Financial Stability Report

November 2007

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1 Summary and assessment

In recent months, global financial stability has been severely tested. Defaults and delinquencies by borrowers in the United States' sub-prime mortgage market have been a catalyst for more widespread financial market volatility, a generalised upward re-pricing of credit risk and reduced liquidity. These developments have had their roots in easy credit conditions that have persisted for several years. Low interest rates prompted a 'search for yield' that has been noted by many other central banks and international commentators, including this *Report*. In May, we noted that a reassessment of risks can quickly transmit to changes in asset prices, notably sub-prime assets. From July, we saw this process take place on a broad, international scale with New Zealand's financial markets significantly affected.

A key reason for the broadening in financial turmoil was a lack of transparency surrounding the repackaging and transferral of risks in United States' sub-prime mortgage assets across a variety of financial instruments and investors. Doubts regarding the level of exposure across financial markets saw market participants wary of lending to others, and some hoarding of cash as a hedge against uncertain liquidity demands. A clear example of this behaviour was seen in many of the world's interbank markets – banks became unwilling to lend to each other, creating illiquidity in the market for overnight and interbank short-term funds.

In response, many central banks took steps to ease market liquidity, including the Reserve Bank of New Zealand. In a further step the United States' Federal Reserve reduced its key monetary policy lever, the target federal funds rate, by 50 basis points on 18 September.

By October, pressures on short-term interest rates in interbank markets had eased while credit markets appeared to be functioning more normally, albeit with credit spreads wider. Nevertheless, recent events will have far-reaching implications in terms of lessons for policy-makers and market participants, in New Zealand and abroad.

To some extent, New Zealand has been insulated from the ructions in global markets. New Zealand has virtually no direct exposure to United States' sub-prime investments. New Zealand's banking system has very little securitisation, or exposure to affected markets in other countries. However, as a small open economy with a large external debt, and as the recipient of significant 'carry trade' investment flows, it was inevitable that the global increase in risk aversion would impact New Zealand. One channel of impact was the exchange rate – as global investors revised their risk assessments we saw large swings in the New Zealand dollar. Liquidity in the New Zealand dollar foreign exchange market was tightly stretched at times during August.

Another channel of impact has been through an increase in New Zealand banks' funding costs in offshore wholesale debt markets, which are an important source of bank funds. With much of New Zealand's external debt intermediated through the banks, an increase in banks' offshore funding costs equates to an increased cost of servicing New Zealand's external debt. Moreover, liquidity levels in the banks' offshore funding markets were considerably reduced. Indeed, for a short period of time, the ability of New Zealand banks to fund in offshore commercial paper markets was questionable.

Funding costs for Australian banks also increased in August and September, with the added effect of tighter conditions in the Australian markets for asset-backed commercial paper and residential mortgage backed securities.

However, the major Australian banks have relatively low reliance on securitisation markets. Further, credit lines that have been extended by the large Australian banks to issuers of asset-backed commercial paper represent only a small proportion of these banks' total risk-weighted assets.

The non-bank financial institution sector is undergoing its most significant change for many years. Problems in the sector have been noted in previous *Reports,* and since the time of the last *Report*, several more New Zealand finance companies have been put into receivership. Most of these failures have been related to inadequate management of credit risks and balance sheets, but reduced liquidity resulting from lower depositor reinvestment rates has exacerbated problems for failed companies and continues to put pressure on some existing companies. Failures have been largely of domestic origin, and only indirectly linked to developments in international credit markets.

Despite the substantial impact of recent events on non-bank deposit holders, the non-bank failures are unlikely to have broader negative effects on the financial system and the economy. The sector is relatively small, and reduced lending from troubled institutions is likely to be offset by expanded lending from other institutions. In response to stability risks in the non-bank sector, a new supervisory and regulatory regime is planned to enhance minimum prudential requirements and improve the quality of information available to investors.

In our May *Report*, we highlighted the risks to financial stability coming from the housing boom and the related high level of dissaving in the New Zealand household sector. Debt and debt service ratios were continuing to rise, making households and the financial sector increasingly vulnerable to a housing market correction. We have recently seen signs of an easing in the housing market following domestic interest rate increases through the first half of 2007. Slower growth in housing market activity and strong commodity prices, particularly for dairy products, are expected to contribute towards a shift in the composition of growth from the non-tradable to the tradable sector.

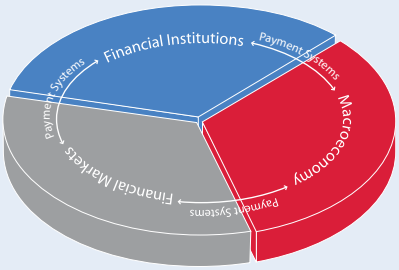
In summary, the international under-pricing of risk had been widely acknowledged by market participants and commentators, and increases in credit spreads have moved pricing towards more realistic levels. The adjustment process has been disruptive and has come at significant cost for many investors and borrowers. But in the wake of the initial shock, markets are increasingly discriminating between assets and institutions on the basis of quality and risk characteristics. The past few months also serve to illustrate New Zealand's vulnerability to changes in international financial market conditions, accentuated by its large external debt.

Alan Bollard

Governor

Box 1

Financial Stability Report objectives and Reserve Bank policy actions

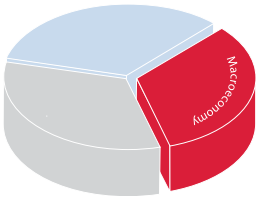


The *Financial Stability Report* provides an assessment of historical developments and risks in the New Zealand financial system. The financial system comprises financial institutions, financial markets, and payment and settlement systems. The Bank considers the financial system to be stable when relevant financial risks are adequately identified, priced, and allocated to those best able to manage them.

The *Report* also reviews actions which have been undertaken by the Bank to promote financial system soundness and efficiency. These include:

- Actions taken to ease liquidity in the interbank market. These actions have included the introduction of 'tiering' and changes to the settlement cash target and the overnight reverse repurchase facility (box 2).
- The Review of Financial Products and Providers, which will introduce changes to the regulation of non-bank deposit-taking institutions and insurance companies (chapter 6).
- Work towards implementation of the Basel II framework for bank capital adequacy (chapter 6).

2 The economic and financial environment



Global financial stability has been tested in recent months, with turmoil in financial markets following concerns over sub-prime lending in the United States and credit and liquidity issues in other countries, including Germany and the United Kingdom. These developments create some uncertainty for New Zealand's economy, although the central outlook remains one of moderate economic growth, with higher commodity prices supporting export revenues. Strong economic activity has allowed imbalances to accumulate in the economy. New Zealand's net liability position – the amount by which its foreign liabilities exceed its foreign assets – is among the highest in the OECD. Uncertainty in global financial markets could make financing this position more expensive.

The household sector has benefited from strong economic growth in recent years, but remains vulnerable to weaker macroeconomic conditions. Ongoing increases in household indebtedness combined with rising interest rates have led to higher debt-servicing costs. In addition, a cooling housing market has seen slower growth in house prices over recent months.

Corporate sector leverage has also grown strongly, albeit from low levels. Business balance sheets generally remain strong, and growth in earnings, while solid, continues to fall below expectations. In the agriculture sector, sustained growth in commodity prices may support higher leverage in parts of the sector, but an overvalued exchange rate continues to dampen earnings for many exporters.

2.1 International environment

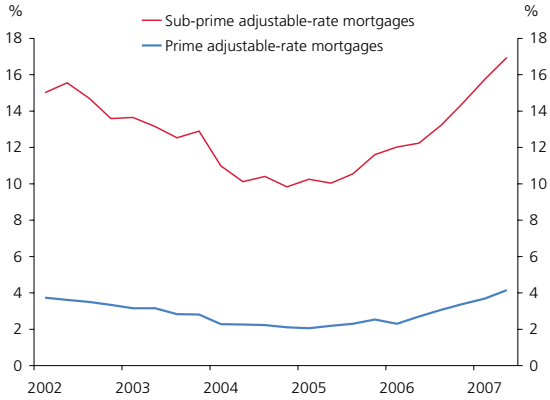
International credit market and liquidity conditions have tightened significantly since the last *Report*, as markets have recognised the extent to which credit disciplines have deteriorated in recent years as investors 'searched for yield'. These credit concerns have fuelled an increase in risk aversion, which has impacted on a wide range of global markets; in particular, the fixed income and foreign exchange markets. While pressures on financial markets were initially intense, particularly over July and August, markets have since begun to function more normally. However, credit spreads remain higher and liquidity remains tight in the markets for asset-backed securities.

The difficulties in the US sub-prime and leveraged loan markets became evident in increased rates of loan defaults and delinquent loan repayments, as noted in our May *Report* (figure 2.1). Problems in these markets spread to other investors as many loans were securitised and repackaged into 'structured credit securities'; for example, collateralised debt obligations, or 'CDOs'. The risks attached to these instruments have been difficult for investors to assess. The restructured loans were moved off banks' and other loan orginators' balance sheets either directly to other investors, such as hedge funds, or onto balance sheets of structured investment vehicles or 'conduits', that were typically set up by investment banks. A conduit would then fund itself by issuing, typically, short-term asset-backed commercial

paper, which was bought by a variety of global institutional investors.

Globally, the commercial paper markets were particularly affected by credit concerns. The asset-backed commercial paper markets became dysfunctional given investor uncertainty about the value of the assets underlying those securities. For a time, even issuers with relatively high credit ratings faced lower demand for their commercial paper, with investors preferring the safe haven of cash and government securities. Government bond yields fell accordingly, while interest rates faced by other borrowers generally increased. Risk aversion also spread to nervousness and weakness in global share markets, which were extremely volatile. By October, however, commercial paper markets appeared to be functioning more normally, albeit with credit spreads wider, and share markets were recovering lost ground.

Figure 2.1
US mortgage delinquency rates
(percent of outstandings more than 30 days overdue)



Source: Bloomberg.
Note: Quarterly, to end-June 2007.

To the extent that a dysfunctional asset-backed commercial paper market has meant that conduits were no longer self-funding, banks have had to start bringing the assets back onto their own balance sheets. This 're-intermediation' process has been seen as threatening to soak up bank funding and limit the capacity of banks to lend in other areas – thereby raising fears of a credit crunch.

In June, a number of hedge funds which had invested in sub-prime related securities announced significant losses.[1] These funds had borrowed against their holdings of sub-prime related securities. As the price of these securities fell in response to market concerns of losses from sub-prime lending, the terms of the loans required the funds to either post additional security or repay them. Consequently, some hedge-funds attempted to liquidate some of their holdings of sub-prime securities, putting further downward pressure on prices. Pressure on prices intensified again as rating agencies downgraded a large number of speculative-grade sub-prime residential mortgage backed securities and collateralised debt obligations.

Reduced investor appetite also led to the postponement or cancellation of leveraged buyout debt issues. In July, two high-profile private-equity deals foundered (Alliance Boots and Chrysler). Banks that had underwritten these deals with the intention of issuing debt securities to cover the initial loans subsequently found that debt market conditions had deteriorated. Consequently, these loans have been retained on bank balance sheets. Some commentators estimate that up to US$300 billion of private equity related leverage loans remain unsold. These loans appeared to be concentrated in relatively few financial institutions, with ten major banks appearing to hold 75 percent of this exposure.[2]

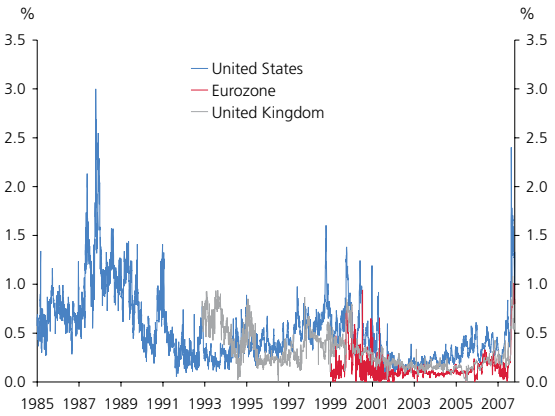
In August, a combination of an announcement by BNP Paribas, a large French bank, and concerns over the exposure of state-owned German banks to sub-prime related securities further heightened concerns over potential losses. Uncertainty around the extent of credit problems (and associated losses) faced by financial institutions resulted in a tightening of international bank funding conditions, and further deteriorated conditions for issuance of asset-backed commercial paper. Overall, these developments have been reflected in the relative movements in US short-term interest rates. Risk aversion resulted in increases in interbank (LIBOR) rates (figure 2.2, overleaf).

1 **Including some in Australia and two owned by Bear Stearns, a large US investment bank.**

2 *Global Financial Stability Report* **September 2007, International Monetary Fund. See also 'A fragile stability takes hold in global credit markets', Standard & Poor's Ratings Direct, October 4, 2007.**

Figure 2.2

Spread between interbank (LIBOR) rates and treasury bill yields



Source: Bloomberg.
Note: Daily, to 18 Oct 2007.

Central banks responded to these developments by injecting liquidity and increasing the availability of short-term financing through repurchase facilities. Initial injections are listed in table 2.1. Some central banks also widened the range of collateral that they would accept.

Table 2.1

Liquidity injected by central banks, 9-10 August

	USD billion
European Central Bank	214.2
United States Federal Reserve	62.0
Bank of Japan	8.5
Bank of Norway	7.8
Reserve Bank of Australia	4.2
Swiss National Bank	1.7 to 2.5

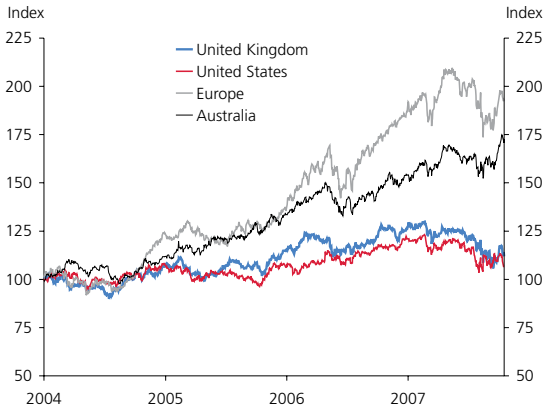
Source: Reuters.

In a further step, the US Federal Reserve reduced the target federal funds rate by 50 basis points on 18 September.[3] The action contributed to a recovery in risk appetite, with some recovery in global equity markets. The release of several major investment banks' third-quarter results was seen by markets as improving transparency around the scale of expected losses from sub-prime problems, and resulted in a recovery in financial sector share prices. However, more recent results have met with a mixed reception in markets, and nervousness remains (figure 2.3).

[3] The target level for the federal funds rate was subsequently lowered a further 25 basis points to 4.5 percent on 31 October (eastern standard time).

Figure 2.3

Bank share price indices



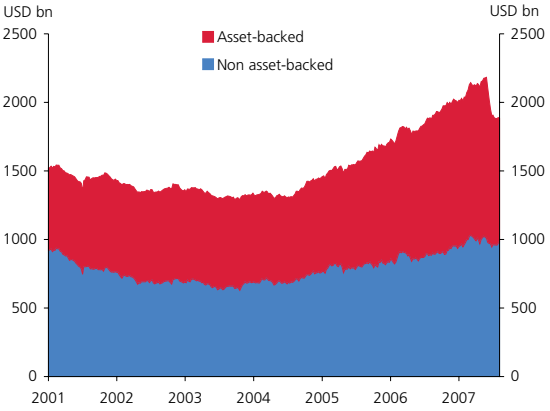
Source: Datastream.
Note: Daily, to 18 Oct 2007.

In a further evolution of events, in September it emerged that a UK bank, Northern Rock, had been unable to raise the money it needed to function in the capital markets – despite the strength of its underlying loan book and healthy capital position. Depositors queued to withdraw funds on the news that Northern Rock had turned to the Bank of England for emergency financing, leading the UK government to supplement the pre-existing deposit insurance scheme with a full government guarantee on Northern Rock deposits (for a fuller account see Bank of England *Financial Stability Report*, October 2007).

Market reports suggest that investors have now returned to the US commercial paper market, although they have been very selective about the quality of issuers. Some asset-backed commercial paper has been successfully issued over the past few weeks. While the volume of asset-backed commercial

Figure 2.4

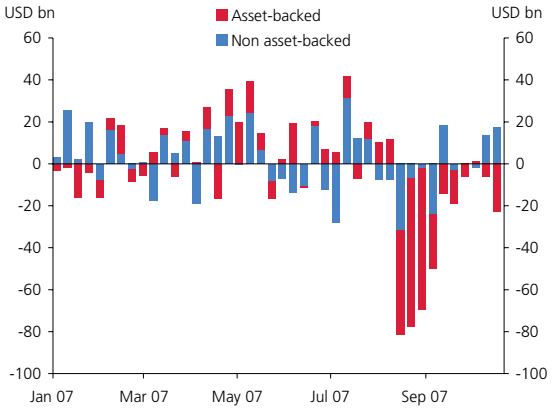
US dollar commercial paper outstanding



Source: Bloomberg.
Note: Weekly, to 17 Oct 2007.

Figure 2.5

Weekly change in US dollar commercial paper outstanding



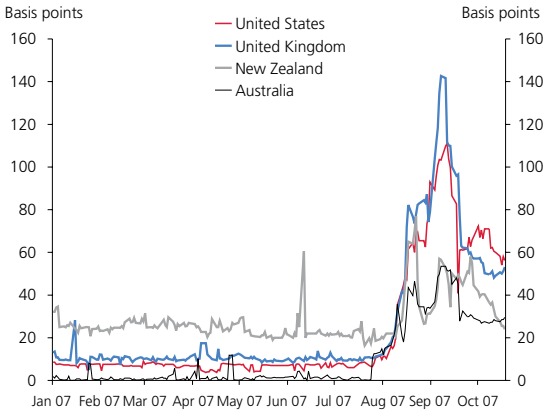
Source: Bloomberg.
Note: Weekly, to 17 Oct 2007.

paper outstanding has declined since late August, it now appears to be stabilising at lower levels (figures 2.4, 2.5). In October, a group of major banks announced plans to form a jointly-managed vehicle, the Master Liquidity Enhancement Conduit (MLEC), which is intended to provide support for the asset-backed commercial paper market.

Spreads between LIBOR rates, which measure the short-term funding costs for banks, and overnight index swap (OIS) rates, which measure the market pricing of monetary policy rate expectations, have narrowed but remain above levels seen prior to the turmoil (figure 2.6). Credit spreads on high-yielding corporate and emerging market debt have also increased (figure 2.7).

Figure 2.6

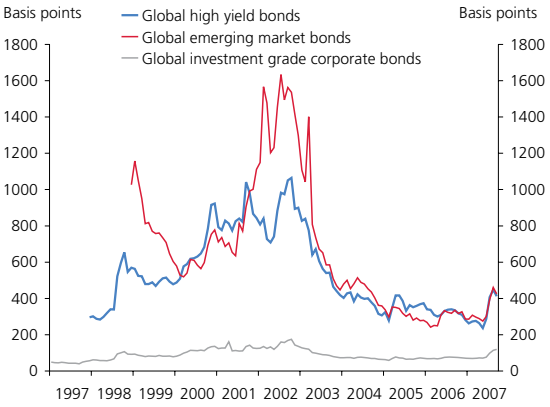
Spreads between three-month LIBOR and OIS rates



Source: Bloomberg.
Note: Daily, to 18 Oct 2007.

Figure 2.7

Spreads to 10-year US treasury bonds



Source: Merrill Lynch, Bloomberg.
Note: Monthly, to Sep 2007.

Most large global commercial banks appear well capitalised and strong enough to absorb the assets of troubled off-balance sheet conduits that may need to be brought on balance sheet.[4] A positive factor is that the global economy has been in relatively good shape to weather the crisis. Emerging market economies are not as vulnerable as they were at the time of the financial crises in the late 1990s, and the level of interest rates in the US provides further scope for easier monetary policy should it be required. However, downside risks have clearly increased as financial and monetary conditions have tightened. Key risks centre on the outlook for the US, which remains vulnerable given the sharp downturn in the housing market seen over the past year.

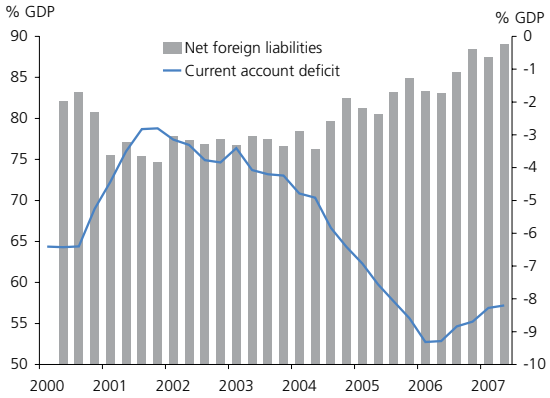
Recent events are expected to prompt a broad-scale review of liquidity management and prudential policies around the globe. There are lessons to be learned in relation to the management of funding in both institutions and financial systems, with recent events showing funding markets may not always be as secure or liquid as previously thought. The US sub-prime episode has also shown the need to review capital adequacy rules around securitisations, an area where assessing the nature and incidence of risk can be particularly challenging.

[4] **See footnote 2.**

2.2 External sector

A combination of low private savings, strong economic growth and a high exchange rate has resulted in large current account deficits in New Zealand, and a further build-up in the country's already high net foreign liabilities (figure 2.8). New Zealand is potentially vulnerable to changes in the willingness of investors to fund this net liability position. A reduction in foreigners' appetite for New Zealand assets could potentially result in a significant increase in debt-servicing costs and a sharp downward adjustment in the exchange rate.

Figure 2.8
New Zealand's net foreign liabilities and current account deficit



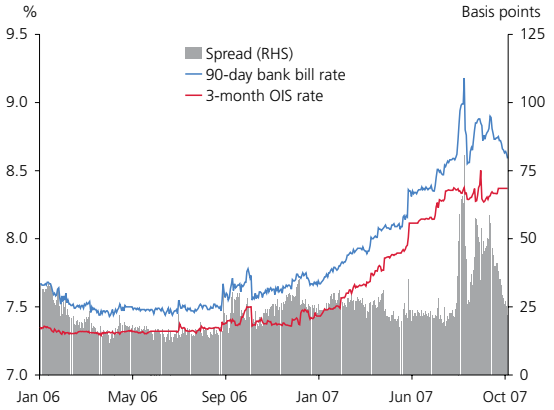
Source: Statistics New Zealand, RBNZ.
Note: Monthly, to June 2007.

The large portion of debt in New Zealand's foreign liabilities, and high levels of debt on household balance sheets, exacerbate the risks associated with such a scenario. Borrowers face significant rollover risk (ie, the risk that investors choose not to renew their investment on either the same terms or more favourable terms when it matures). The risk increases with shorter maturity debt because of the higher frequency with which the debt needs to be rolled over or repaid. Around half of all New Zealand's debt liabilities have maturities of less than one year, compared to around a third in Australia. Although these are significant risks, they are partly mitigated by New Zealand's floating exchange rate, a high level of intra-company lending, and the widespread use of hedging of interest rate and exchange rate risks.

Banks intermediate much of New Zealand's foreign borrowing by issuing securities in overseas markets; particularly the Eurodollar and US domestic commercial paper markets. New Zealand banks' Australian parents are similarly dependent on the same markets.[5] Data suggests that these markets have recovered somewhat from the recent turmoil in financial markets (figures 2.4, 2.5). However, the subsequent impact on New Zealand banks' funding costs was seen in increases in bank bill rates relative to expectations of the official cash rate, (figure 2.9, see also chapters 3 and 4).

A recent cooling in domestic demand and an outlook of stronger export revenues may go some way towards curbing New Zealand's recent high current account deficits. However, New Zealand's level of foreign debt has developed an increasing trend, repeatedly recording new highs and becoming a greater source of risk. Increased foreign debt puts pressure on New Zealand to grow fast enough to meet increased debt servicing obligations – otherwise the debt will not be sustainable. Reducing the external debt would require a prolonged lift in the national savings rate (ie, lower current account deficits). In the absence of such a change New Zealand will continue to remain exposed to shifts in foreigners' appetite for New Zealand dollar assets.

Figure 2.9
Bank bill rates and Overnight Indexed Swap (OIS) rates



Source: Reuters, RBNZ calculations.
Note: Daily, to 19 Oct 2007.

[5] **The Reserve Bank of Australia reports that foreign liabilities account for 27 percent of banks' total liabilities. A third of outstanding foreign debt securities were issued with an initial term to maturity of less than one year.**

2.3 The New Zealand household sector

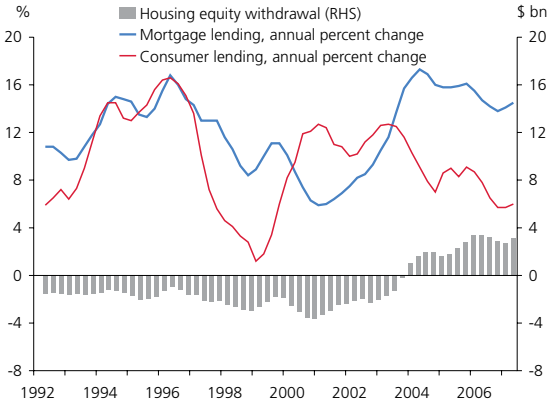
Household debt and debt servicing

Strong employment and wage growth in recent years have boosted household incomes and, alongside a strong housing market, have supported growth in household borrowing. Total household debt grew by 14 percent in the year to August 2007. Growth in household borrowing continues to outstrip growth in disposable income, increasing debt servicing costs to 14 percent of disposable income (figure A7). Mortgage lending dominates household debt, accounting for more than 90 percent of household borrowing. Lending data recently showed a sharp downturn in mortgage approvals, and mortgage lending is expected to moderate, reflecting stretched valuations, continued increases in effective mortgage interest rates and signs of a cooling housing market.

Consumer lending appears to be slowing more markedly than mortgage lending. This may partly reflect difficulties in parts of the finance company sector, which provides a large proportion of consumer credit. Market contacts suggest that interest rates on non-mortgage (consumer) lending have increased sharply in recent months, reflecting the increased cost and reduced availability of funding to this sector (see chapter 4). It is also possible that housing equity withdrawal (borrowing against housing assets) has been used to finance some purchases previously financed by consumer lending (figure 2.10).[6]

Figure 2.10

Household borrowing and equity withdrawal



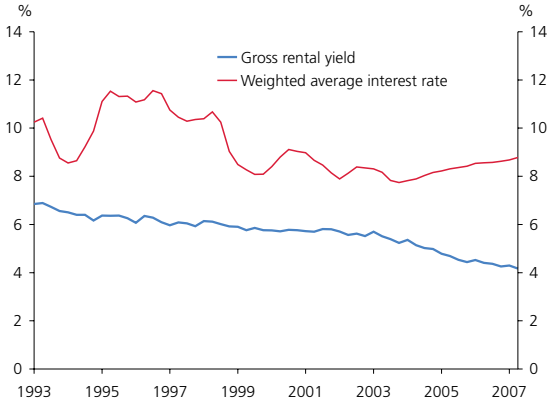
Source: RBNZ, website table C6.
Note: Quarterly, to June 2007 for mortgage and consumer lending. Equity withdrawal to March 2007.

To date, households appear to have been well able to service higher debt levels with continued low rates of default. Likewise, other indicators of financial stress, such as personal bankruptcy rates, have not shown a marked increase. However, higher debt levels and rising service ratios mean that some households may be exposed to a downturn in the wider economy that affects incomes or employment, or to a further sharp increase in interest rates. Statistics from the 2004 Household Economic Survey show debt service ratios are highest in the bottom and middle income quintiles.[7] Debt servicing ratios are likely to be highest among first-time buyers and those with young families temporarily on a single income.

Recent investors in rental property may also be exposed to changes in economic conditions. Yields on rental properties have fallen steadily over recent years, while the cost of funding has increased (figure 2.11). The number of taxpayers claiming losses, either directly or through Loss Attributing Qualifying Companies (LAQCs) has increased markedly. Sustaining cash flow on some properties could become problematic if economic conditions were to weaken.

Figure 2.11

Rental yield and weighted average interest rate



Source: Real Estate Institute of New Zealand, Ministry of Housing, RBNZ.
Note: Quarterly, to June 2007.

[6] For details on the estimation of housing equity withdrawal see Smith (2006) 'What do we know about equity withdrawal by households in New Zealand?', a paper prepared for a Reserve Bank of New Zealand workshop entitled 'Housing, savings, and the household balance sheet', Wellington, 14 November 2006.

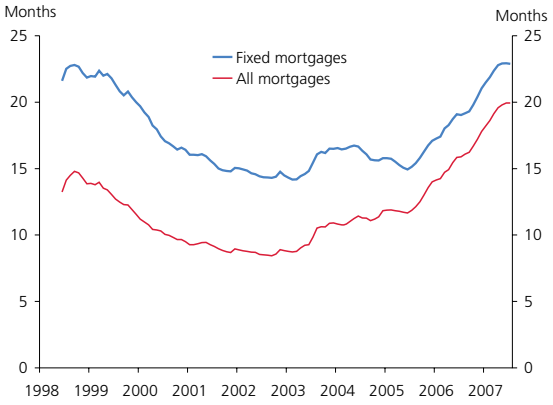
[7] The 2006/07 Household Economic Survey will be published at the end of November 2007. For further details on the distribution of household debt see pp 14-15, *Financial Stability Report*, Reserve Bank of New Zealand, May 2006.

Also, capital gains are becoming increasingly uncertain as a means for investors to 'break even'.

One feature of the expansion in household debt has been the increase in fixed-rate borrowing. Around 85 percent of mortgage lending is at fixed interest rates. Figure 2.12 provides an indication of the duration of fixed interest rate deals on the mortgage stock. The average time to re-price is now the highest since the series began in 1998. Fixed interest rates temporarily insulate households from higher rates. However, if rates have increased substantially during the fixed term, repricing may present a challenge to some households. With interest rates currently at an eight-year high, households whose fixed-rate mortgages are due to re-price face increases of financing costs of around 100 basis points on average over the coming year.

Figure 2.12

Estimated weighted average time to re-price for mortgages



Source: RBNZ.
Note: Monthly, to July 2007.

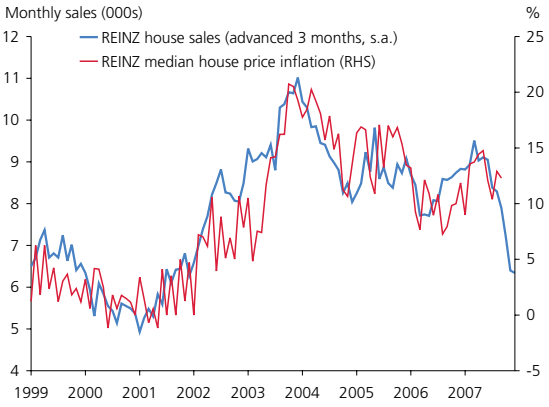
Household wealth

Table 2.2, opposite, provides a breakdown of household assets and liabilities. The table confirms the substantial share of housing in household portfolios, with financial assets a much smaller share of total wealth (see also figure A8).

While house prices have risen dramatically in recent years, there have been indications of moderation in the housing market. Real Estate Institute of New Zealand house sales fell 6.3 percent (seasonally adjusted) in August, and over the past four months, nationwide house sales have declined 30 percent (figure 2.13). The number of 'days to sell a house' is rising, and net immigration has slowed from its peaks. However, median house prices are yet to show a decline.

Figure 2.13

House sales and house price inflation

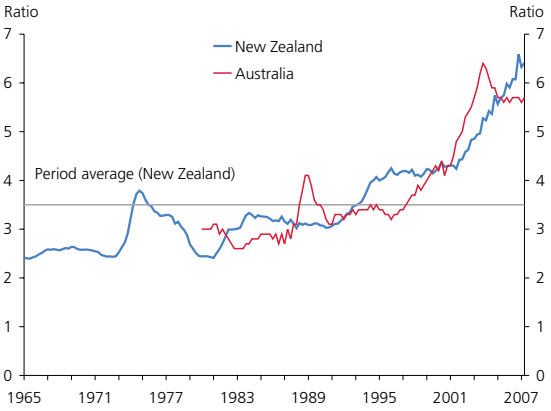


Source: REINZ.
Note: Monthly, house sales advanced three months to Dec 2007, house price inflation to Sep 2007.

The average house price is now estimated to be six times the average household disposable income, which is well above the ratios that have prevailed over earlier decades (figure 2.14). While a range of factors may have driven this ratio higher (some of which may not be expected to reverse), its rapid climb strongly suggests that house prices may be overvalued, leading to correction at some point. To return the ratio to its long-run average of 3.4 would require significant adjustment. Put in terms of each variable separately, either household disposable income would need to increase by 80 percent or house prices would need to fall by 44 percent, to their level at the start of 2003.

Figure 2.14

Ratio of average house prices to average household incomes



Source: Quotable Value NZ Ltd, Reserve Bank of Australia, SNZ, RBNZ estimates.
Note: Quarterly, to June 2007.

Table 2.2
Household assets and liabilities

	$ billion	Percent of total assets	Growth (annual percent change)	
As at June	2007	2007	2006	2007
Total household assets	842	100.0	11.5	14.0
Non-financial assets	650	77.2	11.7	15.3
Dwellings	605	71.9	12.2	15.4
Consumer durables	45	5.3	5.8	13.0
Financial assets	192	22.8	11.0	10.4
Bank deposits	74	8.7	13.1	12.5
Deposits with non-banks	13	1.5	17.5	4.6
Life, super, and managed funds	65	7.7	10.2	8.0
Direct equities	25	3.0	7.8	18.3
Other fixed interest	15	1.8	4.8	4.5
Total household liabilities	162	19.3	14.0	13.4
Household net financial wealth	30	-	-1.2	-3.4
Household net worth	681	-	10.9	14.3

Source: RBNZ and RBNZ estimates, New Zealand Institute of Economic Research, Quotable Value Ltd.
Notes: Annual percent change in June years. Non-banks include finance companies, building societies, credit unions and PSIS Ltd. Consumer durable values calculated as the same percentage of dwellings as done by the Reserve Bank of Australia for Australia.

A report by FitchRatings, which uses a similar measure of house price valuation, shows that New Zealand house prices are the fourth most overvalued in its sample of 16 advanced economies.[8] France, the UK, and Denmark ranked ahead of New Zealand. In the same report, New Zealand households were the most vulnerable to a combination of weakening property prices and rising interest rates.

Financial wealth

Financial assets in total have been growing relatively rapidly over the past year, with substantial growth in bank deposits, direct equities and some other assets. The financial wealth of some households has potentially been affected recently by difficulties in the non-bank finance company sector. However, table 2.2 shows that the overall share of non-bank deposits in total household financial assets is relatively small, at around 1.5 percent.

2.4 The New Zealand non-financial corporate sector

Business profitability has continued to decline since the last *Report*. Reported earnings have fallen short of analysts' expectations, and the domestic operating environment remains challenging for many businesses. Pessimists still outnumber optimists in many surveys of business confidence, although there are some signs that the economy is rebalancing. Exporters' confidence is growing, while confidence in domestic oriented sectors has weakened. A

[8] **'House prices and household debt – where are the risks?', *Special Report*, FitchRatings (www.fitchratings.com).**

combination of slowing economic growth and lower sales in these sectors has meant that some firms have been unable to pass on higher costs. Consequently, margins remain under some pressure.

Business balance sheets generally remain strong. Some sectors have been continuing to invest heavily given stretched capacity, with much of this expenditure funded by debt rather than equity. Data for listed companies suggests an increase in business gearing to levels close to those at the start of the decade (figure 2.15). Bank credit to both the business and agricultural sectors continues to be strong (figure 2.16). Offshore financing remains low as a share of total business financing, and is expected to remain low in the current market environment (figure 2.17). Data for listed companies show that current liabilities have declined as a proportion of total liabilities, suggesting an increase in term financing.

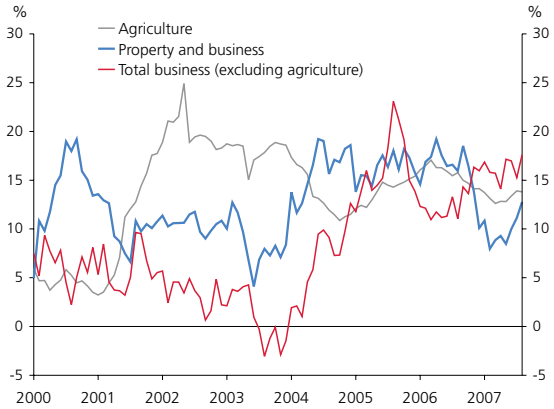
Figure 2.15
Listed companies' gearing[9]

Source: Bureau Van Dijk – ORIANA.
Note: Gearing is the ratio of non-current liabilities including loans divided by equity. Quarterly, to Dec 2006.

Recent developments in global financial markets have placed upward pressure on New Zealand corporate bond yields. Market conditions have forced some debt issuers to revise terms and to reduce the size of debt issues to attract

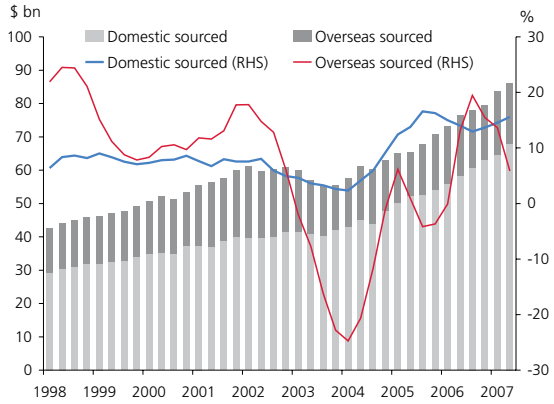
[9] This series needs to be interpreted carefully, as the number of companies included in the accounts varies year by year depending on availability of data for listed companies. Reporting dates also vary. Data is annual, as at December, and cubic splined to produce a quarterly series.

Figure 2.16
Bank business lending growth (annual percent change)



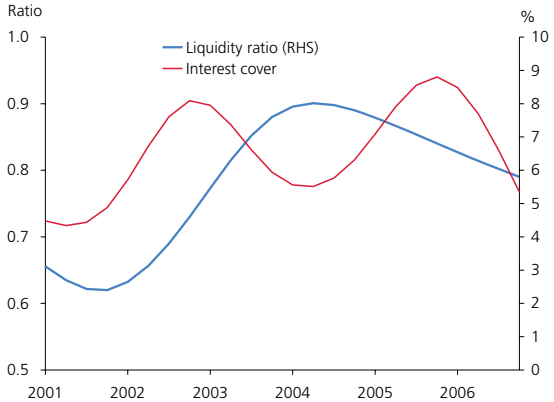
Source: RBNZ – registered banks' SSR, and website table C5, to August 2007.

Figure 2.17
Business debt (level and growth)



Source: Statistics New Zealand, RBNZ calculations.
Note: Quarterly, to June 2007, these estimates exclude corporate bonds issued domestically. At year-end 2006, the corporate bond market had an estimated $21 billion outstanding.

Figure 2.18
Listed company liquidity indicators



Source: Bureau Van Dijk – ORIANA.
Note: Quarterly, to Dec 2006. The liquidity ratio is the ratio of current assets, excluding stocks, to current liabilities. Interest cover is the ratio of earnings before interest and taxes (EBIT) to interest payments. Other notes apply as per footnote 9.

investors. A number of private equity-related issues have also been deferred, including a $300 million debt issue by the Yellow Pages Group to refinance bank loans, which had funded the purchase of Yellow Pages from Telecom New Zealand earlier this year.

Listed company data point to weaker liquidity among businesses. Interest cover as a share of earnings before interest and taxes (EBIT) has fallen from a year ago, and current assets (excluding stocks) as a share of current liabilities (the 'liquidity ratio' in figure 2.18) has also declined.

Previous *Reports* have highlighted increases in agricultural indebtedness and the vulnerability of the sector to lower commodity prices, higher interest rates, and the exchange rate. Bank credit to the agriculture sector reached $32 billion in the year to June 2007. Although small in the context of total credit, lending risks are concentrated, particularly among new entrants.

Recent gains in commodity prices have been concentrated in dairy prices. Lending to dairy farms amounted to $18 billion (57 percent of total lending to agriculture) in the year to June 2007. Fonterra has revised expectations of the 2007/08 payout to $6.40 per kilogram of milk solids. While current developments in the dairy sector are positive, higher returns could underpin further increases in both dairy and non-dairy agricultural land prices. Based on previous rural property price cycles, there is some potential for increases in land prices to become excessive and substantively decoupled from potential earnings. This, in turn, could create additional risks for both borrowers and lenders.

2.5 The Australian household and corporate sectors

The stability of New Zealand's financial system is closely linked to that of Australia's. In addition to the fact that New Zealand's four largest banks are all owned by Australian parents, Australia is New Zealand's largest trade partner. This section briefly describes the Australian household and corporate sectors, in the context of Australian financial stability. This section draws on the Reserve Bank of Australia's *Financial Stability Report*.[10]

Households

Like their New Zealand counterparts, the indebtedness of Australian households has increased significantly over the past decade. Growth in housing debt has recently lifted, growing by 13 percent over the year to July 2007. The upturn in credit growth is underpinned by renewed growth in the demand for borrowing against investment properties. Housing debt is now equivalent to 160 percent of household disposable income. In addition to borrowing demand for investment properties, increased household debt is also attributable to higher house prices, and in contrast to New Zealand, increased rates of home ownership.

The ratio of the average Australian house price to average Australian household disposable income peaked at about 6.5 in 2003 (figure 2.14). It has stabilised at 5.75 in recent years, as house prices have again firmed. The Reserve Bank of Australia reports that house prices rose by 9 percent over the year to June 2007, double the average rate of growth over the past two years.

Rising interest rates have pushed the ratio of household interest payments to disposable income to 12 percent. Research published by the Reserve Bank of Australia indicates that the rise in debt has been driven by those households that have the greatest capacity to service it: the middle-aged, high-income group. Mortgage arrears have increased, but remain low at 0.4 percent of total loans (from 0.2 percent of total loans in 2004).

Corporates

Businesses in Australia continue to report strong profit growth, and analysts forecast continued growth in earnings over the next few years. The exception is in the agriculture sector where drought conditions have resulted in financial pressures. Aggregate leverage ratios have also increased, with the ratio of debt to equity at approximately 68 percent. Leverage growth has been driven in large part by growth in investment, and has increased more rapidly in non-resource based sectors. By contrast, resource based companies have largely funded growth in investment using retained earnings.

[10] *Financial Stability Review*, **Reserve Bank of Australia, September 2007.**

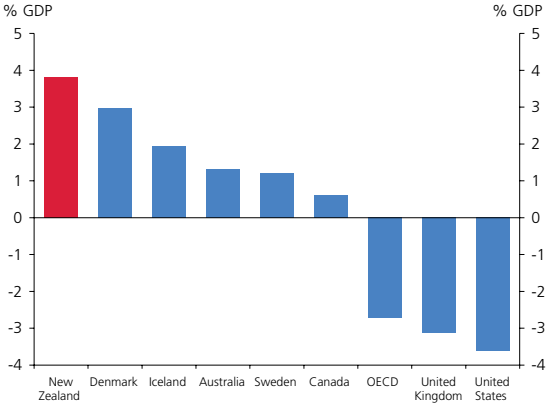
At the same time, leveraged buyout activity has slowed markedly. Transactions totalling A$2 billion have so far been completed this year, compared to A$9 billion in 2006. The recent deterioration in global financial conditions has resulted in a less receptive funding environment. However, the Reserve Bank of Australia has reported that a large number of deals remain to be financed in debt markets.

2.6 The New Zealand government sector

Public saving is a key factor when assessing the level of risk inherent in New Zealand's financial position, in large part because of the high level of private sector external debt. If public saving declined, New Zealand's financial stability risks would increase unless private sector saving rates increased. Hence, the high level of public saving is an important factor cited by rating agencies as supporting New Zealand's foreign currency ratings.[11] The estimated general government surplus has averaged 3.8 percent of GDP over the past five years, which is large in comparison with other OECD countries (figure 2.19).

Figure 2.19

General government balance, five-year average 2003-2007

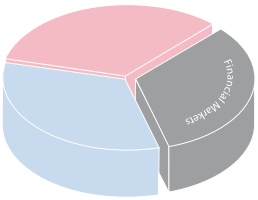


Source: OECD.

Note: Data refer to the general government sector, which is a consolidation of accounts for central, state and local governments plus social security.

[11] New Zealand's foreign currency ratings are 'Aaa' from Moody's and 'AA+' from Standard & Poor's and Fitch.

3 New Zealand's financial markets



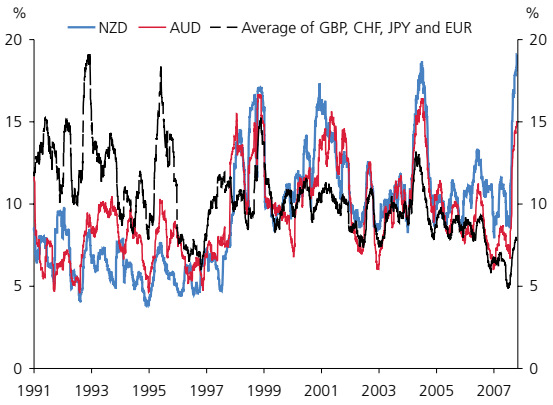
Liquidity in New Zealand money markets has not been as strong as was previously the case, reflecting the difficulties faced in global markets. International market volatility has seen reduced participation of international investors in New Zealand money markets.

3.1 The foreign exchange market

There have been large movements in the NZD since the last *Report*, reflecting investors' changing perceptions of risk globally. The NZD fell from the post-float record high of just over 81 cents against the USD in late July to around 68 cents in early September. The NZD/USD exchange rate in early September was still well above its daily average since the currency was floated, and since then there has been further appreciation. The increase in NZD volatility has been large in both an absolute sense and relative to the other major currencies, reflecting concerns about high-yielding currencies in the foreign exchange market (figure 3.1).

The sharp depreciation in the currency from late July to early September had occurred despite the yield differential between New Zealand and the other major economies remaining elevated. The dominance of risk aversion – which stemmed from concerns about losses in the US sub-prime mortgage market – led investors to move away from riskier investments such as higher-yielding currencies. Just as the popularity of such investments had underpinned the NZD's appreciation to record highs. The subsequent unwinding of these investments helped to drive the sharp depreciation in the currency.

Figure 3.1
Average historical volatility in currencies against the USD



Source: RBNZ, Bloomberg.
Note: Three-month volatility. Daily, to 18 Oct 2007.

Much of the unwinding of these investments involved the substantial reduction in 'long' positions on the currency (effectively, bets on the currency appreciating). While the bulk of the foreign investment flows are from hedge funds and investment banks, a significant share of the flows are from Japanese margin traders (figure 3.2). In previous episodes of NZD weakness, many of these margin traders had seen a fall in the currency as an opportunity to build long positions in anticipation of a rebound. That was not the case this time. When a rebound failed to eventuate, many of these investors were 'stopped out' of their positions, thus driving a further fall in the currency.[1] However, there are signs that long positions in the currency are being rebuilt in line with a tentative rebound in risk appetite.

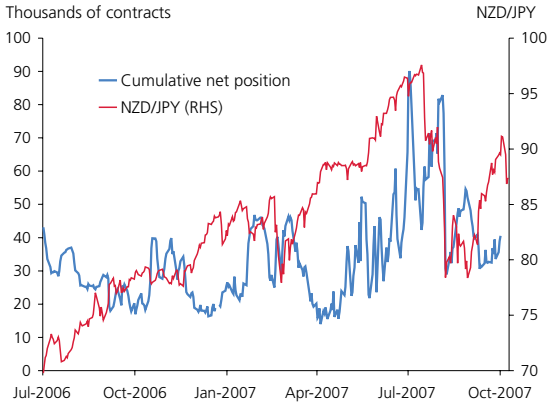
These developments meant that liquidity in the NZD FX market was stretched at times during August. There were periods when bid-offer spreads[2] on the NZD widened to

1 Either because the currency fell below the trader's pre-set stock level, or because the broker required the trader to preserve margin.

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

Figure 3.2

NZD/JPY and margin trader positioning



Source: Bloomberg, Tokyo Financial Exchange, Credit Suisse First Boston.

Note: Daily, cumulative net position to 10 Oct 2007, NZD/JPY to 18 Oct.

extremely high levels, as the number of bids in the system reduced dramatically. The periods of illiquidity in the NZD market saw some large ranges traded, with gapping (a sudden jump in the exchange rate where no trade occurs) of the market observed at times during the fall in the currency. The average intraday range traded on the NZD/USD during August was NZ 0.74 cents, which was more than double the average over the past three years (figure 3.3).

Wider trading ranges attracted speculative interest in the NZD. This interest was frequently one-sided and contributed to liquidity problems. Average daily turnover in the spot NZD market for August was around 50 percent greater than the average daily turnover since 2004. While the sharp movements in the NZD at times posed some risks to the orderly functioning of the NZD FX market, these risks are in line with those associated with a sharp adjustment as outlined in previous *Reports*.

Figure 3.3

NZD/USD daily trading ranges in 2007

Source: Reuters.

Note: Daily, to 19 Oct 2007. Black bars indicate that the currency closed higher than at open, red bars indicate that the currency closed lower than at open. Lines span the highs and lows traded in the session.

As noted in earlier *Reports*, the NZD has been supported by significant investment via NZD-denominated offshore bond issuance of Uridashi and Eurokiwi bonds. There has been a slowing in issuance of these bonds, with issuance falling short of maturities in recent months. However, anecdotal evidence suggests that this is largely a reflection of a change in the types of investment products being demanded by Japanese investors, from Uridashi bonds to investment funds. While these funds are typically on call in nature, investors tend to buy with the intention of obtaining regular income for a significant period of time. Hence, while there has been a reduction in shorter-term leveraged investor positions (such as margin traders), demand for the NZD from investors with a medium-term horizon remains.

3.2 Interest rate markets

As related in chapter 2, recent developments in global financial markets have also seen increased risk aversion in interest rate markets. This led to a general reluctance amongst investors across different countries to hold large amounts of commercial paper, including bank bills, on their balance sheets. As a result, there has been an increase in the price of term liquidity, as evident in the sharp rise in the spread between interbank (LIBOR) rates and yields on Treasury bills in the major economies recently, especially at the three-month tenor (figure 2.2). Safe-haven flows into government securities saw bank bill rates increase and Treasury bill yields fall, particularly in the US.

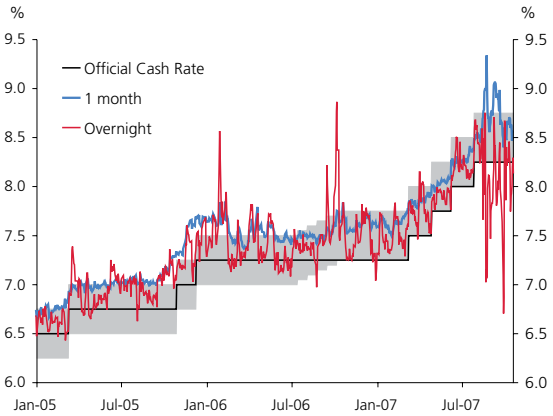
Given New Zealand banks' reliance on USD money markets, difficulties faced in offshore markets were reflected in a tightening of liquidity conditions in New Zealand. As noted above, a decline in the appetite for risk by both offshore and domestic investors led to a decline in demand for NZD-denominated securities. This included a reduced demand for NZD in the FX swap market. The resulting increase in the implied FX swap rates made it more expensive for New Zealand banks to convert funds raised in USD into NZD. Because of the increase in the FX swap rate, banks moved

to raise funds through issuing bank bills in the domestic market. This placed upward pressure on bank bill rates and increased the spread between bank bills and Treasury bills, and bank bill rates and OIS rates (figure 2.9). Pressures were also observed in overnight liquidity in August, as increased uncertainty in the money markets led banks to hold more cash on their balance sheets. These pressures also flowed through to term liquidity, as reflected in the increase in FX swap rates (figure 3.4). This prompted the Reserve Bank to announce various changes in late August to its liquidity operations (see box 2), which improved the distribution of cash. These measures have seen the implied cost of funding through the overnight FX swap market fall back closer to the OCR, despite remaining volatile.[3] The sharp fall in the implied overnight cost of funding towards the end of September reflected the banks holding more cash (and choosing to roll this overnight rather than hold for a term) on their balance sheets coming up to financial year end.

As noted above, pressures in term liquidity were also reflected in the increase in short-term interest rates to levels out of line with the current level of – and market expectations of – the OCR. However, the implementation of tiering has provided incentive for banks to distribute excess cash holdings, by making it more expensive for banks to hold more cash than is required for payment systems needs. As a result, demand for bank bills has increased and bank bill rates have subsequently returned to more normal levels.

Figure 3.4

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



Source: RBNZ, Bloomberg.
Note: Daily, to 18 Oct 2007.

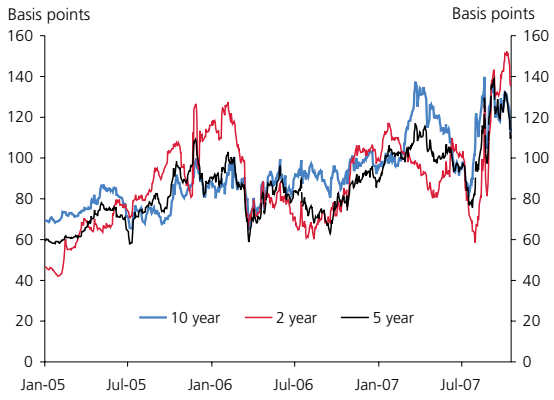
Overall, domestic markets have continued to function throughout this period, with the effects of global developments on domestic markets being largely one of pricing. Indications are that banks continue to have adequate access to funds, but are having to pay a higher cost of funds.

The safe-haven flows into government securities have also seen spreads on interest rate swaps (the difference between swap rates and government bond yields) widen (figure 3.5). While this in part reflects an increased premium demanded by investors for taking on bank risk, the low stock of government bonds had a more significant impact (figure A11). Illiquidity in the government bond market has been largely due to a sizeable proportion of these bonds being held by offshore investors (figure A14).[3] The proportion of all government securities held by non-residents has continued to increase to historically high levels.[4] These conditions in the domestic government bond market have resulted in large movements in bond yields, as bids and offers are not readily absorbed by the market.

Partly as a result of this illiquidity, another domestic institution has withdrawn from price-making activities in the domestic government bond market. There are now only two domestic interbank participants regularly offering prices in the market. This has meant that turnover in the

Figure 3.5

Spread between interest rate swaps and government bond yields



Source: RBNZ, Bloomberg.
Note: Daily, to 18 Oct 2007.

[3] Due to market structure, NZD LIBOR rates are highly volatile.

[4] In the recent past, the majority of offshore investors in New Zealand government bonds have held the bonds to maturity.

Box 2

Reserve Bank actions to improve interbank liquidity

Settlement cash provides liquidity to banks and enables them to make real-time NZD payments through the Exchange Settlement Account System (ESAS). During August, offshore market disruption caused instability in the domestic financial system. In particular, at times, the overnight cash and money markets functioned abnormally. Banks had sufficient liquidity to meet payment obligations, but the Reserve Bank acted in a proactive manner to prevent serious disorder occurring (table 3.1). Banks can now use a wider range of financial instruments as security if they need to raise cash from the Reserve Bank to meet their daily payment obligations. Banks have also been incentivised to redistribute their excess cash in the interbank market through a 'tiering' regime.

Under tiering, the Reserve Bank allocates each ESAS account holder an upper level of cash that should be sufficient to meet their normal payment obligations. Overnight settlement cash balances below the tier level are remunerated at the official cash rate (OCR).[5] Balances in excess of the tier limit are remunerated at 1 percent per annum below the OCR. Each bank's tier allocation is regularly reviewed to ensure that it is appropriate and is not likely to constrain payment system activity.

In the absence of tiering, the demand for settlement cash balances could become very large – especially when New Zealand has attractive short-term interest rates. While participants need settlement cash for payments purposes, there has also been demand for settlement cash as a part of portfolio investment holdings. Tiering is intended to refocus banks on using settlement cash primarily for payments purposes.

Table 3.1

Actions to improve interbank liquidity

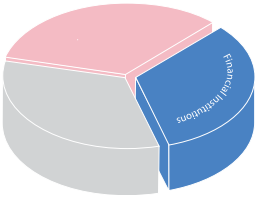
Early August	The Reserve Bank added additional settlement cash into the banking system, mainly targeting cash injections for three-month terms.
16 August	The Bank brought forward the date from which limited amounts of supranational securities would be accepted in the overnight reverse repurchase facility (ORRF) in exchange for settlement cash to 20 August. (These securities are accepted at 50 basis points over the OCR.)
23 August	The Bank announced that: • bank bills would be accepted in the ORRF at a rate of 100 basis points over the OCR, as of 24 August; and, • the implementation of tiering would be brought forward to 24 August.

[5] Nield, I (2006), 'Changes to liquidity management regime', Reserve Bank of New Zealand *Bulletin*, 69(4): 26-31.

interbank market as a proportion of total reported bond market turnover has continued to fall, thus further limiting the market's ability to absorb flows.

Meanwhile, there has been ongoing issuance of NZD-denominated supranational bonds, reflecting continued demand for highly rated NZD-denominated assets. This suggests that investors still have a healthy appetite for NZD-denominated securities, reflecting continued favourable sentiment towards New Zealand's credit quality.

4 New Zealand's financial institutions



New Zealand's banking system has remained sound during the recent episode of global credit tightening and liquidity pressures. Banks have been faced with a period of increased funding costs and relatively less certain funding availability, but have generally been well-positioned to manage heightened liquidity and funding risks.

Bank asset quality remains in good shape, and profits continue to increase in line with bank lending volume growth. Profit expansion has strengthened banks' capital levels, which are well above regulatory requirements. However, lending growth has been concentrated in home lending, resulting in increased concentration in the household sector.

Several failures in the non-bank sector have highlighted the risks inherent in many of the sector's financial institutions. Risks in the sector have been described in previous Reports*. The Reserve Bank remains of the view that failures in the non-bank deposit-taking sector do not pose a threat to the soundness of the financial system as a whole.*

4.1 The banking system

Funding and liquidity

Offshore wholesale debt markets have been volatile since US sub-prime problems led to a generalised reassessment of risk pricing in financial products. The functioning and pricing of mortgage-linked credit derivative and short-term commercial paper markets was patently affected. Large losses and asset writedowns have been announced by several global investment banks. While a move to normality is occuring, uncertainty remains and volatile conditions will prevail for some time. Uncertainty has caused flight-to-quality volume contractions in markets such as asset-backed commercial paper markets, where pricing at fair values has been problematic. This has forced banks in the US and other countries to bring funding activities that have been undertaken by their conduits onto their own balance sheets, which has in turn put pressure on liquidity in the interbank market.

New Zealand banks have virtually no direct exposure to the US sub-prime market, and have engaged in very little securitisation. However, New Zealand banks have been affected by recent developments, principally through more difficult funding conditions and liquidity pressures. As noted in chapter 3, overseas debt markets are an important source of bank funds. These are wholesale markets where funds are generally raised in foreign currency and swapped into New Zealand dollars. The proportion of wholesale funding has been relatively stable as a share of total funding, but has increased recently (figure 4.1). Funding from associates has shown a corresponding rise (figure 4.2).

Pressures in offshore debt markets, and volatility in the cost of swapping the foreign currency raised in these markets back into New Zealand dollars, led New Zealand banks to compete more vigorously in domestic funding markets. Banks were generally able to delay entering the offshore funding markets while conditions were most adverse – and in particular, at the time when there was the greatest risk that funds may not have been able to be obtained.

Banks' increase in domestic market funding activities caused bank bill yields to increase. Chapters 2 and 3 have noted how liquidity and funding cost pressures became evident in market prices – for example, through volatililty

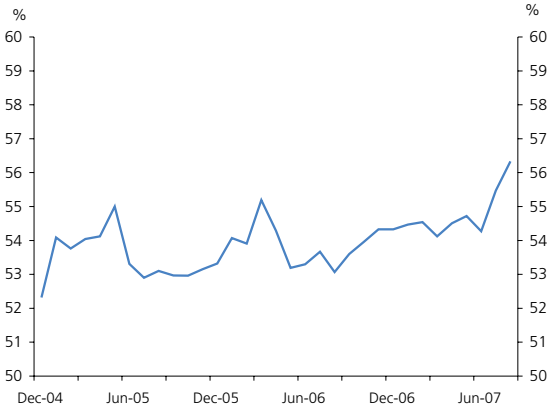
in FX swap rates (figure 3.3) and increased spreads between 90-day bank bills and instruments such as the three-month overnight indexed swap rate (figure 2.9).[1]

There are factors that have ameliorated funding cost pressures. First, prior to the financial market turmoil, the amount of liquid assets in the form of government securities and claims on the Reserve Bank held by banks had been rising (figure 4.3). This was due largely to the Reserve Bank providing greater quantities of settlement cash since June 2006 (see also box 2).

Second, while increased swap spreads put upward pressure on swap rates, flight-to-quality behaviour has lowered government bond yields, which has in turn acted to lower swap rates. As swap rates fall the cost to banks of swapping shorter-term for longer-term funding is reduced.

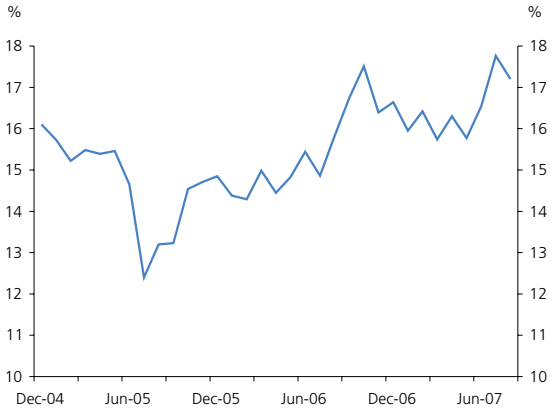
Additionally, household deposits grew by $982 million in August 2007, which was the largest increase for an August month on record (figure 4.4). Banks have been recipients of deposits, as investors sought the relative safety of banks vis-à-vis finance companies. However, it should be noted that growth over 2006/07 has been exceptionally large, even in the period before recent finance company difficulties.

Figure 4.1
Banks' wholesale funding as a percentage of total funding



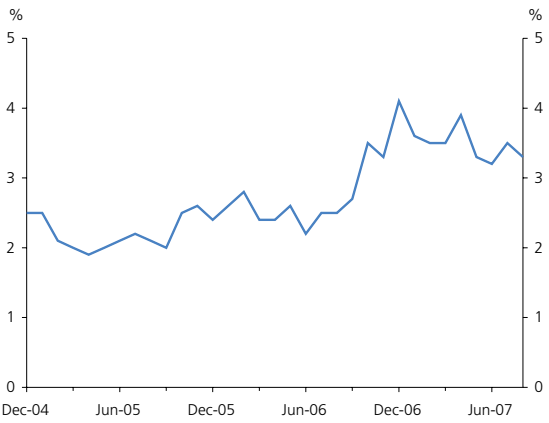
Source: RBNZ – registered banks' SSR (Standardised Statistical Return) to August 2007.
Note: Excludes interbank funds.

Figure 4.2
Banks' associate funding as a percentage of total funding



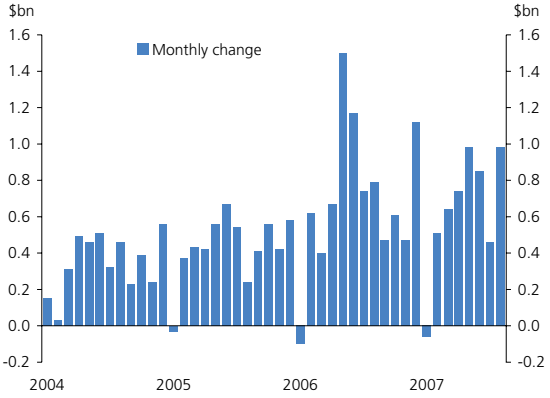
Source: RBNZ - registered banks' SSR, to August 2007.
Note: Excludes interbank funds.

Figure 4.3
Cash and government securities as a percentage of total bank assets



Source: RBNZ - registered banks' SSR, to August 2007.

Figure 4.4
Growth in bank household deposits



Source: RBNZ - registered banks' SSR, to August 2007.

[1] The Overnight Indexed Swap rate embodies market expectations about the future direction of the OCR.

Lending and competition

Household lending

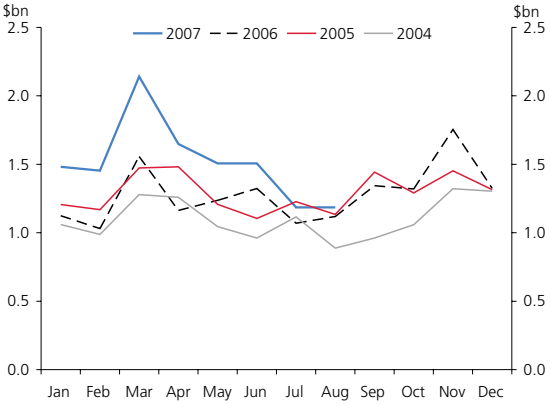
Bank housing lending has continued to expand (figure 4.5). As at the end of June 2007, bank residential mortgage lending was approximately 45 percent of total bank assets (figure A26). At the end of August 2007, lending to households stood at approximately $148 billion (including consumer lending).

Higher interest rates may be causing new borrowers to defer home buying. Lending growth may also be slowing as banks move to more conservative risk pricing as a result of recent financial turbulence. The level of interest rate discounting appears to have reduced with banks not offering borrowers the same discounts on carded rates seen six months ago, and interest rate margins have edged higher.

Over recent years, competition among banks has put downward pressure on interest margins (the ratio of net interest income to interest earning assets). As discussed in the May *Report*, margins had been squeezed to unsustainable levels in early 2007. Mortgage interest margins (the spread between mortgage rates and swap rates) were squeezed, with competitive discounting particularly fierce in the two- and five-year fixed-rate mortgage markets (figures 4.6 and 4.7). However, margins increased towards more sustainable levels in the second and third quarters. The total interest margin has declined in recent years and is now 2.25 percent (figure A24).[2]

Figure 4.5

Registered bank net residential mortgage portfolio growth

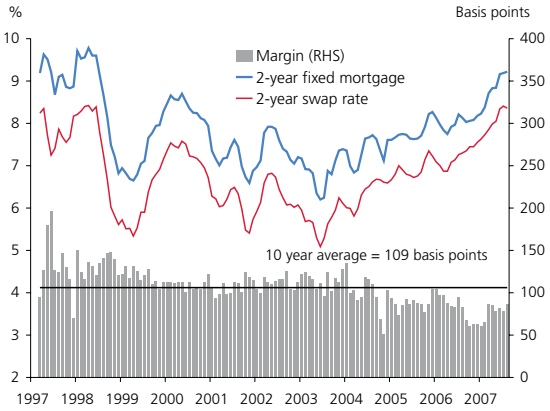


Source: RBNZ – registered banks' SSR and website table C6, to August 2007.

Note: Data is adjusted for series breaks.

Figure 4.6

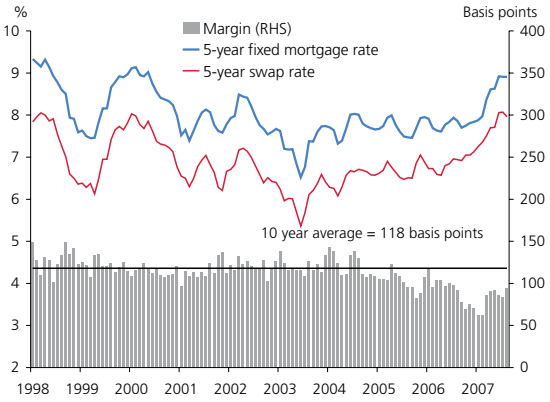
Two-year fixed-term mortgage interest rate, two-year swap-rate, and margin



Source: Bloomberg, RBNZ, to August 2007.

Figure 4.7

Five-year fixed-term mortgage interest rate, five-year swap rate, and margin



Source: Bloomberg, RBNZ, to August 2007.

[2] **Changes to the International Financial Reporting Standards (IFRS) will be affecting these margin calculations.**

Business lending

Growth in bank lending to business has been relatively strong over the past year, with lending growth at approximately 17 percent in the year to August 2007 (figure 2.16). There has been strong growth in bank lending to the agricultural sector, which represents approximately 36 percent of business lending and 12 percent of total New Zealand dollar lending. Hence, banks have significant exposure to the performance of this sector and its ability to service debt. However, increased dairy payouts and a favourable outlook for world soft commodity prices have potentially improved the debt-servicing capability in parts of the sector. Bank lending to the property and business services sector has also grown strongly, reflecting the strength of the broader economy.

Some business lending margins expanded considerably during the height of the market turmoil. Current margins remain higher than they were at the start of the turbulence, and are likely to contribute to improved business lending profitability.

Bank exposure to finance companies is small in terms of existing loans, committed lines and uncommitted facilities. Banks may be able to capture some market share as a result of distress in the finance company industry.

Income and profitability

Banks' reported profits remain strong. Lending growth continues to more than offset the adverse effect of declining margins on income and profits. Since March 2000 interest-earning assets have grown by 90 percent while net interest income has grown by just under 80 percent.

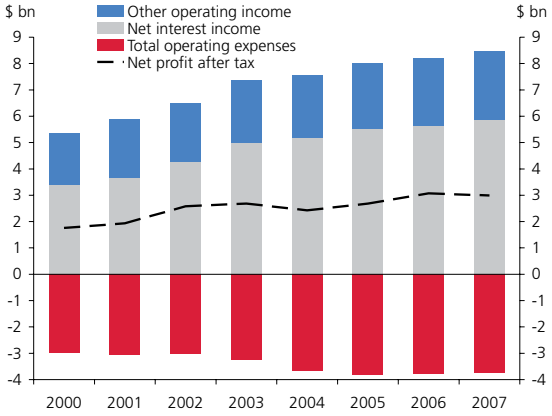
Total net interest income continues to expand (figure 4.8) bolstered by lending growth. This lending growth, along with ongoing control of costs, has been the main contributor to a steady rise in after-tax profits which, net of dividends, feed banks' capital.

Asset quality and bank capital

Measures of asset quality continue to improve owing largely to a decline in impaired assets in 2007 to very low levels (figure 4.9). However, should economic conditions deteriorate, levels of impaired and past-due assets could rise significantly.

Figure 4.8

Banks' financial performance



Source: Registered banks' general disclosure statements (GDS), as at 30 June 2007.

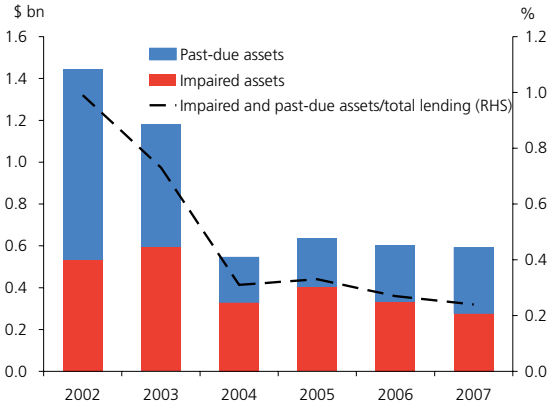
Capital levels have benefited from strong profit performance. The ratio of tier one capital to total risk-weighted assets for locally incorporated banks is stable at approximately 8 percent (figure A30). The ratio of total capital to risk-weighted assets has remained close to 11 percent.

Australian banks

Funding costs for Australian banks increased in August and September, and conditions tightened in the Australian markets for asset-backed commercial paper and residential mortgage-backed securities. Like the New Zealand

Figure 4.9

Bank asset quality



Source: Registered banks' GDS, as at 30 June 2007.

subsidiary banks, Australian banks draw a large proportion of their funding from wholesale and offshore markets. Hence the recent disruption in the smooth functioning of these markets has been an important test for the Australian banking system.

Australian banks' share prices fell at the height of the financial market turmoil. Banks funding long-term assets using asset-backed commercial paper via off-balance sheet conduits have been particularly affected. Some banks have had to bring conduit assets back onto their balance sheets. This increases the demands on their existing funding programs, and requires more capital to be held against an expanded balance sheet.

However, while many Australian banks and non-bank financial institutions use securitisation markets for funding, the major Australian banks have a relatively low level of securitisation. Credit lines that have been extended by the large Australian banks to issuers of asset-backed commercial paper represent only a small proportion of these banks' total risk-weighted assets. Additionally, as reported by the Reserve Bank of Australia in its September *Financial Stability Review*, Australian banks have very limited exposure to the US sub-prime market, and the Australian 'non-conforming' loan market (which the RBA note is the closest Australian equivalent to US sub-prime). Despite continued uncertainty, conditions in the interbank market appear to have improved, and it seems that liquidity pressure has eased. The recovery in bank share prices provided indication that the Australian banks are weathering this episode well.

4.2 Non-bank lending institutions

Finance companies (non-bank deposit-taking institutions excluding savings institutions) account for around 44 percent of total non-bank lending institutions' (NBLI) assets (table A4). Since 2006, finance company failures have affected over $1 billion dollars of household debentures (table 4.1). These failures reflect the relatively high risks that finance companies have taken in their business operations. There is significant heterogeneity across the deposit-taking finance companies; the lending institutions with higher credit risks are typically involved in property development finance, mezzanine lending, and consumer lending.

Table 4.1
Finance companies in receivership

	Secured creditors (to nearest $mn)	Payout to date, to secured creditors (percent)	Range of receivers' expected total payouts, to secured creditors (percent)
2006			
National Finance 2000	22	40	44-47
Provincial Finance	300	65	90-95
Western Bay Finance	48	65	75-80
2007			
Bridgecorp Finance	459	0	25-74
Nathans Finance	150	na	na
Propertyfinance Securities Ltd	88	na	na
5 Star Finance	54	0	26-46
Finance and Investments[3]	Finance and Investments did not issue securities to the public		
LDC Finance Ltd	11	65	75-80
Clegg & Co. Capital Ltd	14	na	na

Source: Receivers' reports filed with the Companies Office, and receivers' websites, as at 17 October 2007. See www.companies.govt.nz

Note: Payouts are on principal sums invested only. Secured creditors include households' holdings of debentures. Bridgecorp also has $29mn of unsecured capital notes.

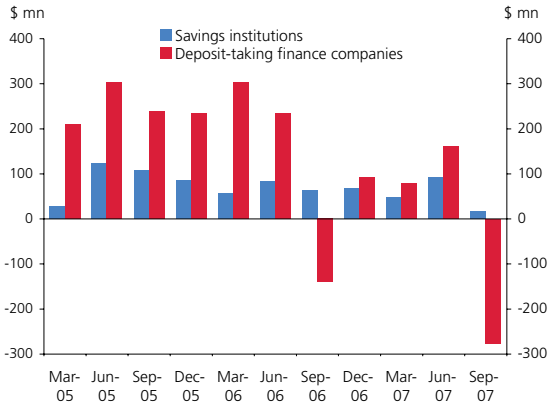
[3] Finance and Investments owed $16 million to investors when it collapsed, and did not issue a prospectus.

The failures that have occurred to date have been fundamentally caused by underlying solvency problems to do with asset quality, connected lending, and credit management. However, liquidity pressures will have been the trigger for closure in some cases, and many companies are under continued liquidity pressure, particularly given the risk of reduced rates of New Zealand household reinvestment in the sector. Standard & Poor's have recently downgraded the credit rating of Geneva Finance, to a 'default' rating, D, citing liquidity issues, despite a reasonable level of asset quality. Geneva Finance has requested a moratorium on its debenture repayments, which is due to be discussed by investors in early November. Beneficial Finance has also requested a moratorium from its investors.

September data show an outflow of household funds from deposit-taking finance companies (figure 4.10). Since the failures in 2006, finance company debentures have declined, reflecting the squeeze in liquidity in the sector and an increased reliance on other forms of funding. In contrast, savings institutions' deposits posted small but positive growth in the September quarter. Investor confidence will be supported by the relatively low risk profile in savings institutions' assets, which are heavily weighted towards residential first mortgage lending (figures 4.11, 4.12). However, savings institutions remain subject to funding and liquidity risk, particularly as a large proportion of their funding is on call.

Figure 4.10

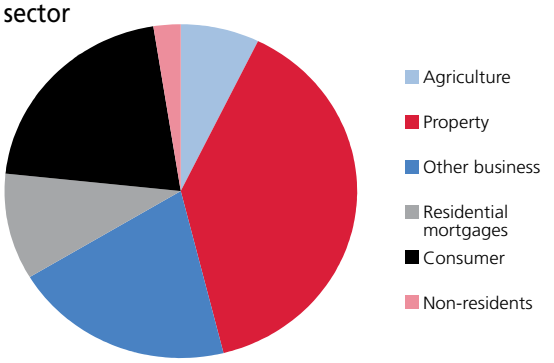
Quarterly net household deposit growth in finance companies and savings institutions, $million



Source: Non-Bank Financial Institutions' (NBFI) SSR, to September 2007.
Note: Data adjusted for series breaks.

Figure 4.11

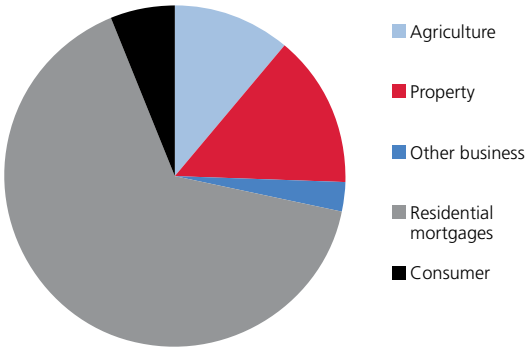
Deposit-taking finance company lending, by sector



Source: NBFI SSR, to June 2007.
Note: Comprises finance companies with assets greater than $100mn taking deposits from the public by way of issuing a prospectus. Includes foreign currency lending.

Figure 4.12

Savings institutions lending, by sector



Source: NBFI SSR, to June 2007.
Note: Comprises building societies and credit unions with assets greater than $100mn and PSIS Ltd. Includes foreign currency lending.

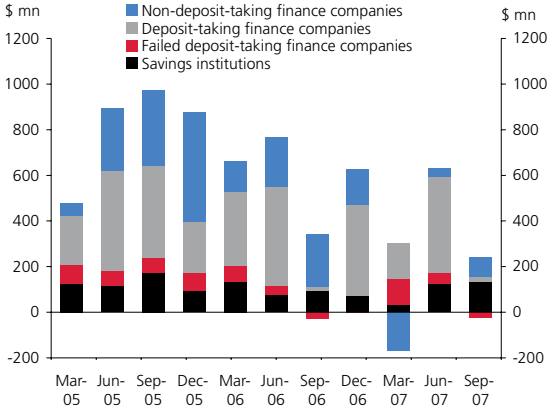
An important element of this episode has been that many investors have not received appropriate returns for their risk. For example, while finance companies engage in riskier lending than banks, this is only partly reflected in the returns on short-term deposits. The average difference between the interest rates on one-year term deposits at banks and one-year finance company debentures has been consistently around one percent. Deposit-taking finance companies on average have a margin between debentures and loans (interest spread) around twice that of banks, and significantly more for companies lending for consumer purposes.[4]

The NBLI sector's assets (including loans) have continued to grow since the start of the failures in 2006 (figure 4.13). Asset growth in savings institutions has been stable, and

[4] KPMG *Financial Institutions' Performance Survey* 2006.

that of non deposit-takers has slightly increased in the September quarter. Asset growth in deposit-taking finance companies substantially declined in the September 2007 quarter. Over the past year, finance company asset growth has mainly been in the property finance area, where lending growth has outstripped growth in all other sectors. The chart also shows growth in the March and June quarters from failed institutions, which primarily related to property finance lending.

Figure 4.13
Net quarterly asset growth of non-bank lending institutions



Source: NBFI SSR, to September 2007.
Note: Data adjusted for series breaks.

To date, we believe the effects of these developments on the wider economy will be contained. Although there are substantial wealth impacts for some debenture-holders, the share of total household wealth held with finance companies is relatively small. Aggregate direct lending exposure of registered banks to deposit-taking finance companies is well under half a percent of banks' total lending.

Additionally, the proportion of lending from the NBLI sector is small as a share of total lending in the economy, and some lending carried out by failed finance companies is likely to be taken over by other companies. This is already taking place in the broader context of the sectors' responses to its credit, liquidity and funding risks. In addition to the sectoral consolidation noted in the May *Report*, some finance companies have been working with larger non-deposit takers in order to continue lending operations. Several finance companies have sought credit lines from banks, and there have also been announced funding support agreements across savings institutions.

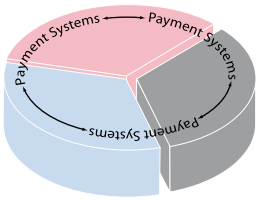
However, some finance companies have curtailed lending recently in an attempt to re-build liquidity, and alternative lenders may be more difficult to find for riskier types of lending. Credit availability to sectors such as property development is likely to be affected, which could have a marginal impact on consumption and investment activity (see *Monetary Policy Statement*, September 2007).

A new regulatory regime has been proposed for non-bank deposit-taking entities, which will include a role for the Reserve Bank (chapter 6). For the non-bank sector to be stable, all relevant parties need to fulfil their roles, and understand the roles of others. One source of concern has been with regard to the performance and lack of transparency in fee structures and remuneration of financial advisers. These concerns have included lack of disclosure of affiliations to particular finance companies. Financial advisers are expected to give investors unbiased, independent, critical and informed advice about the differences in risks and possible returns associated with the range of available products.

Regarding the roles of other sectoral participants, one of the roles of supervisory and regulatory agencies is to ensure timely and appropriate disclosure of risks and material events affecting risks as required by the Securities Act (1978). Trustees must protect and represent the interests of security holders as a group to ensure that their interests are effectively met. This includes a duty to exercise reasonable diligence to ascertain whether or not the assets of the borrowing group that are or may be available, are likely to be sufficient to discharge the amount of the debt securities as they become due. Trustees must also determine ongoing compliance with trust deed covenants, and where necessary report activity to the Registrar of Companies for action, and in extreme situations, appoint a receiver.

Investors must act as a source of discipline to the sector – primarily by demanding an appropriate level of reward for risks taken. To do this, investors must understand their risks, challenge advisers and other sources of information regarding those risks, and assess the likely impact on their own personal wealth of their investment decisions. Rating agencies can play an important role in enabling investors to effectively identify and compare risks between financial institutions, thus helping investors to ensure that they are adequately rewarded for their risks.

5 New Zealand's payment systems



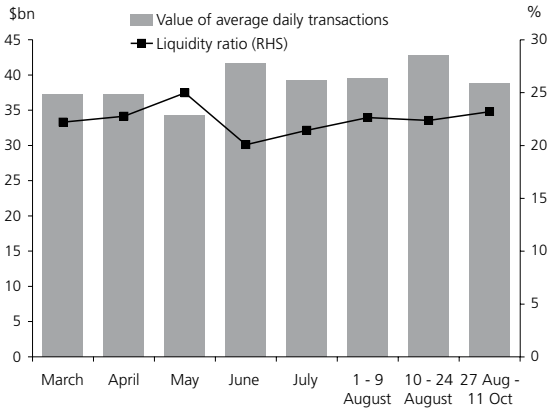
High-value payment systems continued to perform well over the last six months and during the recent period of market volatility. This has been due in part to recent changes to the Reserve Bank's liquidity management regime, which raised the level of settlement cash in the banking system (see also box 2).

5.1 High-value payment system performance

The smooth operation of ESAS[1] requires that participants have access to funds (settlement cash) to make payments in 'real time'.[2] That means that there must be sufficient funds available within the system as a whole, and those funds must be appropriately distributed – or in other words, the payment system must operate with an appropriate level of 'liquidity'.[3]

One way to gauge the level of liquidity in ESAS is to compare the ratio of settlement cash balances to the total value of transactions (the liquidity ratio). Increases (or decreases) in the liquidity ratio indicate improvements (or deterioration) in system liquidity (ie, cash per dollar of transactions). Figure 5.1 shows that the liquidity ratio has been relatively stable at around 23 percent, including during the recent period of market volatility, which the graph shows in more detail.

Figure 5.1
Value of average daily transactions and 'liquidity ratio' in ESAS



Source: RBNZ.

The balances held in ESAS accounts are available for settlement of payments, and in this sense are the primary 'units' of liquidity. However, it is also useful to consider the additional liquid 'stock' banks have that can be relatively easily converted into settlement cash and can serve as buffers during stressful times (liquidity headroom).

Figure 5.2 shows that since the beginning of the new liquidity regime in July 2006, banks have held much more settlement cash (ie, higher ESAS balances). The decline in government securities held is likely to be the result of banks converting these into settlement cash. During August 2007, the Reserve Bank widened the range of securities that

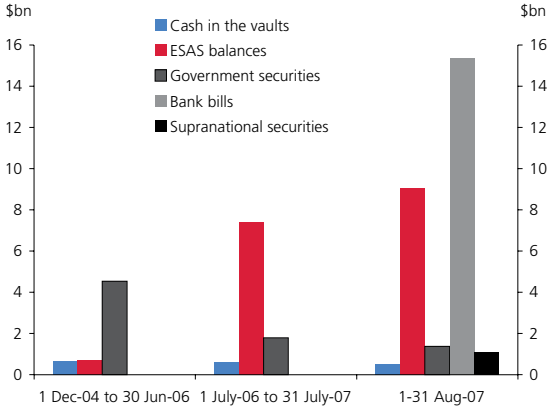
1 **ESAS is the Reserve Bank's Exchange Settlement Account System.**

2 **'Real time' in this context is the processing of payment instructions on an individual basis at the time they are received rather than later.**

3 **The term 'liquidity' has a number of definitions, and one conception of liquidity has to do with the level of interest rates and monetary policy settings. However, it is important to note that in New Zealand, changes in payment system liquidity have no monetary policy implications. This is because monetary policy does not operate through influencing the quantity of money, but rather operates by setting the OCR as the single monetary policy instrument. Once the OCR is set, open market operations (that inject or withdraw cash from the financial system) may be carried out as necessary to ensure that overnight cash trades near the OCR.**

could be used to access funds via the Overnight Reverse Repurchase Facility to include supranational securities and (temporarily) bank bills. This had the effect of improving banks' liquidity headroom.

Figure 5.2
Banks' liquidity profile, by instrument

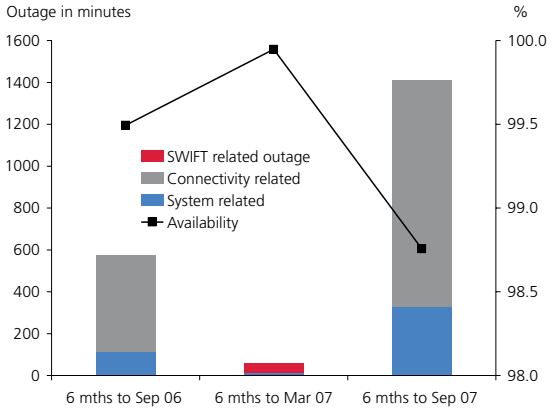


Source: RBNZ.

5.2 ESAS/Austraclear availability

Figure 5.3 shows the availability of the ESAS/Austraclear system and the nature of outages over the six months to September 2007 and earlier periods. The majority of outage time during the most recent period related to connectivity issues (ie, telecommunication faults). However, in addition, during September there were 5$^{1}/_{2}$ hours of outage associated with the implementation of a major upgrade to the ESAS/Austraclear system. Despite these outages, all transactions were successfully processed, with only relatively minor extensions required to the usual Austraclear end-of-day 4:45 pm cut-off, which affects non-bank users only.

Figure 5.3
ESAS/Austraclear availability and outages



Source: RBNZ.

5.3 High-value transactions in the retail payment system

As noted in the May 2006 *Report*, it is generally better from a systemic point of view that high-value transactions be settled in real time, via the Real Time Gross Settlement system, rather than via the deferred settlement retail system. Based on data recently provided by the New Zealand Bankers' Association, we have undertaken some quantitative analysis relating to the extent of high-value transactions in the retail payment system.

The ISL switch is a focal point for the New Zealand retail payment system.[4] The system currently processes over 1.4 million payment instructions worth approximately $3 billion per business day. ISL calculates and advises the bilateral net settlement positions of each user (bank) against all other users as a result of each day's transactions.[5] Settlement between ISL's users occurs before 8:30am on the morning of the next business day. From the time a user has incurred settlement debt to another user and the time of settlement (normally a period of at least seven hours), users who are owed money on the basis of their bilateral net positions are exposed to settlement risk.[6]

While the majority of payments processed through ISL are small in value, a number of high-value transactions (transactions over $1 million) are also routinely processed. These transactions account for almost 40 percent of the total value of transactions settled via ISL.

4 ISL is Interchange and Settlement Limited, a company owned by eight banks. The ISL switch is described as a 'retail' system because most payments that are processed through ISL are of relatively low value. Notwithstanding the risks outlined in this section, ISL is legally able to process high-value transactions.

5 For example, if Bank A's customers paid Bank B's customers $100, and Bank B's customers paid Bank A's customers $60, then the net bilateral position is that Bank A owes Bank B $40. Determining these positions is the function of a switch. Settlement – that is the actual transfer of money between ISL's users – occurs through ESAS, which is a payment system.

6 In this context, settlement risk refers to the risk that the transfer of funds in a payment system from one bank to another will not take place as expected.

Figure 5.4 shows that during January to September 2007:

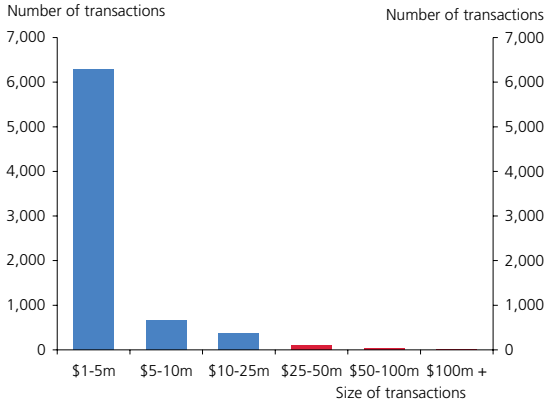
- on average about 7,500 high-value transactions amounting to a total of $31 billion passed through ISL each month; and,
- while 85 percent of high-value transactions were between $1 million and $5 million, there was a large number of very high-value transactions each month (eg, there was an average of 160 transactions of $25 million or more per month).

Although high-value transactions comprise only a very small portion of transactions processed through ISL, their existence is a concern given the settlement risk described above. This risk could increase quickly and significantly during a period of stress. For instance, if processing transactions in real time through the Real Time Gross Settlement system became more difficult due to liquidity constraints, then a greater than usual number of high-value transactions could be directed through ISL.[7]

The Reserve Bank has highlighted the significance of these high-value transactions to New Zealand banks in the context of the banks' work on the Failure to Settle project (see previous *Reports*). This project is being led by the New Zealand Bankers' Association and aims to reduce settlement risk in the payment system.

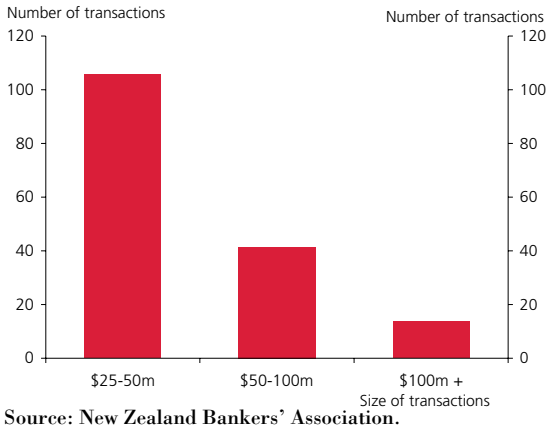
Figure 5.4

(a) High-value transactions settled in ISL per month



Source: New Zealand Bankers' Association.

(b) High-value transactions settled in ISL per month, over $25m



Source: New Zealand Bankers' Association.

[7] Real Time Gross Settlement is the continuous (real time) settlement of funds transfers occurring individually on an order by order basis (without netting).

6 Recent developments in financial regulation

In September this year, Cabinet agreed to the overarching framework for the prudential regulation of non-bank deposit-takers proposed in the Review of Financial Products and Providers (RFPP). The focus of this chapter is on the key features of that framework. The chapter also notes work on a prudential liquidity policy for banks, the implementation of Basel II capital rules in New Zealand, and regulation and supervision of the insurance sector.

6.1 Development of a regulatory regime for Registered Deposit-Takers

A new regime has been proposed for the regulation of non-bank deposit-takers: institutions such as credit unions, building societies, and some types of finance companies that are in the business of taking deposits from the public. Under the new regime, 'deposit-taker' will be defined in legislation and deposit-takers will have to be licensed by the Reserve Bank.[1]

The definition of a deposit-taker will cover non-banks that offer debt securities to the public and that are in the business of lending money or providing other financial services. Legislation will require that institutions fitting the definition of deposit takers (and that are not registered banks) be licensed by the Reserve Bank as Registered Deposit-Takers (RDTs).

The requirements applying to RDTs will derive from the Securities Act 1978 and from additional prudential requirements as follows:

- All RDTs will have to be licensed by the Reserve Bank. They will be subject to minimum prudential requirements that have been formulated by the Reserve Bank in consultation with the Securities Commission (table 6.1). Trustees will set the company specific requirements and oversee compliance with the prudential rules.
- All RDTs will be required to maintain policies and processes to check the suitability and integrity of prospective directors and senior managers. The Reserve Bank will have the power to disapprove proposed appointees and to remove directors and senior managers that have already been appointed.

The legislation will enable the Minister of Finance, on advice from the Reserve Bank, to make regulations regarding RDTs' operations in connection with the above requirements and other prudential matters. There is also the potential for regulations to be put in place to set out requirements for the governance of RDTs, if necessary.

To help prospective investors make informed decisions, RDTs will be required to publish six-monthly Key Information Summaries. These documents will contain key financial and prudential information. An RDT's directors will also have to make attestations in all offer documents about the financial and prudential state of the RDT, and about the RDT's compliance with its prudential requirements.

RDTs will be required to obtain and disclose a credit rating from an approved rating agency (unless they hold total assets of less than $10 million, in which case they must disclose the fact of this exemption). There will be prohibitions or restrictions on publishing ratings from non-approved agencies.

Ratings provide a relatively simple means of summarising, in a single indicator, the risk of an RDT defaulting on its financial obligations. Publication of ratings will provide the most cost-effective means of enabling depositors to distinguish between higher- and lower-risk RDTs, thereby promoting better-informed investment decisions. Ratings will also strengthen market discipline on RDTs, so reducing

[1] **See www.rbnz.govt.nz for more details of the framework.**

Table 6.1

Minimum requirements for RDTs[2]

Minimum capital	RDTs must hold a minimum $2 million 'tier one' capital (exemptions for credit unions).[3]
Capital ratio	RDTs must hold a minimum ratio of capital to risk-weighted assets, using approved capital instruments. The details will be set out in regulation and measured according to a simplified version of the standardised approach to Basel II.
Connected lending	RDTs must operate within a limit on credit exposures to related parties. The requirement will be set out in regulation and measured in a standard manner.
Liquidity	RDTs must achieve minimum requirements for liquidity-risk management, set out in regulation.
Credit rating	RDTs must have a credit rating from an approved agency

the need for more intrusive regulation and more detailed public disclosure requirements.

It is intended that legislation giving effect to the new arrangements will be introduced in two stages. A transition period is likely to apply after the commencement date of the legislation, to provide RDTs with sufficient time to achieve compliance with the new requirements. The first bill is to be introduced in 2007, and it is hoped that it will be enacted in 2008. It is planned that the second bill will be introduced in early 2008 and passed by the end of 2008.

Stakeholders will be consulted in the development of the proposed regulatory requirements, and consultation with key stakeholders will occur in the preparation of legislation. Legislation will be subject to the standard Select Committee process, enabling interested parties to express views on the proposed requirements.

6.2 Liquidity policy

Recent international and domestic events highlight the importance of liquidity for the effective operation of financial institutions and the financial system. Current New Zealand rules require banks to publish information about their risk-management policies, and directors' attestations to the adequacy of those policies. The detail of the reporting is largely at the banks' own discretion. Going forward, work is commencing on a specific liquidity policy for banks, with the aim of introducing a policy in 2008.

In general, prudential liquidity rules promote prudent liquidity management by financial institutions, with the aim that the institutions should be able to meet obligations falling due. Such rules generally involve some or all of:

- required reporting about liquidity risk and its management;
- required features of the process for managing liquidity risk; and,
- quantitative requirements, such as holdings of liquid assets or limits on liquidity risk exposure.

In reviewing our prudential liquidity rules, we will account for New Zealand conditions and for domestic and international liquidity rules relevant to New Zealand banks. We shall also bear in mind the possible future need to apply liquidity rules to RDTs in a competitively-neutral way. We shall, of course, consult interested parties about any changes that might be proposed.

6.3 Basel II

The Reserve Bank is working to implement the recent update of the international framework for bank capital adequacy, Basel II.[4] Key aspects of Basel II include:

[2] For more detail about the requirements see http://www.rbnz.govt.nz/finstab/nonbank/3112095.html and http://www.rbnz.govt.nz/finstab/nonbank/3116779.pdf. Note also that under the exemption power, not all of these requirements may apply to a given RDT.

[3] Tier one capital is capital which is permanently and freely available to absorb unanticipated losses without the deposit-taker being obliged to cease trading. It is the proprietors' contribution to the business and as such it represents an ongoing commitment to the business.

[4] 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' RBNZ *Bulletin*, Vol. 68, No. 3. Further discussion was also included in chapter 6 of the *Financial Stability Report*, May 2007.

- updates to bank prudential standards and disclosure rules to reflect Basel II requirements. The Reserve Bank is currently consulting with the industry on these matters;
- and accreditation decisions for those banks that are seeking to base their Basel II minimum capital requirements on their own risk-measurement models. The Reserve Bank anticipates that these decisions will be announced towards the end of 2007. Banks not using their own models will use the standardised model prescribed in Basel II for calculating their capital requirements.

The Reserve Bank has been working closely with banks seeking to use their own models. Although accreditation will be an important milestone for those banks that achieve this, we will expect these banks to make ongoing improvements to their models. We recognise that modelling for regulatory purposes is a relatively new endeavour for many banks (in New Zealand and globally) and that over time these models can be further developed. Accordingly, our standards for these models will increase over time.

Locally incorporated New Zealand banks will hold capital based on Basel II requirements from the first quarter of 2008. The Reserve Bank will continue to closely monitor the capital implications of Basel II and will make adjustments to our requirements as appropriate.

6.4 Insurance

Reform of insurance regulatory arrangements is another important element of RFPP. Earlier this year Cabinet agreed that the Reserve Bank will be the prudential regulator and supervisor of the insurance sector. The key architectural features of the proposed regime are being refined, based on a discussion document and subsequent submissions in late 2006. The prime motivation for the prudential regulation of insurance is policy holder confidence, which flows from a sound and efficient sector. Proposals will be taken to Cabinet by the end of 2007, with the aim of introducing legislation in 2008. The work is being coordinated with that on insurer contracts and disclosure being led by the Ministry of Economic Development.

Graphical appendix[1]

International

Figure A1a

Real GDP growth

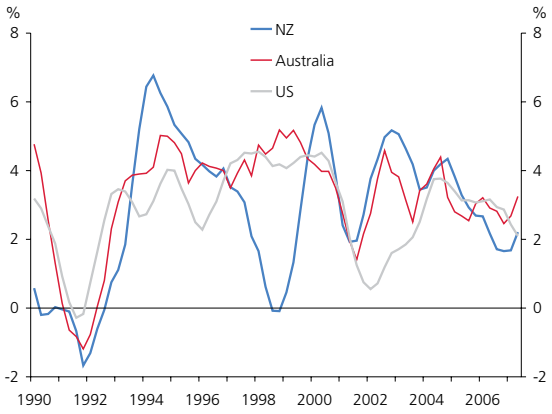


Figure A1b

Real GDP growth

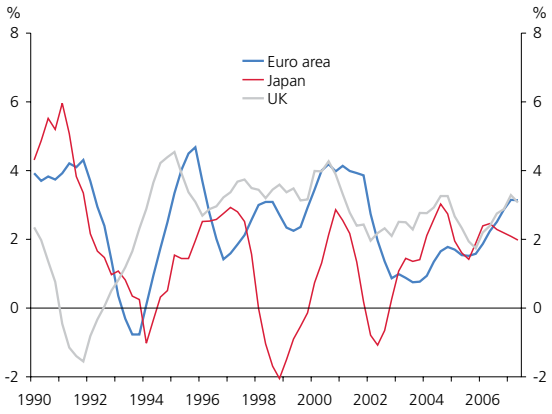


Figure A2a

Current account balance

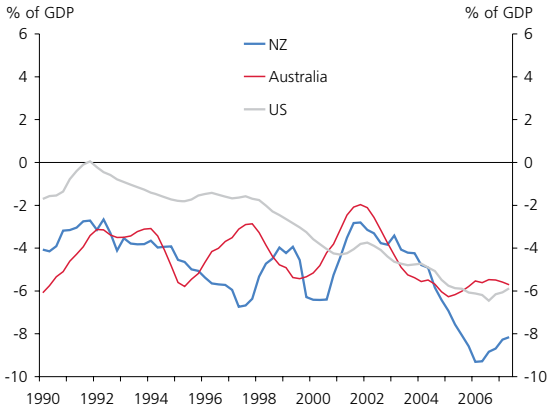


Figure A2b

Current account balance

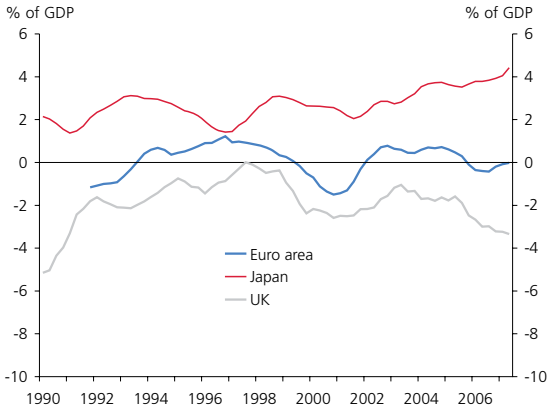


Figure A3

Trade-weighted exchange rate indices

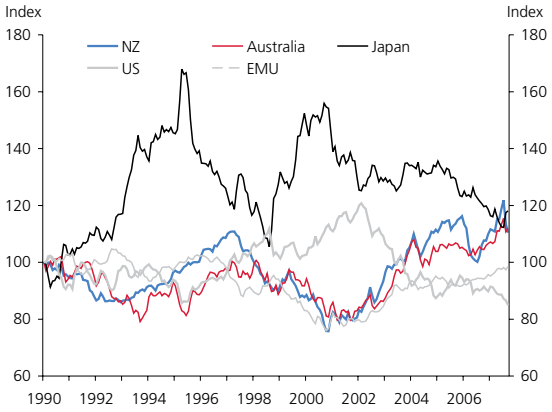
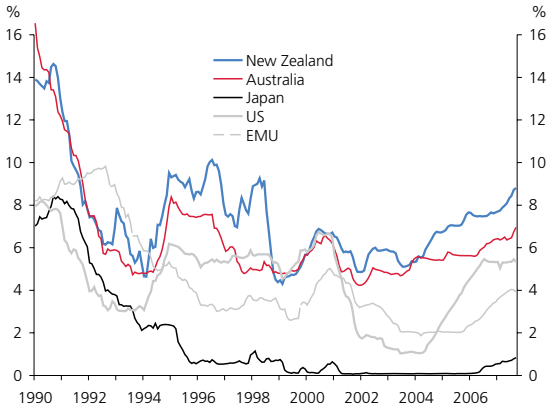


Figure A4

Short-term interest rates



[1] The data contained in this appendix was finalised on 19 October 2007, with the exception of Table A5. Definitions and sources are listed on pages 43-44.

Asset prices

Figure A5

Equity market indices

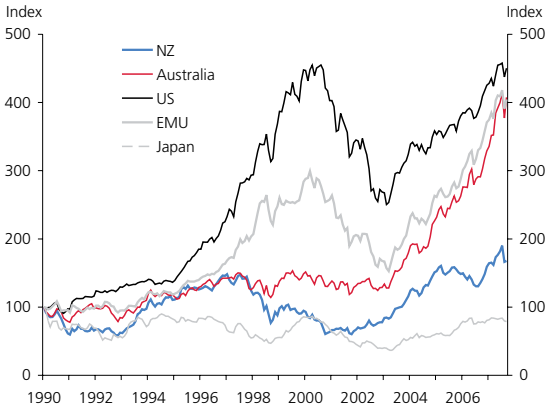
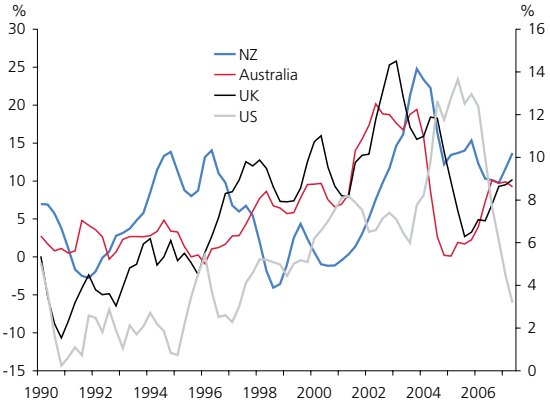


Figure A6

House price inflation



New Zealand

Figure A7

Household debt and servicing costs

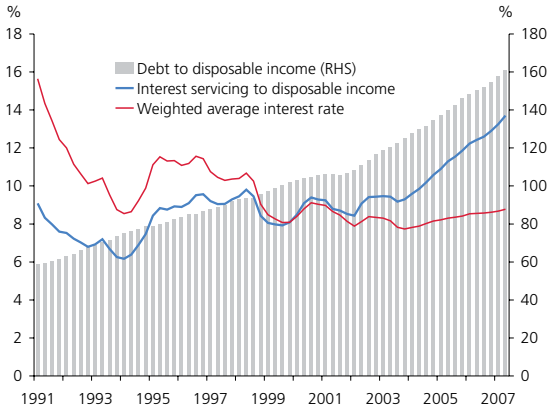


Figure A8

Household assets and liabilities

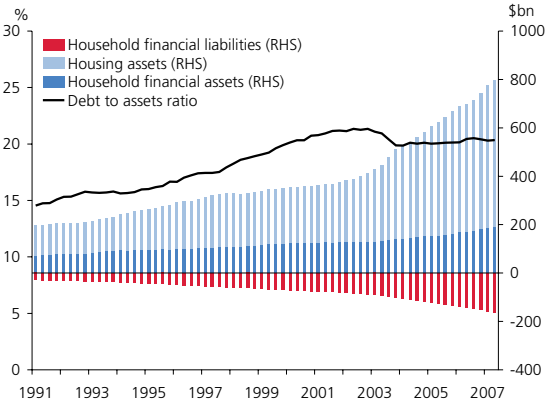


Figure A9

Property price inflation

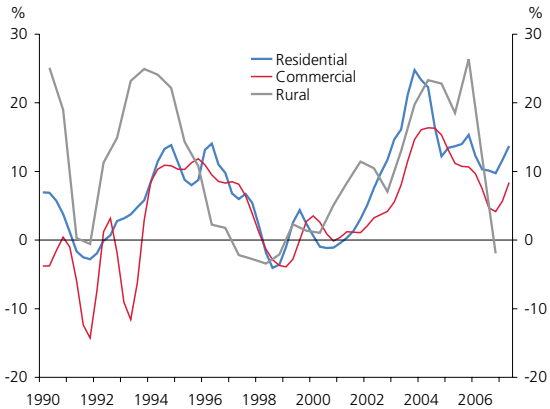
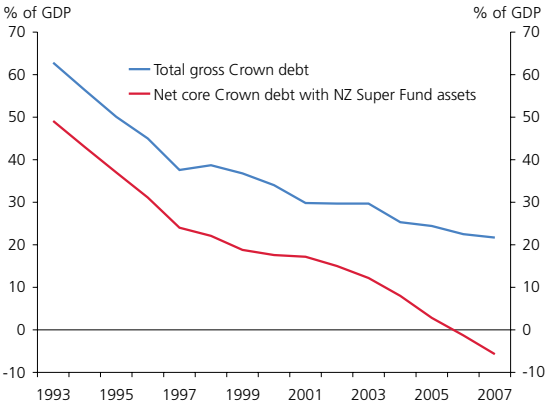


Figure A10

Government debt



New Zealand financial markets

Figure A11

Government bonds on issue and turnover

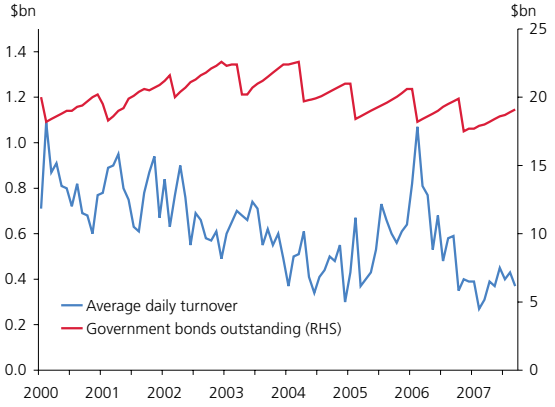


Figure A12

Ten-year government bond spreads

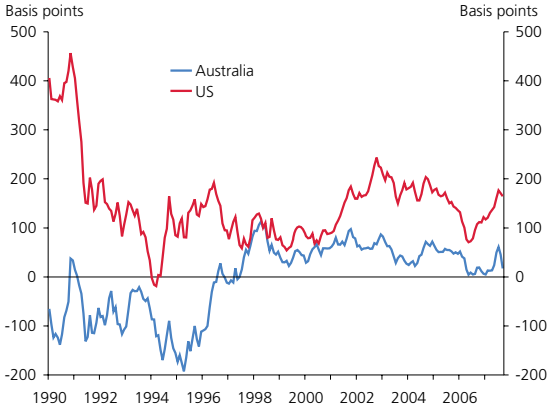


Figure A13

Yields on New Zealand government securities

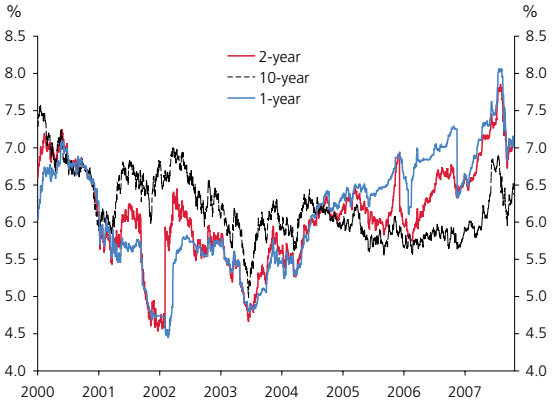


Figure A14

Non-resident holdings of New Zealand government securities

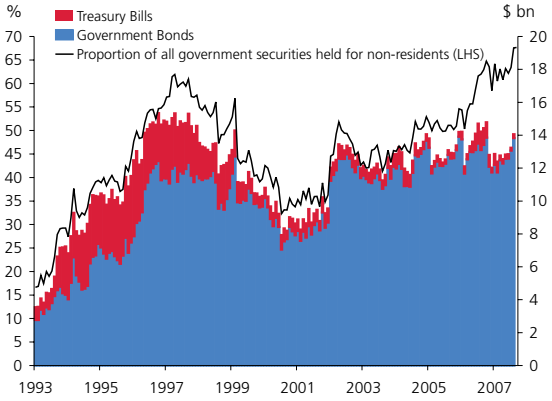


Figure A15

NZD/USD turnover in domestic markets

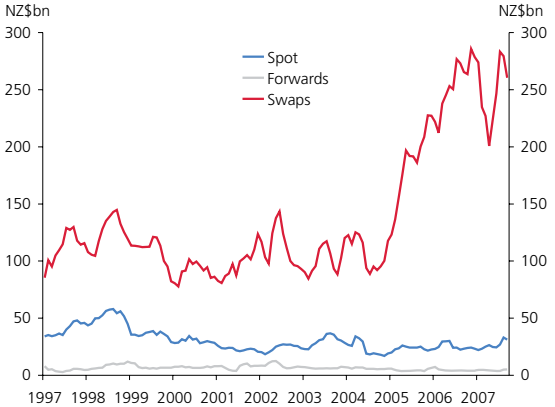


Figure A16

NZD/USD and implied volatility

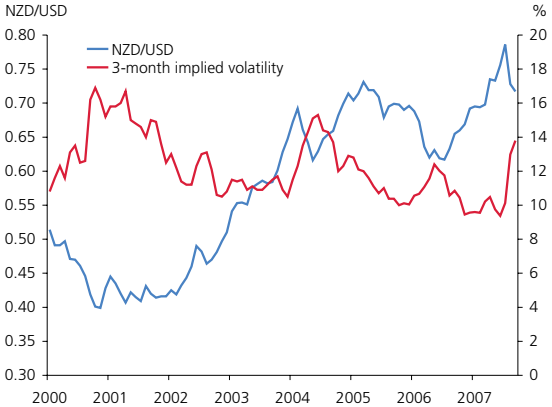


Figure A17

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

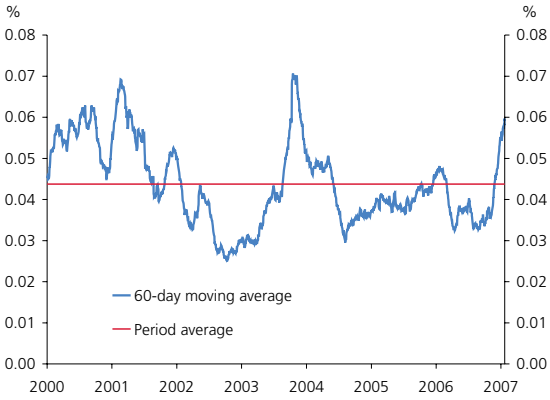


Figure A18

Equity market capitalisation to GDP

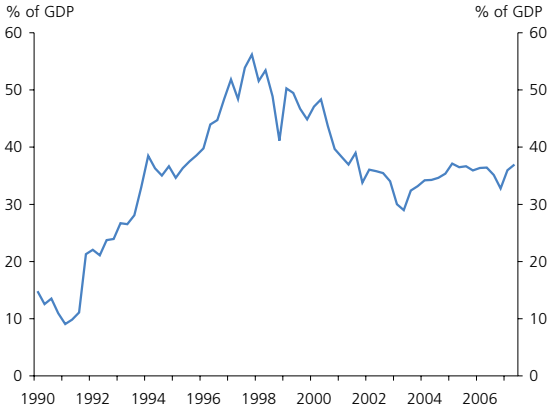
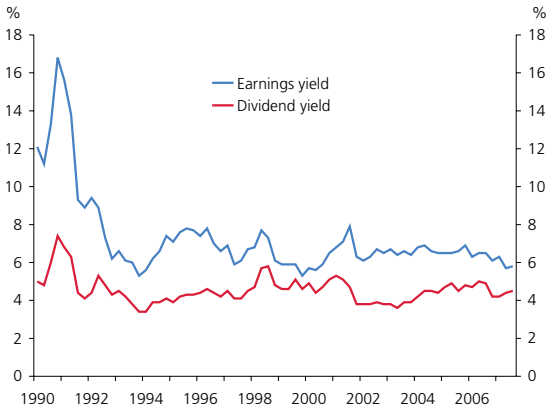


Figure A19

Earnings and dividend yields



Banking sector indicators

Figure A20

Capital adequacy ratios

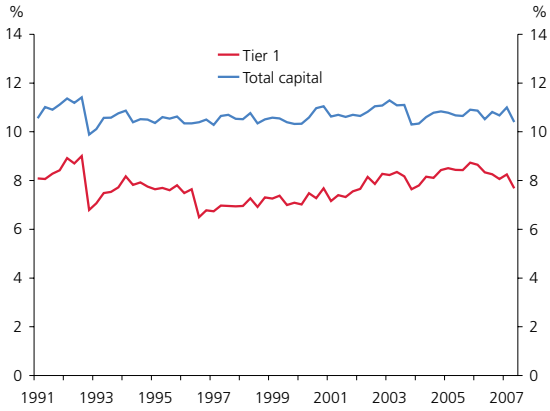


Figure A21

Asset impairment

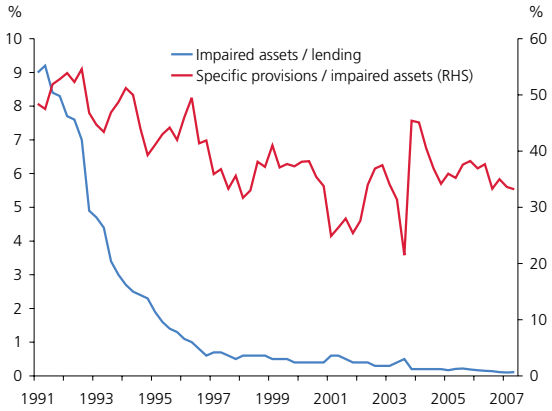


Figure A22

Return on assets

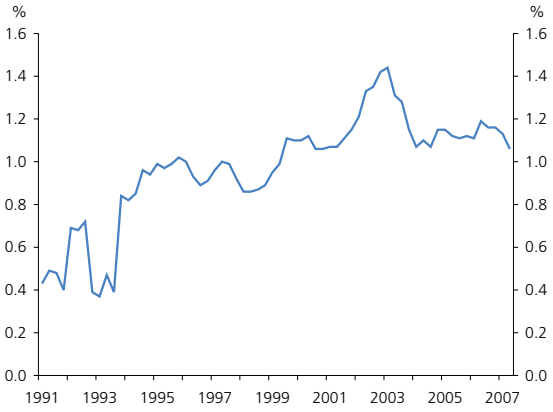


Figure A23

Operating costs to income

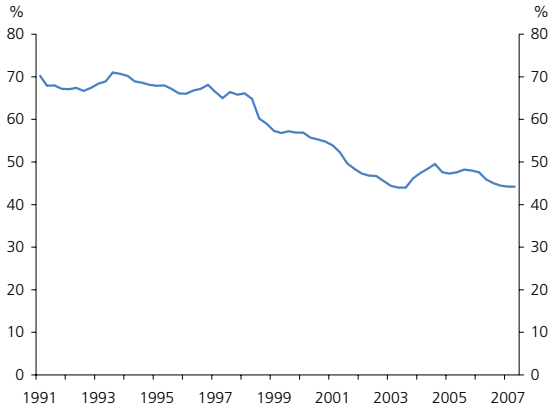


Figure A24

Interest margin

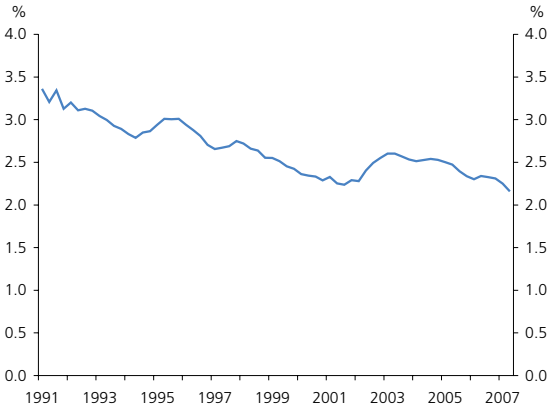


Figure A25

S&P credit ratings for registered banks

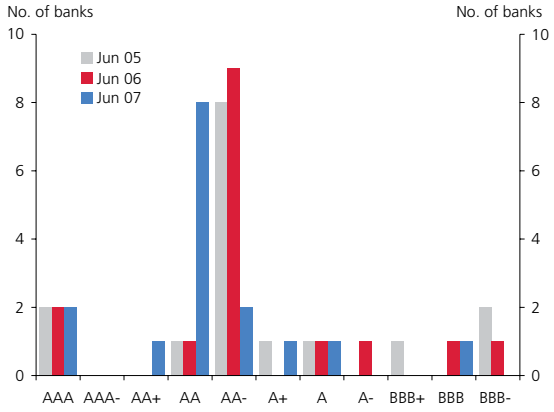


Figure A26

Bank asset composition

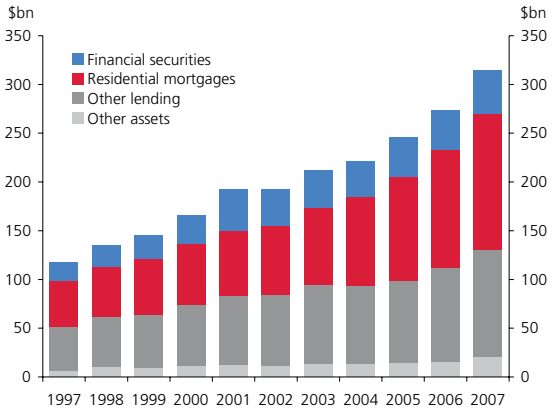


Figure A27

Bank funding composition

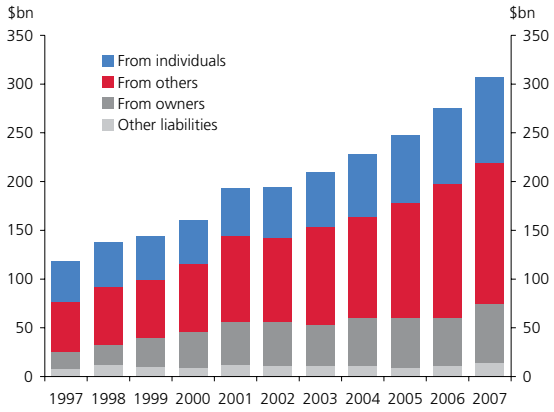


Figure A28

Bank asset growth

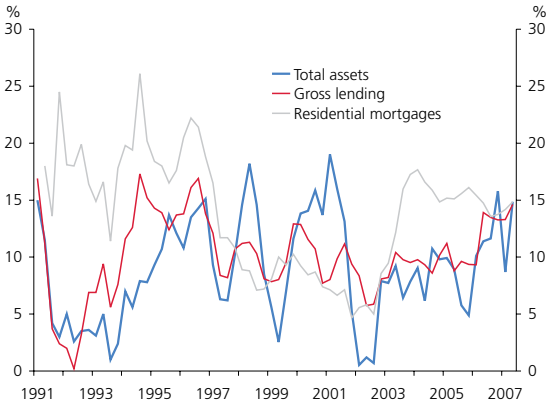


Figure A29

Bank market share

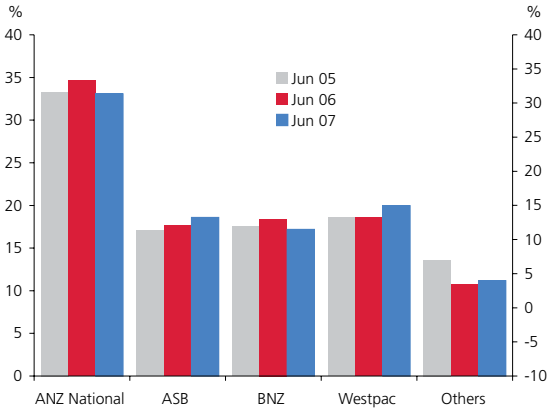


Figure A30

Bank-wide capital adequacy ratios

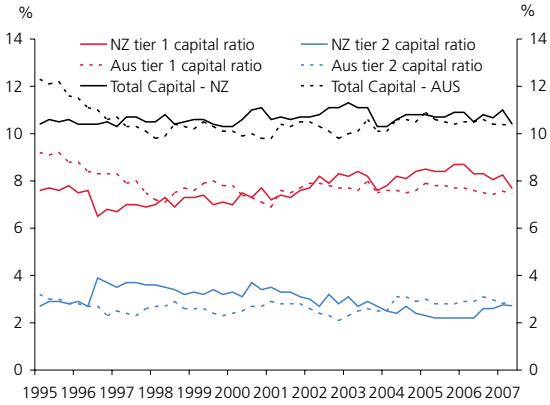


Figure A31

Large bank operating expenses to average assets

Non-bank lending institutions

Figure A32

NBLI asset composition

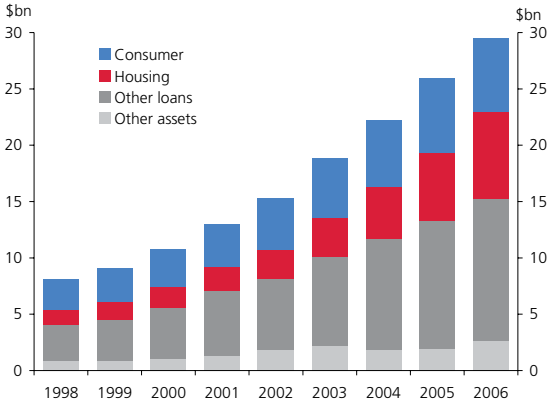
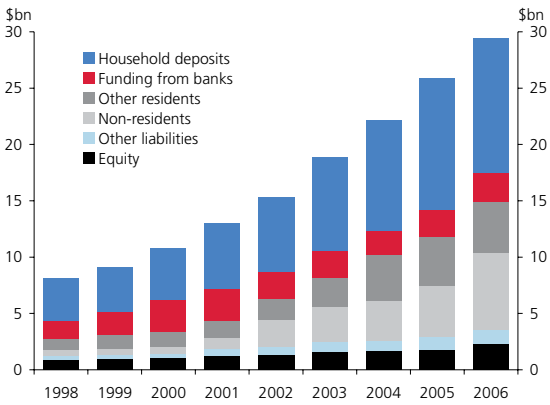


Figure A33

NBLI funding composition



New Zealand financial system assets and liabilities

Table A1

Financial system liabilities

As at 31 December, $ billion	1990	1995	2000	2002	2003	2004	2005	2006
Banks								
Households	24	32	41	47	50	55	61	70
Other residents	29	35	55	65	74	75	84	90
Non-residents	11	22	56	64	64	77	85	96
Other liabilities	14	14	28	29	34	35	24	39
Total	78	103	180	205	221	242	254	294
Other deposit-taking institutions								
Households	2	3	4	7	8	10	12	12
Other residents	3	2	4	4	5	6	7	7
Other funding and liabilities	1	1	2	4	6	6	7	10
Total	6	6	10	15	19	22	26	29
Funds under management								
Household assets	25	41	56	50	52	54	57	64
Other sector assets	2	1	4	5	6	6	7	8
Total	27	42	60	55	57	60	64	71
Total financial system liabilities	111	151	250	275	298	324	344	394

Table A2

Financial system assets

As at 31 December, $billion	1990	1995	2000	2002	2003	2004	2005	2006
Banks								
Households	20	42	66	77	89	103	120	135
Other residents	36	45	72	78	79	90	101	113
General government	8	6	7	8	8	6	6	3
Non-residents	2	2	17	29	27	27	12	14
Other assets	12	8	18	13	18	16	15	29
Total	78	103	180	205	221	242	254	294
Other deposit-taking institutions								
Households	2	3	5	7	9	11	13	14
Other residents	3	2	4	6	8	10	11	13
Other assets	1	1	1	2	2	2	2	3
Total	6	6	10	15	19	22	26	29
Funds under management								
Domestic fixed interest	na	na	27	25	24	24	25	27
Domestic equities	na	na	7	6	8	8	8	9
Domestic other	na	na	4	4	4	5	6	6
Overseas investments	na	na	22	20	22	23	25	29
Total	27	42	60	55	57	60	64	71
Total financial system assets	111	151	250	275	298	324	344	394

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 12% of total assets in 2005 and 2006. 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 30 June 2007[3]

Registered bank	Market share[1]	Credit ratings			Ultimate parent	Country of parent
		S&P	Moody's	Fitch		
ABN AMRO Bank NV	0.6	AA-	Aa2	AA-	branch[2]	Netherlands
ANZ National Bank Limited	33.1	AA	Aa2	-	ANZ Banking Group Limited	Australia
Commonwealth Bank of Australia	1.8	AA	Aa1	AA	branch[2]	Australia
ASB Bank Limited	16.8	AA	Aa2	-	Commonwealth Bank of Australia	Australia
Bank of New Zealand	17.2	AA	Aa2	-	National Australia Bank	Australia
Citibank N A	1.1	AA+	Aaa	AA+	Citigroup Inc.	USA
Deutsche Bank A G	2.7	AA	Aa1	AA-	branch[2]	Germany
Kiwibank Limited	1.5	AA-	-	-	New Zealand Post	New Zealand
Kookmin Bank	0.1	A	A2	-	branch[2]	South Korea
Rabobank Nederland	0.4	AAA	Aaa	AA+	branch[2]	Netherlands
Rabobank New Zealand Limited	1.5	AAA	-	-	Rabobank Nederland	Netherlands
The Bank of Tokyo-Mitsubishi, UFJ	0.2	A+	Aa2	-	branch[2]	Japan
The Hongkong and Shanghai Banking Corporation Limited	2.1	AA	Aa2	AA	HSBC Holdings	UK
TSB Bank Limited	0.9	BBB	-	-	Taranaki Community Trust	New Zealand
Westpac Banking Corporation	5.5	AA	Aa1	AA-	branch[2]	Australia
Westpac New Zealand Limited	14.5	AA	Aa2	-	Westpac Banking Corporation	Australia

Source: Registered banks' GDS.

Notes:

1 **Registered banks' assets as a proportion of the total assets of the banking system, as at 30 June 2007.**

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

3 **JP Morgan Chase Bank NA (a branch of a USA-based company) was registered on 1 October 2007.**

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 Jun-06	$m Jun-07	Growth[1] % pa	$m Jun-06	$m Jun-07	Growth[1] % pa	$m Jun-06	$m Jun-07	Growth[1] % pa	$m Jun-06	$m Jun-07	Growth[1] % pa
NZD Funding												
NZ resident households	14	0	-100%	6,955	7,146	3%	3,563	3,985	12%	10532	11131	6%
Other funding[2]	3512	3240	-8%	2515	3146	25%	410	442	8%	6437	6828	6%
Non-residents	5,033	6,360	26%	210	320	52%	95	111	17%	5338	6791	27%
Total NZD funding	8,559	9,600	12%	9680	10612	10%	4068	4538	12%	22307	24750	11%
Foreign currency funding	217	176	-19%	195	278	43%	-	-	-	412	454	10%
Other liabilities	615	633	3%	294	260	-12%	70	82	17%	979	975	0%
Capital and reserves	94	474	404%	1005	1,259	25%	321	389	21%	1420	2122	49%
Total Liabilities	**9485**	**10883**	**15%**	**11174**	**12409**	**11%**	**4459**	**5009**	**12%**	**25118**	**28301**	**13%**
NZD lending to residents												
Farm lending	108	101	-6%	605	735	21%	498	498	0%	1211	1334	10%
Business lending	2111	2,236	6%	5352	6051	13%	659	781	19%	8122	9068	12%
Housing lending	3199	3,802	19%	570	1047	84%	2,655	2,956	11%	6424	7805	21%
Consumer lending	2980	3,090	4%	2085	1941	-7%	191	278	46%	5256	5309	1%
Total NZD loans by sector	**8398**	**9229**	**10%**	**8612**	**9774**	**13%**	**4003**	**4513**	**13%**	**21013**	**23516**	**12%**
Foreign currency loans	0	0	0%	470	639	36%	0	0	0%	470	639	36%
All other loans and assets[3]	1087	1654	52%	2092	1996	-5%	456	496	12%	3635	4146	14%
Total assets	**9485**	**10883**	**15%**	**11174**	**12409**	**11%**	**4459**	**5009**	**12%**	**25118**	**28301**	**13%**
Memo item: Lending to non-residents	12	8	-33%	836	887	6%	0	4	-	848	899	6%

Notes:

1 Percentage growth calculations are affected by entry of new respondents to the NBLI survey and recategorisation of assets and liabilities among NBLI groups.

2 Counterpart funding to securitised loans is included here. Securitised lending includes warehoused loans not yet securitised.

3 Includes, *inter alia*, claims on banks and NZD non-resident lending.

Source: RBNZ–NBFI SSR. Includes NBFIs with total assets (including securitised lending) exceeding $100 million at relevant dates. Totals may not add due to rounding.
Savings institutions include building societies and credit unions with assets exceeding $100 million at relevant dates, and PSIS Ltd.

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, is 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	Year-on-year 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* 2007 forecasts. The weighted average interest rate is published in *RBNZ* residential mortgage rate data with an estimate for consumer loan interest rates.
8	Household assets and liabilities	Housing assets are aggregate private sector residential dwelling value. Data are from *Quotable Value Ltd* from 1995, with *RBNZ* estimates based on the HPI for prior years. Household financial assets are as published annually by *RBNZ*, with aggregate quarterly figures interpolated prior to 1995, based on component estimates from then. Household liabilities are from *RBNZ* series as for figure A7.
9	Property price inflation	Year-on-year change in property price indices. Commercial and rural property prices are interpolated from semi-annual figures. *Quotable Value Ltd.*
10	Government debt	*The Treasury*.
11	Government bonds on issue and turnover	*RBNZ*: total government securities on issue (D1) and New Zealand government bond turnover survey (D9).
12	Ten-year government bond spreads	Yield on 10-year benchmark New Zealand government bond, 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*.

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 bank. *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 30 June 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	Excluding 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.