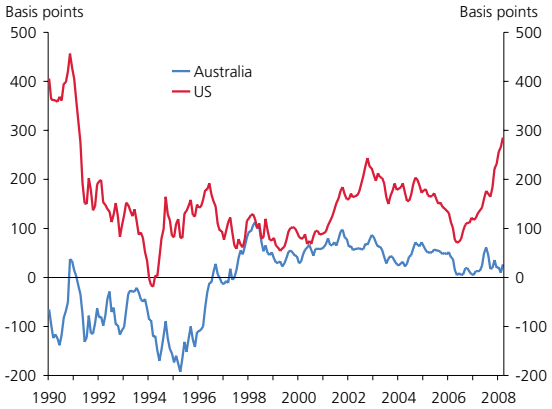


Figure A13

Yields on New Zealand government securities

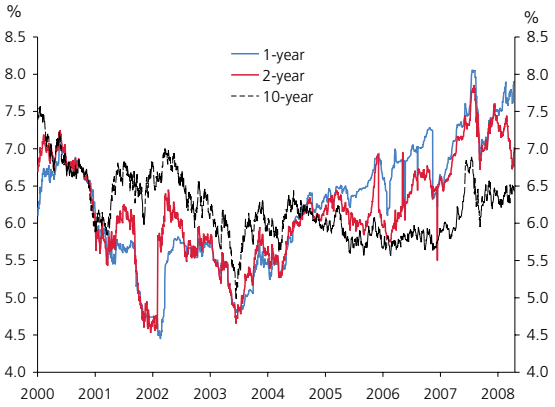


Figure A14

Non-resident holdings of New Zealand government securities

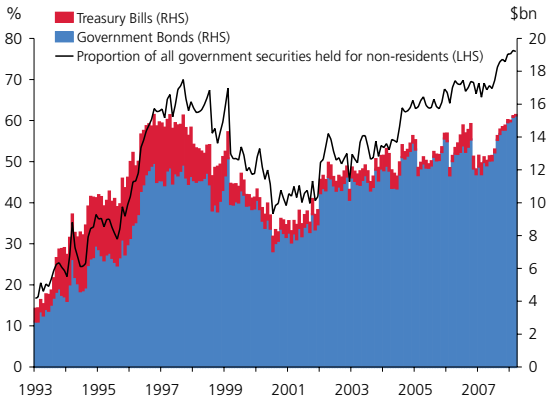


Figure A15

NZD/USD turnover in domestic markets

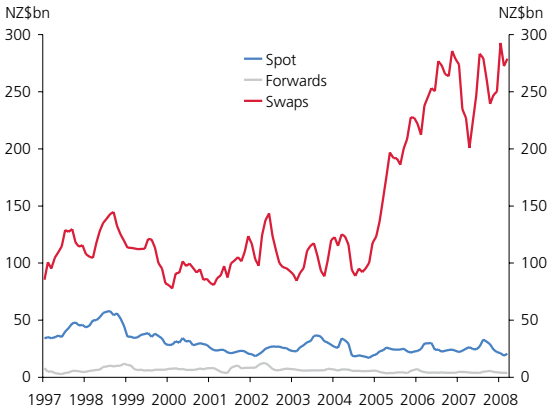


Figure A16

NZD/USD and implied volatility

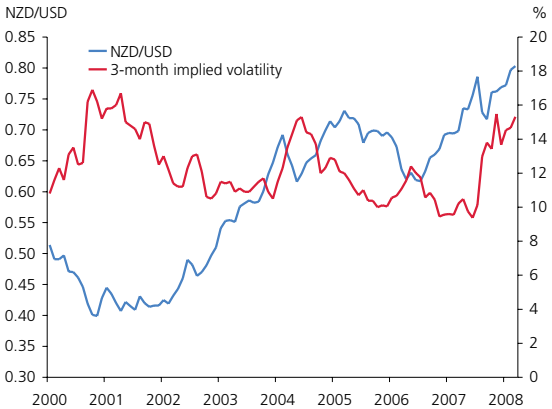


Figure A17

Daily movement in NZD/USD per NZD $1 million traded

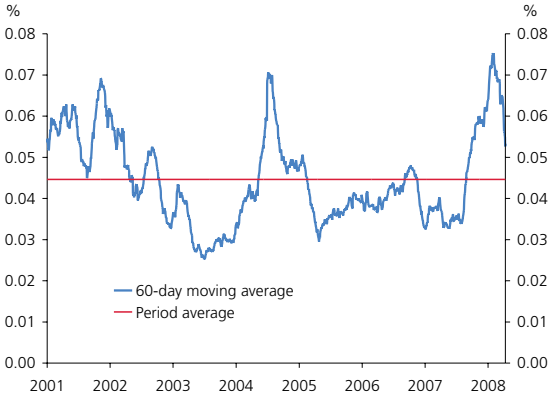
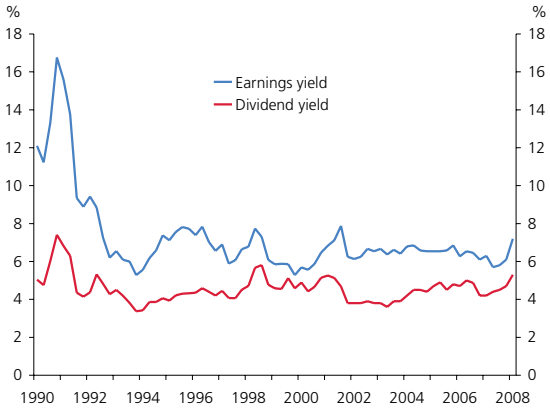


Figure A18

Equity market capitalisation to GDP

Figure A19

Earnings and dividend yields



Banking sector indicators

Figure A20

Capital adequacy ratios

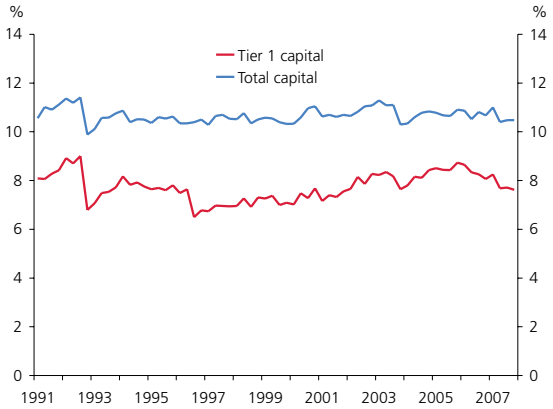


Figure A21

Asset impairment

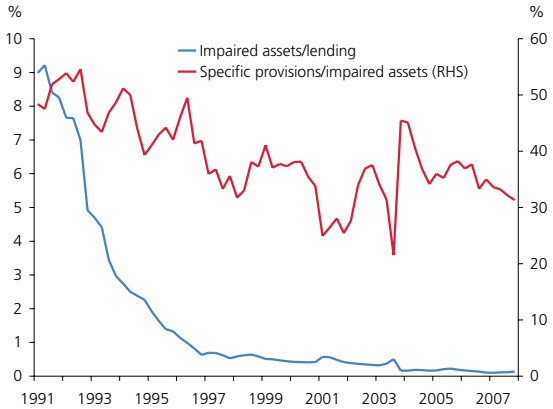


Figure A22

Return on assets

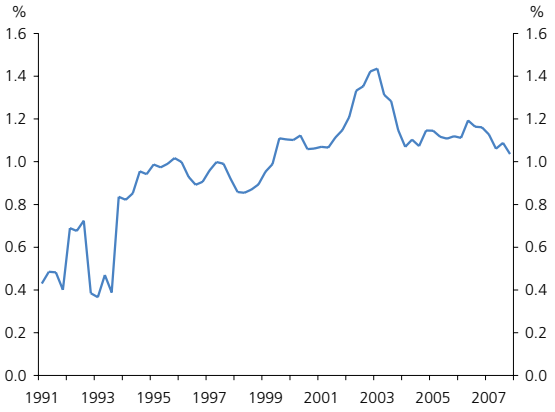


Figure A23

Operating costs to income

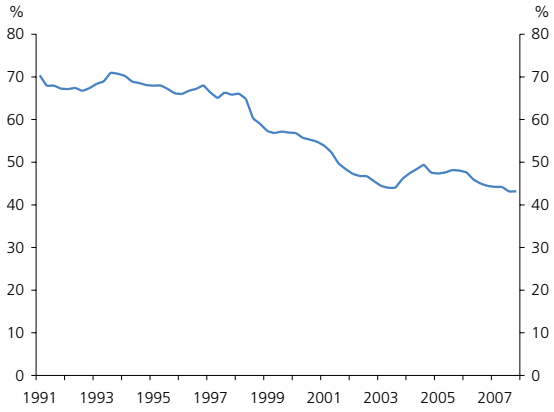


Figure A24

Interest margin

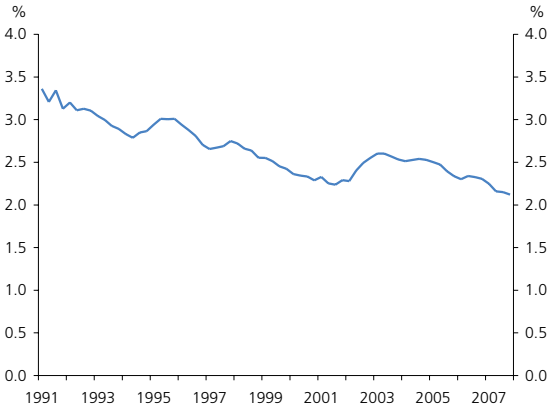


Figure A25

S&P credit ratings for registered banks

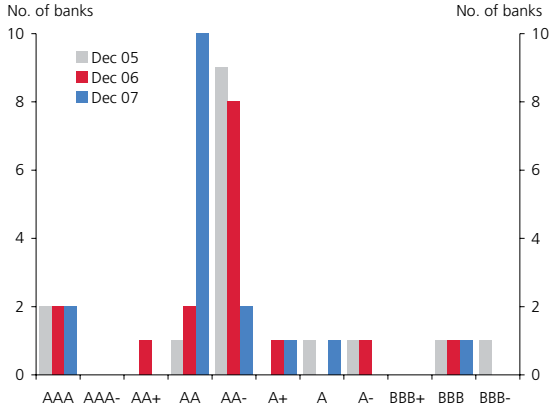


Figure A26

Bank asset composition

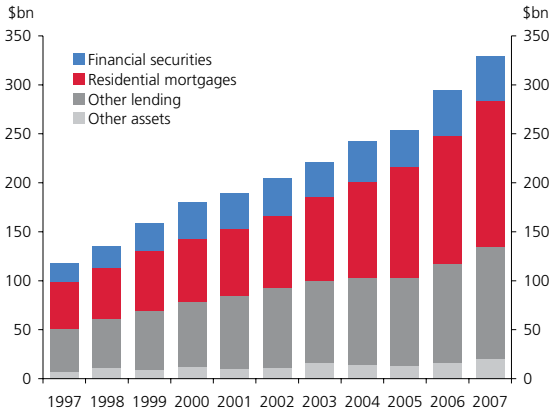


Figure A27

Bank funding composition

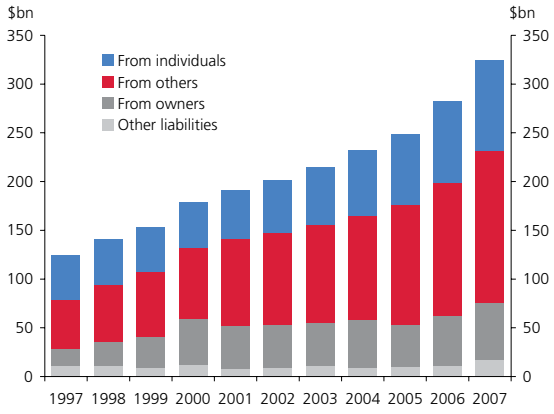


Figure A28

Bank asset growth

(annual percent change)

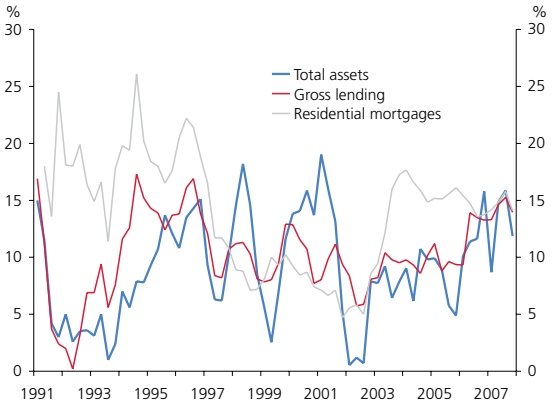


Figure A29

Bank market share

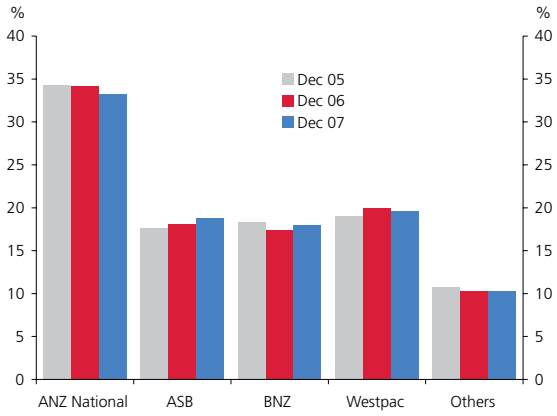


Figure A30

Bank-wide capital adequacy ratios

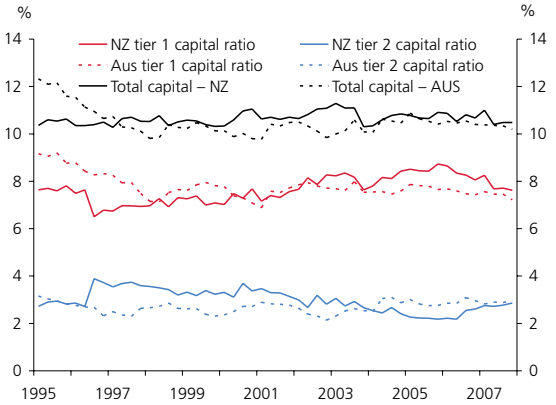
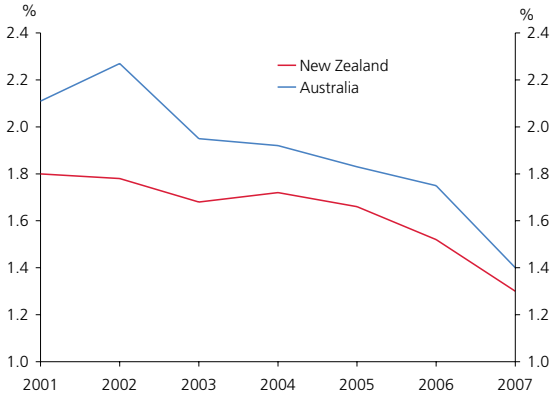


Figure A31

Large bank operating expenses to average assets



Non-bank lending institutions

Figure A32

NBLI asset composition

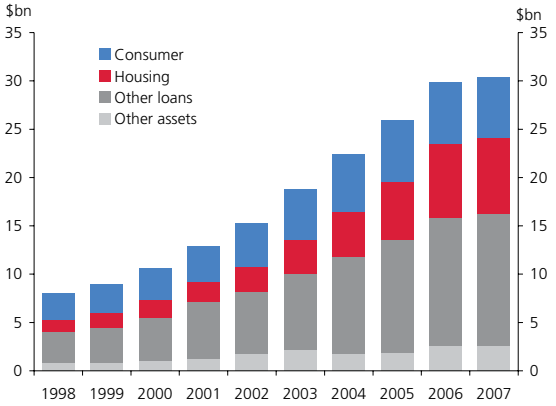


Figure A33

NBLI funding composition

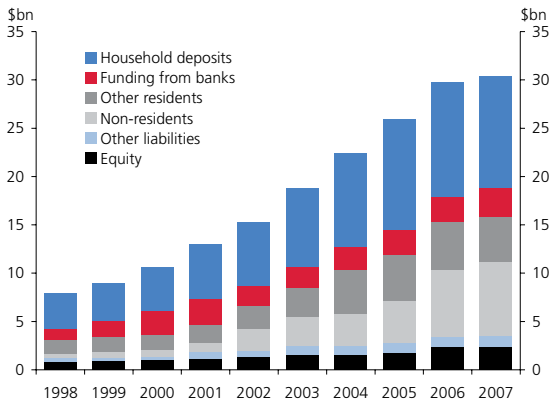


Table A1

Financial system liabilities

As at 31 December ($bn)	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007
Banks										
Households	24	32	41	45	47	50	55	61	70	79
Other residents	29	35	55	59	65	74	75	84	90	98
Non-residents	11	22	56	64	64	64	77	85	96	111
Other liabilities	14	14	28	22	29	34	35	24	39	41
Total	78	103	180	190	205	221	242	254	294	329
Non-bank lending institutions										
Households	2	3	4	5	7	8	10	11	12	12
Other residents	3	2	4	4	4	5	7	7	8	8
Other funding and liabilities	1	1	2	3	4	6	6	7	10	11
Total	6	6	10	12	15	19	22	26	30	30
Funds under management										
Household assets	25	41	56	56	50	52	55	59	67	67
Other sector assets	2	1	4	4	5	6	6	6	7	7
Total	27	42	60	60	55	58	61	65	74	75
Total financial system liabilities	111	151	250	262	275	297	325	345	398	434

Table A2

Financial system assets

As at 31 December ($bn)	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007
Banks										
Households	20	42	66	71	77	89	103	119	135	153
Other residents	36	45	72	77	78	79	90	101	113	128
General government	8	6	7	6	8	8	6	6	3	4
Non-residents	2	2	17	24	29	27	27	12	14	15
Other assets	12	8	18	12	13	18	16	15	29	30
Total	78	103	180	190	205	221	242	254	294	329
Non-bank lending institutions										
Households	2	3	5	5	7	9	11	12	14	14
Other residents	3	2	4	5	6	8	10	12	13	14
Other assets	1	1	1	1	2	2	2	2	3	3
Total	6	6	10	12	15	19	22	26	30	30
Funds under management										
Domestic fixed interest	na	na	27	26	25	23	23	23	25	25
Domestic equities	na	na	7	7	6	8	9	8	10	9
Domestic other	na	na	4	4	4	5	5	6	7	8
Overseas investments	na	na	22	23	20	22	24	28	32	32
Total	27	42	60	60	55	58	61	65	74	75
Total financial system assets	111	151	250	262	275	297	325	345	398	434

Totals and sub-totals may not add due to rounding.
Source: RBNZ surveys and registered banks' GDS.
Notes apply to tables A1 and A2.
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 11% of total assets in 2007. For registered banks, securitised assets represent less than 1% of total assets and figures remain those reported in GDS under current accounting standards. General Insurance liabilities and assets are not included.

Table A3

New Zealand-registered banks as at 31 December 2007

Registered bank's name	Market share[1]	Credit ratings			Ultimate parent	Country of parent
		S&P	Moody's	Fitch		
ABN AMRO Bank NV	0.5	AA-	Aa2	AA-	branch[2]	Netherlands
ANZ National Bank Limited	33.3	AA	Aa2	-	ANZ Banking Group Limited	Australia
Commonwealth Bank of Australia	1.7	AA	Aa1	AA	branch[2]	Australia
ASB Bank Limited	17.1	AA	Aa2	-	Commonwealth Bank of Australia	Australia
Bank of New Zealand	18.0	AA	Aa2	-	National Australia Bank	Australia
Citibank N A	1.1	AA	Aa1	AA	Citigroup Inc.	USA
Deutsche Bank A G	1.7	AA	Aa1	AA-	branch[2]	Germany
JPMorgan Chase Bank N A	0.0	AA	Aaa	AA-	JPMorgan Chase & Co	USA
Kiwibank Limited	1.9	AA-	-	-	New Zealand Post	New Zealand
Kookmin Bank	0.1	A	A2	-	branch[2]	South Korea
Rabobank Nederland	0.5	AAA	Aaa	AA+	branch[2]	Netherlands
Rabobank New Zealand Limited	1.5	AAA	-	-	Rabobank Nederland	Netherlands
The Bank of Tokyo-Mitsubishi, Ltd	0.2	A+	Aa2	-	branch[2]	Japan
The Hongkong and Shanghai Banking Corporation Limited	1.9	AA	Aa1	AA	HSBC Holdings	UK
TSB Bank Limited	0.9	BBB+[3]	-	-	Taranaki Community Trust	New Zealand
Westpac Banking Corporation	5.4	AA	Aa1	AA-	branch[2]	Australia
Westpac New Zealand Limited	14.2	AA	Aa2	-	Westpac Banking Corporation	Australia

Source: Registered banks' GDS.

Notes:

[1] **Registered bank's assets as a proportion of the total assets of the banking system, as at 31 December 2007.**

[2] **The New Zealand registration is for a branch of the ultimate parent.**

[3] **Standard and Poors upgraded the ratings of TSB from BBB to BBB+, after they published their 31 December 2007 disclosure statements.**

Table A4

Selected non-bank lending institutions' (NBLI) assets and liabilities

	Non-deposit-taking finance companies			Deposit-taking finance companies			Savings institutions			Total NBLIs		
	$m Dec-06	$m Dec-07	Growth[1] % pa	$m Dec-06	$m Dec-07	Growth[1] % pa	$m Dec-06	$m Dec-07	Growth[1] % pa	$m Dec-06	$m Dec-07	Growth[1] % pa
NZD Funding												
NZ resident households	14	-	-	6,907	6,434	-7%	3,846	4,212	10%	10,767	10,646	-1%
Other funding[2]	3,656	3,313	-9%	2,709	3,516	30%	461	593	29%	6,826	7,422	9%
Non-residents	6,272	6,900	10%	247	352	43%	97	123	27%	6,616	7,375	11%
Total NZD funding	9,942	10,213	3%	9,863	10,302	4%	4,404	4,928	12%	24,209	25,443	5%
Foreign currency funding	193	148	-23%	232	236	2%	-	-	-	425	384	-10%
Other liabilities	613	677	10%	288	223	-23%	83	98	18%	984	998	1%
Capital and reserves	439	299	-32%	1,130	1,248	10%	362	440	22%	1,931	1,987	3%
Total Liabilities	11,187	11,338	1%	11,513	12,009	4%	4,849	5,466	13%	27,549	28,813	5%
NZD lending to residents												
Farm lending	108	109	1%	677	821	21%	503	501	0%	1,288	1,431	11%
Business lending	2,355	2,631	12%	5,639	5,766	2%	743	787	6%	8,737	9,184	5%
Housing lending	3,851	3,707	-4%	748	1,147	53%	2,816	3,196	13%	7,415	8,050	9%
Consumer lending	3,163	3,203	1%	1,947	1,861	-4%	275	405	47%	5,385	5,469	2%
Total NZD loans by sector	9,477	9,650	2%	9,011	9,595	6%	4,337	4,889	13%	22,825	24,134	6%
Foreign currency loans	4	7	89%	597	576	-4%	-	-	-	601	583	-3%
All other loans and assets[3]	1,707	1,682	-1%	1,905	1,838	-4%	512	577	13%	4,124	4,097	-1%
Total assets	11,187	11,338	1%	11,513	12,009	4%	4,849	5,466	13%	27,549	28,813	5%
Memo item: Lending to non-residents	8	6	-25%	913	860	-6%	-	-	-	921	870	-6%

Source: RBNZ–NBLI SSR. Includes NBLIs with total assets (including securitised lending) exceeding $100m at relevant dates. Totals may not add due to rounding.

Notes:

1 **Percentage growth calculations are affected by entry of new respondents to the NBLI survey.**

2 **Counterpart funding to securitised loans is included here.**

3 **Includes, inter alia, claims on banks and NZD non-resident lending. Savings institutions include building societies & credit unions with assets exceeding $100m at relevant dates, and PSIS Limited. Asset values in the SSR for firms in recievership may not be updated to fully reflect market conditions (e.g. recovery estimates will largely not be reflected in recorded value). In this sense, given recent events, the survey is currently likely to understate the rate at which the non-bank sector is shrinking.**

Notes to the graphical appendix

The appendix contains a suite of charts that 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	Current account balance	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.
5	Equity market indices	Morgan Stanley Capital Indices, 31 March 1990 = 100. *Datastream*.
6	House price inflation	Annual percentage change in national house price indices. *Datastream*, *Quotable Value New Zealand Ltd.*
7	Household debt and servicing costs	Household debt excludes student loans. Household disposable income is gross before deduction of interest paid and consumption of fixed capital, and is interpolated from March-year data from *Statistics New Zealand*, with *RBNZ* forecasts. The weighted average interest rate is obtained from SSR data for residential mortgages and RBNZ calculations for consumer interest rates.
8	Household assets and liabilities	Housing assets are the aggregate private sector residential dwelling value. Data is 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 price inflation	Annual percentage change in property price indices. Commercial and rural property prices are interpolated from semi-annual figures. *Quotable Value Ltd.*
10	Government debt	Net core Crown debt is debt attributable to core Crown activities and excludes Crown entities and state owned enterprises. *The Treasury*.
11	Government bonds on issue and turnover	Total government securities on issue (D1) and New Zealand government bond turnover survey (D9). *RBNZ.*
12	Ten-year government bond spreads	Yield on 10-year benchmark New Zealand government bonds, less yield on US and Australian equivalents. *RBNZ*.
13	Yields on New Zealand government securities	*Reuters*, *RBNZ*.
14	Non-resident holdings of New Zealand government securities	*RBNZ*.
15	NZD/USD turnover in domestic markets	*RBNZ* survey. Three-month moving average.
16	NZD/USD and implied volatility	Standard deviation used to price three-month NZD/USD options. *UBS*, *RBNZ*.
17	Daily movement in NZD/USD per NZD$1 million traded	*Reuters*, *RBNZ*.
18	Equity market capitalisation to GDP	Total market capitalisation of firms listed on New Zealand Stock Exchange, as a percentage of annual nominal GDP. *Datastream*. Latest GDP value is estimated.

19	Earnings and dividend yields	Earnings and dividends as a percentage of total market capitalisation. *First New Zealand Capital*.
20	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*).
21	Asset impairment	Impaired assets as a percentage of total lending; specific provisions as a percentage of impaired assets; for all registered banks. *GDS*.
22	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*.
23	Operating costs to income	Operating expenses as a percentage of total income, four-quarter average, for all registered banks. *GDS*.
24	Interest margin	Net interest income as a percentage of average interest-earning assets, four-quarter average, for all registered banks. *GDS*.
25	S&P credit ratings for registered banks	Standard & Poor's credit ratings on NZD long-term senior unsecured obligations in New Zealand. *GDS*.
26	Bank asset composition	As at 31 December 2007. *GDS*.
27	Bank funding composition	As at either 30 September or 31 December. *GDS*.
28	Bank asset growth	Year-on-year change in total assets of all registered banks. Gross lending is before provisions. *GDS*.
29	Bank market share	Bank assets as a percentage of total assets of registered banks. *GDS*.
30	Bank-wide capital adequacy ratios	Capital is a percentage of risk-weighted assets for all locally incorporated banks. *GDS, Reserve Bank of Australia*.
31	Large bank operating expenses to average assets	Includes four largest banks in Australia and New Zealand. Excludes interest costs. As at the applicable annual bank balance dates. *GDS*.
32	NBLI asset composition	*RBNZ Annual Statistical Return* and *NBFI SSR* as at 31 December.
33	NBLI funding composition	*RBNZ Annual Statistical Return* and *NBFI SSR* as at 31 December.