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# Financial Stability Report

May 2011

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This report is published pursuant to Section 165A of the Reserve Bank Act 1989.  
The charts and tables in the appendix to this report use data available as at 22 April 2011.  
More recent statistics may be used in the main body of the report.  
This report and supporting data (with some further notes) are also available on [www.rbnz.govt.nz](http://www.rbnz.govt.nz)

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# 1 Overview

New Zealand's financial system has faced a new challenge with the Christchurch earthquake in February providing a test for the insurance sector. Damage from the earthquake is large relative to the size of the economy and insurers face substantial logistical issues dealing with the consequent flow of claims. Economic activity has been disrupted in the near term, with some firms and households facing considerable economic and financial hardship.

The private property-related damage from the earthquake is substantially insured, and much of that has been reinsured with large global reinsurers. This makes the financial consequences of the earthquake more manageable for New Zealand. Other costs will be borne largely by the government, although doing so will place additional pressure on the fiscal position with consolidation in other areas now more imperative than prior to the earthquake.

The 'cobweb' diagram (figure 1.1) summarises our assessment of the stability risks facing the New Zealand financial system. These risks, which were highly elevated during the financial crisis, have continued to reduce over the past year, although they remain above normal in several areas. The earthquake-related challenges have pushed the domestic environment risk assessment up slightly.

The financial system generally appears reasonably placed to support the economy over the period ahead. The resilience of the New Zealand banking system has improved since the financial crisis, with bank profitability lifting recently. The banks have also moved to a more stable funding base, reducing their vulnerability to disruptions in external funding markets. Non-performing loans are elevated, but remain at manageable levels and are supported by relatively high bank capital ratios.

Looking ahead, New Zealand's financial system continues to operate in a volatile and uncertain world environment. The global economic recovery has broadened over the past

six months and strong Asian growth remains supportive of commodity producing economies such as Australia and New Zealand, reducing our assessment of global risks (figure 1.1). However, the durability of the global recovery is still not assured. Any slowdown in growth in Asia, particularly China, would undermine the current strength in the terms of trade and remove an important engine of growth for the New Zealand economy. Furthermore, a combination of stretched sovereign balance sheets and ongoing problems in European banking systems have continued to make wholesale funding markets challenging for local banks. While global financial market conditions have generally improved in recent months, markets remain vulnerable to further adverse developments.

New Zealand's economic recovery in 2010 was weaker than expected. In part, this was due to the overhang of high levels of indebtedness among parts of the household and business sectors following heavy borrowing over the past decade. Much of this borrowing was financed from debt raised offshore by the banking system and was reflected in a sharp rise in New Zealand's net external liabilities. The challenging economic conditions and financial market volatility of recent years have made households and firms more cautious. This has resulted in efforts to reduce or constrain debt, leading to weak household and business spending. If sustained, this will assist in improving New Zealand's external imbalances and moderate the financial system's exposure to international credit markets. While reducing domestic and external debt imbalances would be a desirable development, an excessively cautious approach to debt could delay the return to a more fully-employed economy. Conversely, there is also a risk that the previous appetite for debt becomes re-established once economic conditions strengthen.

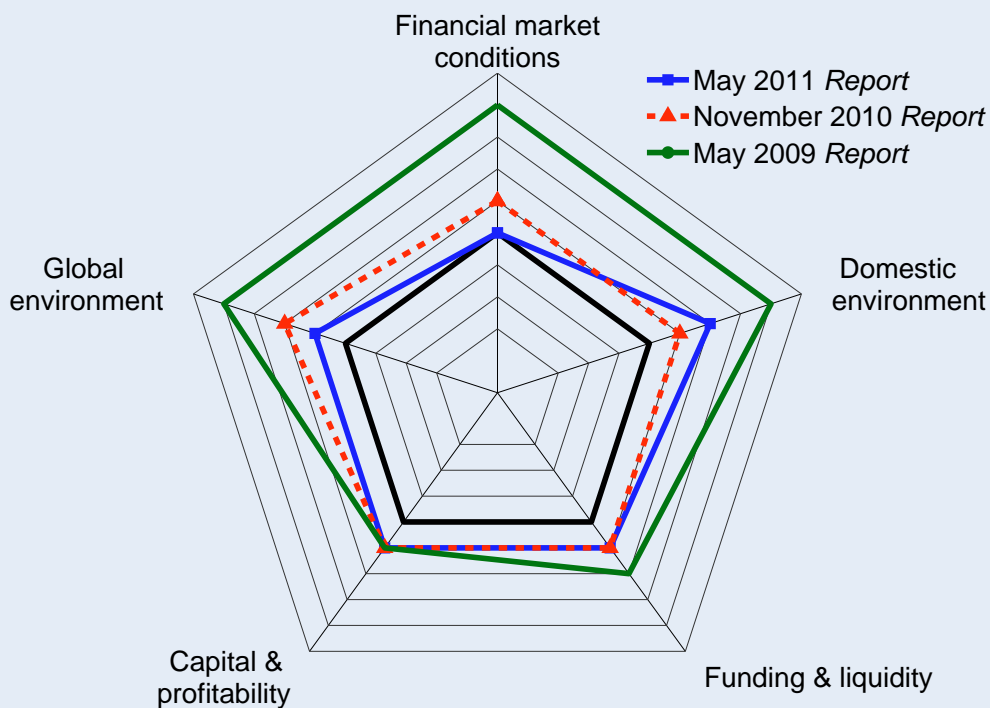
Rising terms of trade and ongoing global recovery continue to support an outlook of stronger activity in New Zealand's external sector. In addition, earthquake rebuilding efforts are expected to boost domestic demand in due course, adding momentum to the recovery. Some lift in demand for credit is to be expected and it will be important that the banking system meets this demand in order to support the broader economic recovery and to assist the resumption of business activity within the Canterbury region.

The Reserve Bank is continuing to improve the regulation of the financial system. The Bank is currently evaluating the new Basel III global regulatory standards for bank capital adequacy and liquidity announced by the Basel Committee on Banking Supervision (BCBS) in November last

year. Although New Zealand is not compelled to adopt the new standards, the Bank is generally supportive of the new standards subject to their suitability for local conditions. The Reserve Bank is also working to enhance its failure management toolkit and is currently consulting with the banks on how to implement Open Bank Resolution (OBR), a resolution option allowing a failing bank to be kept open without a full government bailout. The OBR policy will help to manage any perceived implicit public guarantee of the banks.

The Reserve Bank is also progressing with the implementation of a new licensing regime for insurers given its new responsibility for prudential supervision of the insurance sector. The Bank will continue to consult with the

**Figure 1.1**  
**Financial stability cobweb<sup>1</sup>**



Source: RBNZ.

Note: The black band represents a normal level of risk. Movements away from the centre of the diagram represent an increase in financial stability risks.

<sup>1</sup> See Bedford, P and C Bloor (2009), "A cobweb model of financial stability in New Zealand", Reserve Bank of New Zealand Discussion Paper, 2009/11, for the calculation methodology.

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industry as the regulatory regime is developed further. The February earthquake was an extremely damaging event, and one major insurer with a large amount of Christchurch business (AMI) has required a support arrangement from Government to remove uncertainty about its ability to meet earthquake-related claims. The arrangement was also intended to maintain confidence in the broader insurance sector. The Bank will continue to assess the implications of the earthquake for the insurance sector over the months ahead.

Alan Bollard

A handwritten signature in black ink that reads "Alan Bollard". The signature is written in a cursive, flowing style.

Governor

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## Box A

### Objectives of the *Financial Stability Report* and Reserve Bank policy actions

The Reserve Bank Act requires the Bank to produce *Financial Stability Reports* twice a year. These documents must report on the soundness and efficiency of the financial sector and the measures undertaken by the Reserve Bank to achieve its statutory purposes. The *Reports* must contain the information necessary to allow an assessment of these activities.

Chapters 2–4 of the *Report* discuss the environment shaping the health and outlook for New Zealand's financial system. While there have been signs of a broadening global recovery, there are risks of further turbulence within global credit markets that are important sources of funding for New Zealand's banks (chapter 2). The Canterbury earthquakes are having a material effect on the domestic economy and financial sector, and will be a significant influence on the path of economic activity over the next five years (chapter 3). Box B and chapter 4 note the central role the insurance sector will play in the recovery and discuss the need for that role to be conducted efficiently.

The New Zealand banking system has emerged from the global financial crisis in relatively good shape. Profitability has recovered from its trough and banks have reduced

their reliance on short-term wholesale funding, but the operating environment for banks remains relatively tough (chapter 4). In box C, we discuss ongoing Reserve Bank work considering how to monitor the efficiency of the financial system.

Despite a number of technical incidents that have disrupted the normal operation of some systems, New Zealand's key payment and settlement systems have continued to operate effectively (chapter 5). Recent developments in bank regulation, including the new Basel III regime and the Open Bank Resolution policy, are covered in chapter 6.

A number of other financial sector policy changes are in various stages of implementation. These include a regulatory limit for banks' issuance of covered bonds, consultation on new farm lending capital requirements, a new corporate governance policy for banks, a review of bank disclosures described in the last *Report*, and the scheduled increase of the core funding ratio to 70 percent in July 2011. In terms of non-bank prudential regulation, the Reserve Bank and the Ministry of Economic Development have been working together to develop disclosure requirements and have released these in a public consultation paper.

## 2 The international environment and financial markets

The global economy and financial system have continued to recover over the past six months, with most advanced economies showing signs of stronger growth. However, that growth has been somewhat dependent on extraordinary monetary and fiscal stimulus that will need to be reduced eventually. Risks to the outlook for New Zealand include the possibility of renewed turbulence in global credit markets from which New Zealand banks secure funding, and a decline in export demand or the terms of trade if the global recovery stalls.

The combination of problems in the European banking system and concerns over the sustainability of sovereign debt positions poses an ongoing risk of disruption to funding markets for New Zealand banks. Markets remain concerned about the debt burdens faced by some European countries, despite some having obtained support packages from other countries and multilateral agencies.

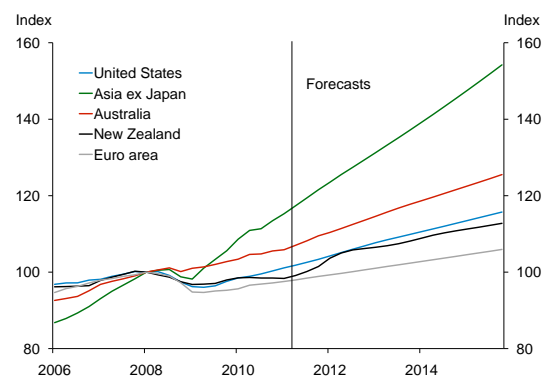
Strong Asian growth has so far provided a significant boost to the New Zealand economy, with rising demand from the region boosting the terms of trade and keeping the Australian economy (our largest export market) strong. However, there are signs of overheating in some Asian property markets, with central banks in Asia increasingly tightening policy to slow asset and consumer price inflation. A hard landing in the region would pose significant risks to New Zealand's export demand.

### *The global economic recovery has broadened and deepened...*

Economic recovery has gained momentum in most parts of the global economy over the past six months. While the outlook for growth in emerging economies is largely unchanged, the outlook for the advanced economies has firmed materially. Demand has gained momentum in the US following a period of slower growth in the middle of 2010. However, growth in Europe has remained uneven, with countries such as Germany and France showing a strong recovery, while other economies such as Spain, Italy, Portugal and the UK have had more muted recoveries.

The outlook for the Japanese economy, at least in the near term, is dominated by the effects of the 11 March earthquake and tsunami. Prior to the disaster the Japanese economy had been showing signs of recovery, following weakness toward the end of 2010. However, it is likely that the combination of direct disruption from the disaster

Figure 2.1  
RBNZ forecasts for trading partner real GDP  
(March 2008 = 100)



Source: RBNZ.

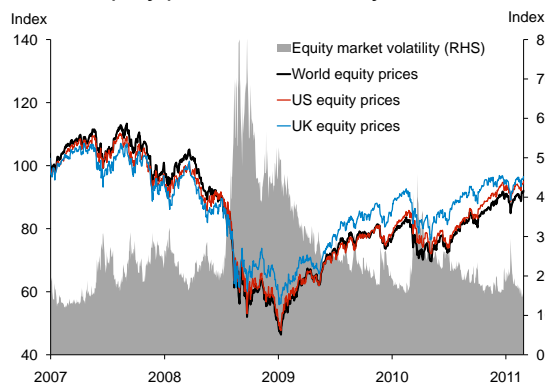
Note: New Zealand forecasts are from the March Monetary Policy Statement. Forecasts for other countries are more recent RBNZ estimates.

as well as electricity shortages will have a material effect on near-term activity. Given Japan's important role in the global supply chain, global manufactured production is also somewhat disrupted.

*...and financial markets have generally improved.*

Despite the disaster in Japan and ongoing political tensions in the Middle East and North Africa, financial markets have been remarkably resilient. There was a period of volatility and heightened risk aversion in late February and early March as conditions deteriorated in Libya and fears grew of a nuclear meltdown in Japan. However, markets have recovered, and measures of risk appetite and volatility have also improved.

**Figure 2.2**  
Global equity prices and volatility



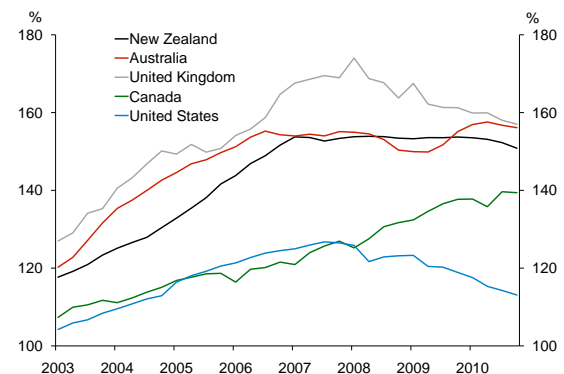
Source: Bloomberg.  
Note: World MSCI, US S&P 500 and UK FTSE equity price indices rebased to 100 in January 2007. Equity market volatility is the VIX index.

*Balance sheet concerns remain...*

Despite recent positive signs, question marks remain over the durability of the global recovery. Growth in many advanced economies has been aided by monetary and fiscal stimulus. However, a sustainable recovery requires a robust firming in private demand, particularly as concerns about sovereign balance sheets create pressure for fiscal consolidation.

Household and business balance sheets remain stretched in many advanced economies following substantial growth in debt in the pre-crisis period. While debt-to-income ratios have fallen in some countries (figure 2.3), falling asset prices mean that deleveraging – a reduction in debt relative to the value of assets – has so far been limited.

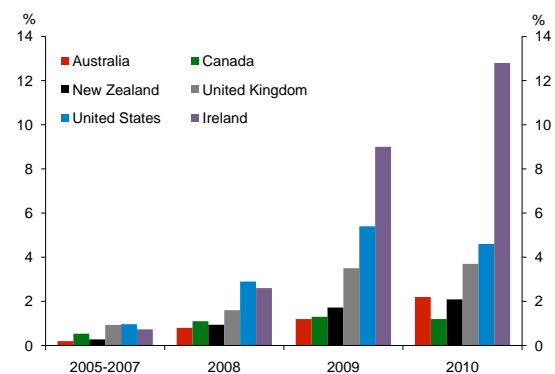
**Figure 2.3**  
Household debt  
(percent of household disposable income)



Source: RBNZ Standard Statistical Return (SSR), Reserve Bank of Australia, Haver Analytics.  
Note: Due to variation in definitions between sources, these series may not be strictly comparable.

In the US, a combination of high debt levels and falling house prices has resulted in as many as 25 percent of mortgaged households falling into a position of negative equity on their houses. Many of these households are behind with mortgage payments (figure 2.4) and a proportion are expected to eventually default on their mortgages which, when combined with an already large stock of foreclosed houses, provides a large shadow inventory of unsold properties on the market. This is likely to put further downward pressure on house prices and lead to further loan losses for banks.

**Figure 2.4**  
Non-performing loans  
(percent of lending)



Source: General Disclosure Statements (GDS), IMF *Global Financial Stability Report*.  
Note: Data for 2010 are latest available, which are December 2010 for New Zealand, September 2010 for Australia, Canada, Ireland and the US, and June 2010 for the UK.



While household debt appears to have fallen quickly relative to income in the US (figure 2.3), the fall has largely been due to debt that has been written off by the financial sector. Bank recapitalisation efforts in the US have been largely successful, with system-wide Tier 1 capital ratios having risen from 10.7 percent at the start of 2009 to 12.4 percent at the end of 2010. It is therefore likely that the largest US banks will be able to absorb further increases in loan losses. However, many smaller US banks have heavy exposure to the commercial property market which remains in considerable difficulty. A number of small banks have already failed as a result of these exposures, with further failures likely.

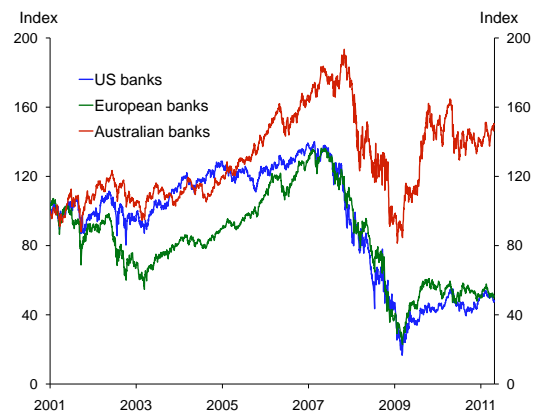
*...particularly in Europe.*

The IMF *Global Financial Stability Report* notes that many European banks, in contrast to the large US banks, still have substantial work to do to improve their overall resilience. Significant uncertainty remains about the asset quality of many banks, particularly their exposures to residential and commercial property and European sovereign debt. In many cases banks appear to lack sufficient capital, especially given these concerns over asset quality. As a result, some banks, particularly in Greece, Ireland and Portugal, have had difficulty accessing funding markets at reasonable cost and have become increasingly reliant on funding from repo markets and the European Central Bank.

The IMF notes that restoring confidence to the European banking system is likely to require some combination of credible stress tests to reduce uncertainty over asset quality, increases in system-wide capital ratios, and restructuring and resolution of the weakest financial institutions.

In many cases the resolution of these banking system difficulties will require government support. However, existing bank support packages, as well as falling tax revenue due to weak economic activity, have already placed pressure on the fiscal position of many countries. Sovereign balance sheet concerns in some European economies have intensified in recent months. Initially concerns were centred on Greece and Ireland, where credit default spreads and government bond yields increased markedly in mid-to-late 2010 on fears of sovereign default. These countries have been propped up by loans from the IMF and European

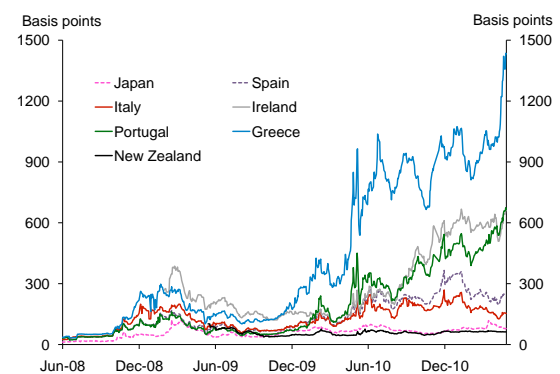
**Figure 2.5**  
**Bank equity prices**  
*(January 2001 = 100)*



Source: Bloomberg.  
Note: Banks in S&P 500, STOXX Europe 600, and S&P/ASX 200 indices.

Financial Stability Facility. More recently, Portugal has requested assistance. These countries all still need credible programmes to deal with the underlying vulnerability created by excessive government debt and large fiscal deficits. Elevated credit default swap (CDS) spreads (figure 2.6) suggest that creditors see a significant likelihood of debt restructuring for one or more of these countries.

**Figure 2.6**  
**Sovereign credit default swap spreads**



Source: Bloomberg.

While concerns around indebtedness have lingered for other European economies, such as Belgium, Spain and Italy, their CDS spreads have eased slightly in recent months as markets appear to be increasingly drawing a distinction between these economies and those of Greece, Ireland and Portugal. Other indebted advanced economies have come under increased scrutiny in recent months. Standard and Poor's revised the outlook for the sovereign credit rating of the US to negative in April, citing large budget deficits

and growing government indebtedness. CDS spreads have widened slightly in Japan and its sovereign credit rating has also been placed on negative outlook, reflecting the impact of the earthquake on Japan's fiscal position. Credit rating agencies have also indicated the possibility of a downgrade of New Zealand's credit ratings (both foreign and local currency), but the impact of recent negative rating news on New Zealand sovereign CDS spreads has been quite limited. The general market uncertainty and strong supply of sovereign debt have made things more difficult for corporates, including the New Zealand banks, looking to issue term debt.

### *Emerging Asian economies have generally been strong...*

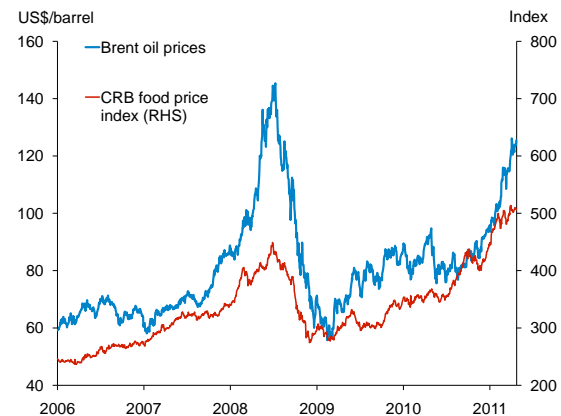
Growth in emerging Asia has generally remained robust, with most economies returning to rapid growth soon after the global financial crisis. Concerns in many of these economies have focused largely on domestic overheating, particularly in asset markets. In response, policymakers in many Asian economies have been tightening both monetary and regulatory policies. This is particularly the case in China, where there has been spectacular growth in property prices and property development activity. China has taken a range of actions to target inflationary pressure, although (as discussed in the April 2011 World Bank *Quarterly Update*) these appear to have had only a limited effect on property markets so far.

### *...contributing to strong growth in commodity prices.*

This strong growth in emerging Asia has been an important driver of continued increases in commodity prices. Global food prices have climbed in recent months and have now surpassed their 2008 peak. On the supply side, climatic disruption and stockpiling in some countries have put further pressure on agricultural prices. With demand for food continuing to increase due to urbanisation trends in Asia and the global economic recovery, food price inflation has emerged as a concern in developing countries.

More recently oil prices have been driven higher by political tensions in North Africa and the Middle East. Oil prices have been supported by supply pressures following pipeline closures, concerns that the turmoil may hinder transport through the Suez Canal, and fears the tensions could spread to other more important oil producing countries in the region. Since mid-February Brent oil prices have increased by around 25 percent to USD125 per barrel.

**Figure 2.7**  
**International commodity prices**



Source: Bloomberg.

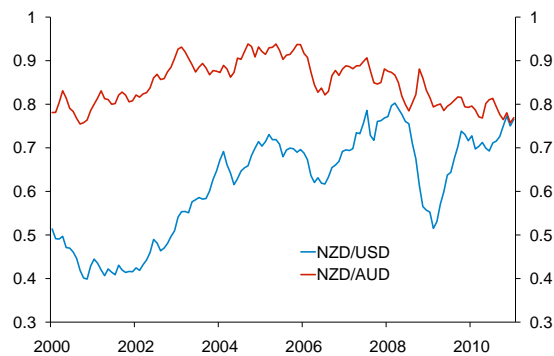
These increases in commodity prices pose a risk to the fragile recovery in major advanced economies, where policymakers are now confronted with the challenge of rising inflation at a time of still weak demand. Partly in response to emerging inflation pressures, market pricing indicates that policy rate increases are expected from the Federal Reserve, Bank of England and European Central Bank over the coming year.

The strong increase in prices for New Zealand's export commodities has provided a large boost to the terms of trade and economy. However, any material slowing in Asian growth would likely result in large falls in commodity prices, which would have large effects on the New Zealand economy, both directly and indirectly through its dampening effect on the Australian economy.

Movements in commodity prices have been a major driver of the New Zealand dollar (NZD), which has remained strong against the US dollar despite weakness in the New Zealand economy and the recent cut in interest rates. However, the NZD has continued to depreciate against the Australian dollar, reflecting Australia's even stronger terms

of trade and relatively strong economic performance. The NZD was also relatively volatile during March, and this contributed to large NZD transaction volumes (see chapter 5). If commodity prices do fall in the future, the NZD would be likely to fall, mitigating the resulting fall in exporter incomes.

**Figure 2.8**  
New Zealand dollar exchange rate



Source: RBNZ.

*The Australian economy remains strong.*

The Australian economy has benefited from strong growth in Asian economies and the consequent favourable effects on Australia's terms of trade. Australia has continued to experience strong growth driven largely by the resources sector – in particular, mining and related investment. In the near term Australian growth is now expected to be lower due to severe flooding in Queensland during January. The longer-term outlook remains positive due to strong mining sector investment and continuing high commodity export prices.

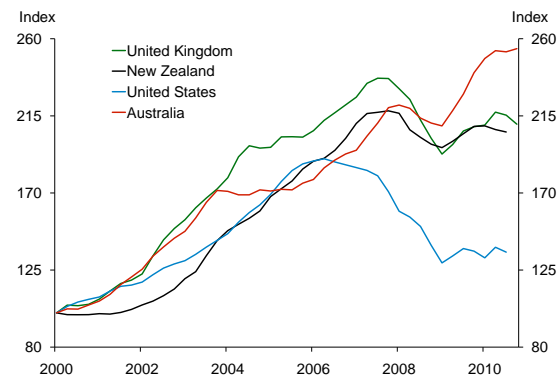
There is considerable sectoral divergence in business profits – while mining has experienced strong growth, earnings for other non-financial businesses have been more modest. Consequently, Australia remains reliant on resource sector export demand from China and emerging Asia to drive continuing strong growth.

*Australian household sector has increased indebtedness.*

House prices have continued to rise in Australia over the past two years (figure 2.9) and aggregate household indebtedness is at a historically high level. As in New Zealand, household borrowing has been financed to a large extent by offshore

funding. There are some signs that parts of the Australian housing market have slowed recently, but robust population growth and a strong labour market are expected to limit near-term declines in house prices.

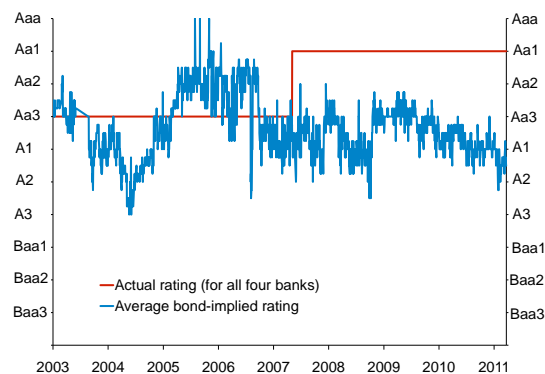
**Figure 2.9**  
House prices  
(March 2000 = 100)



Source: Quotable Value Ltd, Bank for International Settlements, Haver Analytics.

As discussed in chapter 4, the four major Australian banks (the parents of the major New Zealand banks) have weathered the financial crisis well (see also figure 2.5). While the Australian banking system has decreased its reliance on short-term wholesale debt, Moody's has recently placed the long-term credit ratings of the four major Australian banks on negative outlook for potential downgrade due to those banks' sensitivity to conditions in the wholesale funding market. However, it is likely that an expectation of downgrade has already been incorporated into their funding margins. Indeed, Moody's bond-implied ratings for the Australian banking system suggest that their bonds have been trading at spreads consistent with a lower credit rating for some time – a pattern that is typical of most financial institutions internationally (figure 2.10).

**Figure 2.10**  
**Moody's actual and bond-implied ratings for major Australian banks**



Source: Moody's.  
 Note: Bond-implied ratings are calculated by Moody's by comparing secondary traded bond yields with those of other rated entities.

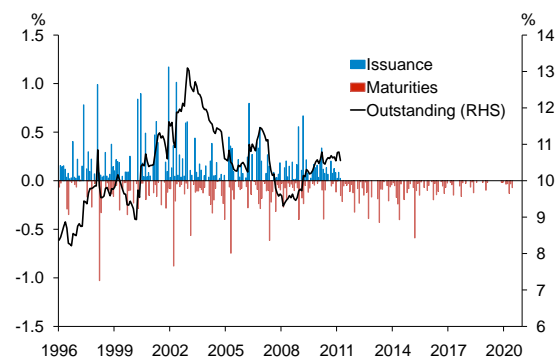
*Funding markets for New Zealand firms functioning well...*

New Zealand issuers have continued to successfully raise funding directly in both domestic and offshore corporate bond markets in recent months (figure 2.11). Local government issuers are among the most active participants in domestic markets. For these issuers, the setting up of the Local Government Funding Agency, a centralised debt issuer, is likely to lower their funding spreads as bonds issued by the agency are likely to attract higher credit ratings and be more liquid than those issued by individual councils. While the formation of this agency is still some way off, there are some signs of spreads narrowing recently, possibly in anticipation of this effect.

In contrast, bank issuance of longer-term wholesale funding has been sporadic in recent months. To a large extent (see chapter 4) this reflects banks easily exceeding core funding requirements, a quiet period for funding maturities, and weak economy-wide credit growth reducing banks' funding needs. The Christchurch earthquake and market disruption following political turmoil in North Africa also delayed some issues.

Questions remain over the prospects for traditional senior debt funding markets, particularly in Europe, where debt markets are stressed by the difficulties facing some sovereign issuers. Investors are also starting to question the financial backing of senior debt issues by European banks that have a large share of covered bond funding (as this reduces the assets available for senior creditors in a restructuring). Moreover, investors are concerned about the prospect of haircuts to senior debt holders as part of new European proposals for the resolution of bank failures.

**Figure 2.11**  
**Non-financial corporate bond issuance by New Zealand issuers (percent of nominal GDP)**



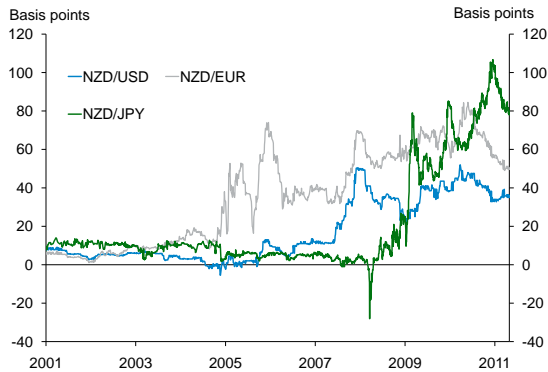
Source: Bloomberg, Statistics New Zealand, RBNZ estimates.  
 Note: Includes local and overseas issues reported on Bloomberg. Overseas denominated issues converted into NZD using rate on issue date. Excludes issuance by financial firms and central government.

*...but funding costs for New Zealand banks remain higher than prior to the crisis.*

While there has been little debt issuance in recent months, funding costs have remained at somewhat elevated levels. The level of Uridashi and Eurokiwi bond issuance has remained subdued, with the value of announced deals declining from an already low level. As a result, maturities have outpaced issuance, and the level of bonds outstanding has continued to decline. As issuers of these bonds are the typical counterparty to banks in foreign currency swap transactions, this tends to keep NZD basis swap spreads (and thus funding costs for New Zealand banks) elevated. However, a lack of offshore issuance by New Zealand banks has taken some of the pressure out of the basis swap market, and spreads have narrowed in recent months (figure 2.12).

Figure 2.12

5-year basis swap spreads



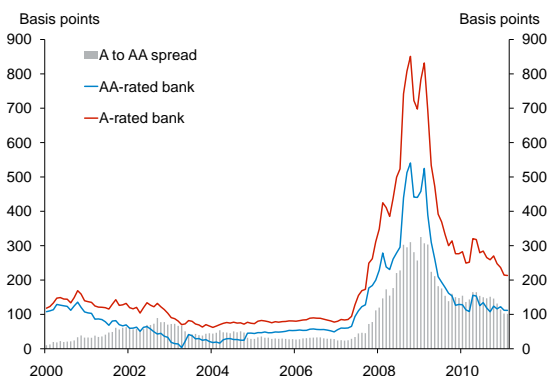
Source: Bloomberg.

*New Zealand bank credit ratings are on negative watch.*

As with their Australian parents, the New Zealand banks have seen their credit ratings placed on negative watch by Moody's. In addition, Standard and Poor's is reviewing its global bank rating methodology, which could result in a one notch downgrade for the major New Zealand banks if the new methodology is implemented as currently planned. While it is difficult to know with certainty what effect a single notch downgrade would have on funding costs, it is worth noting that US banks with the same AA Standard and Poor's rating as New Zealand banks are currently able to obtain five-year funding around 100 basis points cheaper than banks with a three-notch lower A rating (figure 2.13). A single notch downgrade may therefore be worth in the vicinity of 20-30 basis points on funding costs. However, much of the effect of a single-notch downgrade is likely

Figure 2.13

US bank bond spreads  
(spread to US Treasury bond yield)



Source: Bloomberg.

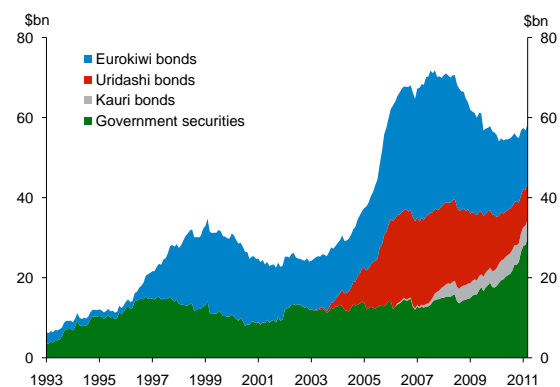
to already be reflected in the spreads paid by New Zealand banks on their term funding.

While issuance in the Uridashi and Eurokiwi market has been weak, there has been a continued increase in offshore holdings of New Zealand government securities. Total offshore holdings of government bonds and Treasury bills had risen to nearly \$30 billion at the end of March as the New Zealand Debt Management Office (NZDMO) stepped up its issuance of government debt. Total issuance in March was \$2.8 billion, well in excess of the \$1.1 billion monthly average seen over the past 12 months, but consistent with the recently revised NZDMO issuance target of \$20 billion for the 2010/11 year. The increase in bond issuance has placed upward pressure on New Zealand government bond yields, particularly at longer maturities. CDS spreads on New Zealand government debt have remained contained, however, suggesting the rising bond spread reflects elevated supply rather than perceived default risk.

With the increase in offshore holdings of government securities more than offsetting the subdued issuance in Uridashi, Eurokiwi and Kauri markets, overall non-resident holdings of New Zealand dollar securities have edged higher over the past few months (figure 2.14).

Figure 2.14

Non-resident holdings of selected New Zealand dollar fixed-income securities



Source: Bloomberg.

Note: Uridashi, Eurokiwi and Kauri bonds are New Zealand dollar securities issued by foreign issuers.

### 3 New Zealand's economy

Economic activity has remained sluggish, with GDP per capita still well below the peaks seen prior to the global financial crisis. This reflects weak private demand, with households increasing savings and firms responding to weak demand by curtailing investment plans. Households and businesses may also have reached the view that pre-crisis rates of debt growth were unsustainable. Relative to income, New Zealand's external debt is substantial, and needs to stabilise or be gradually reduced in the future. Government fiscal policy is offsetting weak private demand to some degree, but fiscal consolidation is expected in coming years to stabilise government debt at a prudent level. While some key trading partners remain weak, elevated commodity prices are providing a fillip to the rural sector, which will support domestic demand and help stabilise balance sheets in the agricultural sector.

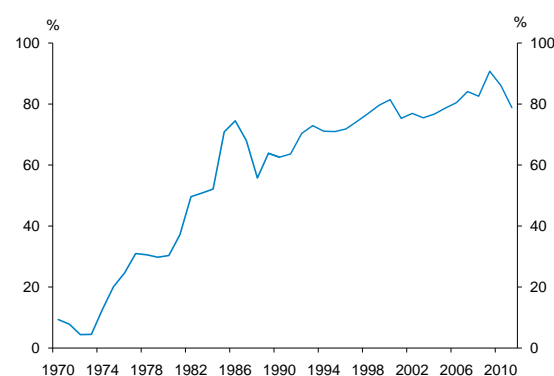
New Zealand's economic outlook has been materially altered by the Canterbury earthquakes – fiscal and private resources will be focused on reconstruction activity in that region for some years to come. This construction will boost economic activity in the next few years after an initial period of earthquake-related disruption. While New Zealand households and firms have extensive property insurance, the disruption to business activity has caused significant financial stress. Other businesses are being affected by factors such as weak household demand and the generally tighter credit conditions of recent years.

#### 3.1 External financing vulnerabilities

Previous *Reports* have discussed New Zealand's external debt which remains relatively high by international standards. New Zealand's net external liabilities were already significant by 1990 (figure 3.1), and have gradually risen as a share of income to around 80 percent of GDP currently. While the government steadily reduced its external debt over most of the past decade, New Zealand households and firms increased their borrowings, with much of that borrowing occurring via the banking system.

Importantly, New Zealand's external debt is overwhelmingly either denominated in New Zealand dollars or hedged into New Zealand dollars. If the exchange rate falls, the New Zealand dollar value of the debt does not rise. In an environment where financial markets were unwilling to fund further accumulation of New Zealand debt, a falling currency would act as a useful shock absorber.

Figure 3.1  
Net external liabilities  
(percent of GDP, March years)



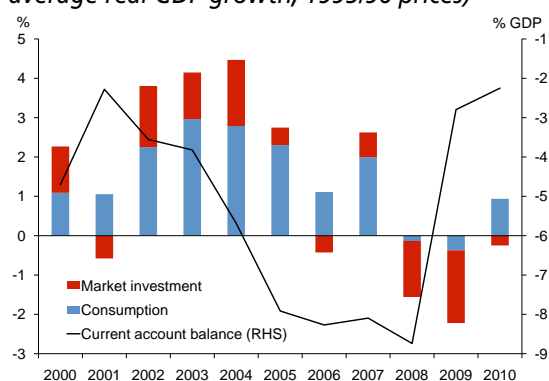
Source: Statistics New Zealand, Lane & Milesi-Ferretti (2006), RBNZ estimates.

Note: Lane & Milesi-Ferretti dataset used prior to 1989. 2011 figure is a RBNZ estimate.

### Recently private demand has been weak...

For the past couple of years, New Zealand households and firms have had little appetite for borrowing and have generally reduced their expenditure plans. Consumption per capita has fallen significantly since 2007, and the household savings rate has risen substantially. Real business and residential investment have fallen more dramatically over the same period (figure 3.2). While much of this adjustment is likely to be cyclical and a reflection of more difficult economic conditions, it is also likely that a degree of structural change is occurring with households and businesses wanting to run lower debt levels over the longer term. This 'rebalancing' has probably been an important driver of the severity of the post-2007 downturn. As consumers and firms spend less, other firms face reduced demand and household incomes weaken. This feedback can limit declines in the economy's debt-to-income and leverage ratios, as the reduction of debt has a tendency to act as a drag on income and asset values.

**Figure 3.2**  
**Private demand growth**  
*(percentage point contribution to annual average real GDP growth, 1995/96 prices)*



Source: Statistics New Zealand.

Note: Data are calendar years. Market investment excludes central government investment.

The national savings rate has also declined, demonstrating that government spending has offset rising private saving, and that the narrowing in the current account was initially largely due to declining investment rates. The extent of sustained rebalancing will be clearer when the economy returns to a more fully-employed state, which generally leads to an upswing in consumption and investment and an increase in the demand for credit.

During the recent period of economic weakness, the government has increased spending (and cut some tax

rates) via a mixture of automatic stabilisers and discretionary policy choices. As a result, the government has accumulated additional debt (from a low starting point) at the same time as the household sector has reduced debt-to-income ratios. Fiscal stimulus has been important for the economy in recent years and fiscal funding of earthquake rebuilding will be substantial in the next few years (see box B). However, as private demand recovers (supported by recent strength in commodity export incomes and earthquake rebuild activity), it will be appropriate for this fiscal stimulus to be reduced. The Government has announced its intention to achieve fiscal consolidation over the coming years.

### ...reducing growth in credit and external debt.

The current account deficit has fallen dramatically (from around 8 percent of GDP in recent years to approximately zero currently). Much of this improvement is a reflection of weaker imports, largely due to the weak economic cycle. On the investment income side, reinsurance inflows associated with the earthquakes and lower bank profitability within New Zealand have also played a role in narrowing the deficit. While exports have been increasing, the degree of improvement has been more moderate than during some previous recoveries due to the relative strength of the NZD on a trade-weighted basis. A fall in the exchange rate would assist rebalancing by reducing the appetite for imports and supporting demand for exports and domestically produced tradables. Recovery in export demand, particularly in areas such as tourism, has also been hampered by continued weakness of the world economy.

Across the whole economy credit growth has slowed from double digit rates to essentially zero, a phenomenon also seen in many other countries. Double digit credit growth was a product of households and firms that were prepared to borrow increasing amounts against rising collateral values, and banks that had no difficulty funding that rapid growth. Bank funding of rapid balance sheet growth will be more challenging in the future. Furthermore, the borrowing decisions of households and firms are likely to be coloured for some time by the recent weakness in property prices and asset markets.

## Box B

### The February Canterbury earthquake: implications for financial stability

The 6.3 magnitude earthquake that struck the Canterbury region on 22 February is arguably the largest natural disaster to hit New Zealand in terms of overall economic impact, and one of the costliest in terms of lives lost. The extent of the damage from the February earthquake easily exceeds the damage caused by the 7.1 magnitude earthquake that struck the region in September 2010 (the Darfield earthquake) – with the cost of rebuilding property and infrastructure estimated at around \$5 billion alone for the September earthquake.<sup>1</sup> The February earthquake – strictly speaking an aftershock associated with the Darfield earthquake – caused more damage than in September due to its proximity to the city centre and its shallow depth.

Initial estimates used in the March *Monetary Policy Statement (MPS)* placed the cost of rebuilding property and infrastructure damaged in the Canterbury region from the Darfield earthquake and its aftershocks since September at a combined cost of \$15 billion. This is an

estimate of the direct cost of reconstruction at current (2011) prices, with a \$9 billion estimate for residential property and \$3 billion each for commercial property and public infrastructure. However, there is considerable uncertainty attached to this initial estimate, with risks likely to be towards the upside. This uncertainty relates to the ongoing process of damage assessment and the possibility of costs being impacted by decisions on land remediation. In addition, final reconstruction costs will be influenced by ‘demand surge’ factors and associated localised inflation pressures from rising construction costs. As costs rise, the nominal value of the reconstruction over the 5–8 year rebuild horizon will likely be greater than the initial \$15 billion estimate.

The impact of the February earthquake alone, while small in absolute terms compared to other earthquakes around the world, is large relative to the size of the New Zealand economy (table B1). Subject to final loss estimates, the February earthquake would likely make a list of the top 35 earthquakes (relative to the size of the relevant national economy) since 1900.

Table B1

### Earthquake losses since 1900 – cross-country comparison (selected earthquakes) (ranked by percent of GDP)

Earthquake (CATDAT ranking in parentheses)	Date	Economic loss (2010/11 US\$bn)	% of nominal GDP
Armenia (1)	1988	45	360
Haiti (2)	2010	7.8	120
Great Kanto, Japan (9)	1923	215	53
Samoa (15)	2009	0.14	26
Canterbury (approx 30-35)	2011	11.5	8
<i>Other:</i>			
Hawke’s Bay	1931	0.37	5.7
Tohoku, Japan	2011	259	5
Kobe, Japan	1995	150	2.3
Northridge, US	1994	90	0.8

Source: Integrated Historical Global Catastrophe Database (CATDAT),<sup>2</sup> RBNZ calculations.

Notes: Figures are median estimates of a range of existing loss estimates for each earthquake and are taken directly from the CATDAT database except for the 22 February Canterbury earthquake. The 22 February Canterbury earthquake figure assumes NZ\$15 billion in physical damage to property and public infrastructure over and above damage from the September 2010 earthquake and related aftershocks. The Tohoku, Japan estimate is CATDAT’s current modelling estimate and aligns with the figures released by the Japanese Cabinet Office.

<sup>1</sup> New Zealand Treasury (2011), *Monthly Economic Indicators – February*.

<sup>2</sup> See, Daniell, J et al (2010), “The cost of historic earthquakes today – economic analysis since 1900 through the use of CATDAT”, paper presented to the Australian Earthquake Engineering Society 2010 Conference, Perth, Australia.



The vast bulk of the losses to residential and commercial property will be covered by insurance – public insurance provided by the Earthquake Commission (EQC) which covers the first \$100,000 plus GST of damage to residential property, and the first \$20,000 plus GST for contents; together with private insurance for the remaining residential property coverage as well as commercial property. Repairs to public infrastructure are funded by a mixture of insurance placed with speciality infrastructure insurers or general insurers, together with self-insurance by local and central government. As section 4.3 discusses, there is a high level of reinsurance, meaning the majority of privately insured losses will be borne by global insurance companies rather than domestic insurance firms.<sup>3</sup> The proportion of insured loss, likely to be at least 50 percent, is high by the standards of other earthquake events. Prior to the recent earthquake and tsunami in Japan, the largest insured event in absolute terms was the US Northridge earthquake in 1994, where insured losses were about 25 percent of the overall economic losses.<sup>4</sup> By way of comparison, insured loss estimates for the 2010 Chilean earthquake are between 25 and 40 percent, while in the 1995 Kobe earthquake estimated insured losses amounted to just 5 percent of overall losses.

Typically homeowners in New Zealand have ‘full replacement’ policies that, broadly, will cover the construction of an equivalent dwelling on the existing site. However, there may be some properties for which insurance claims will be dependent, in part, on decisions about land remediation or replacement sites and building standards (eg flood heights and any revision to building codes). Some policyholders will choose to settle insurance claims for cash because that best suits their circumstances – finding a replacement dwelling or business premises will be their responsibility. To the extent suitable houses or premises are available for these policyholders, this may reduce the level

of construction relative to the damage incurred. Take up of commercial property insurance is generally lower than for personal insurance, and thus businesses will bear a share of the costs of property damage. However, the extent of this underinsurance of Christchurch commercial property is unclear.

The cost of the estimated \$3 billion damage to public infrastructure and publicly owned buildings is only partly met by insurance, with the remainder borne by central and local government. As owner of EQC, government also has the \$3 billion cost of EQC claims which are not covered by reinsurance. Fiscal costs will also include the array of additional government support programmes including support to small businesses, clean up and recovery costs, and ACC payments.

Besides the functioning of payment systems (which worked pretty smoothly through the event, see chapter 5) the key financial stability considerations related to the earthquake involve the balance sheet effects on those who directly bear the losses, including government, domestic insurance companies and global reinsurers, as well as households and businesses with significant uninsured or underinsured losses.

The impact on the balance sheets of domestic and global reinsurers is discussed in chapter 4. The level of underinsurance and underinsurance is subject to a large degree of uncertainty. Uninsured losses are thought to be fairly small for the household sector, but will be more significant for some businesses and commercial property owners as discussed above. Balance sheet pressures will be compounded by the indirect impact of the earthquake on economic activity and any increase in regional unemployment rates. The impact on firms has been mitigated by existing business disruption insurance, as well as government support programmes. Households have also benefited from this government support, together with the initiatives announced by many financial institutions to work with their customers in these extraordinary circumstances. These policies of forbearance and commitment by the banking sector to ensure businesses and households have access to credit are welcome developments.

<sup>3</sup> **Note, in addition to any claims losses, domestic insurers will be faced with additional expenses associated with hiring more staff to deal with the volume of claims, together with higher future reinsurance premiums that will also affect profitability in the short and medium term.**

<sup>4</sup> Daniell, J (2011), *CATDAT Damaging earthquakes database 2010 – the year in review*.

The effect on financial institutions from the temporary disruption to economic activity in the region is likely to be manageable. The major banks have an exposure to Christchurch customers amounting to around 10 percent of their loans and advances, while feedback from contact with the banks suggest initial provisions for bad debts could amount to a modest 0.1 percent of total loans and advances. This figure will depend on the profile of economic recovery in the region, both in terms of how fast the rebuild takes place, and the extent to which households and businesses decide to relocate outside the region. The creation of the Canterbury Earthquake Recovery Authority (CERA) is an important step in ensuring that Christchurch remains a significant area of economic activity. This will help to underpin the residential housing market and maintain collateral values over the medium term. That said, it is difficult to gauge property price dynamics in the region. It seems plausible that bank losses could exceed

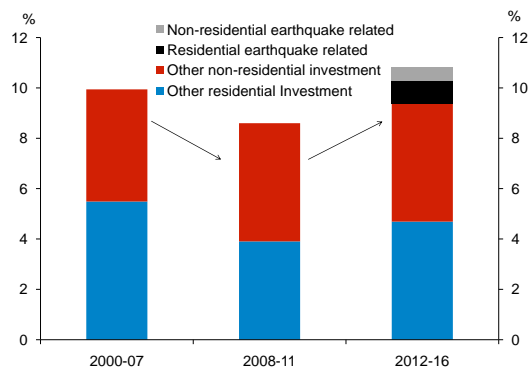
the initial provisions somewhat, but remain small relative to banks' normal flows of annual profits.

The February Canterbury earthquake will have a significant negative impact on New Zealand's economic growth in the short term given the damage to the capital stock and disruption to business. Further out, as reconstruction gets under way, economic growth will receive a boost and pressures on real resources will see inflation rise. The extent and speed of reconstruction is, however, hard to predict with any precision. There has been substantial temporary migration out of Christchurch, and it is plausible that this will lead to some sustained reduction in population and reduce reconstruction. The financial stability implications will be influenced by the profile of recovery, but given the high level of insurance and reinsurance, it appears that the financial consequences will be manageable for most of the key players.

### 3.2 Sectoral developments and credit risks

Box B provides indicative estimates of the costs of property damage related to the Canterbury earthquakes. It appears that most of the damaged property is insured or government owned, and that the great majority of those insurance costs fall either on international reinsurers or on the EQC, which has accumulated funds over time against this eventuality. This reduces the extent to which quake-related destruction will weaken household and firm balance sheets, and means the funding for reconstruction is largely secure, once the reconstruction has been planned. If most destroyed property is rebuilt (or an equivalent replacement is built elsewhere within New Zealand) this will be a substantial work programme for the construction industry. Figure 3.3 suggests that the rebuild will, for at least five years, push activity in the New Zealand construction sector to a higher proportion of GDP than seen during the recent (2000–2007) property boom period.

Figure 3.3  
Nationwide construction  
(average quarterly real construction as a percent of potential GDP, 1995/96 prices)



Source: Statistics New Zealand, RBNZ estimates.

#### Households are trying to reduce debt burdens.

As discussed above, the household sector has been reducing its demand for debt after a decade of strong credit growth. Indicators show that non-performing household loans held by banks remain elevated relative to recent history,

suggesting some households are struggling to make debt repayments, even with lower interest rates. However, compared to some other countries, both non-performing loans and mortgage sales remain modest.

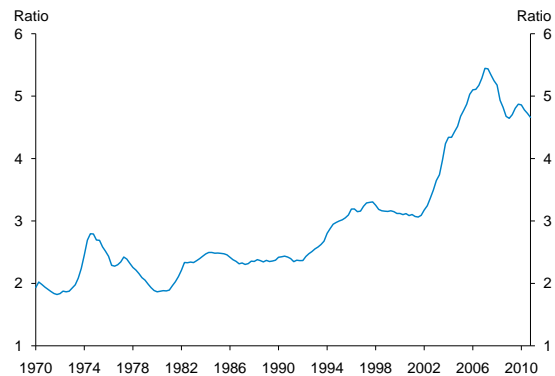
Household debt has fallen in New Zealand relative to household income. The fall has been sharper in some other countries, but these tend to be countries where a sizeable portion of household debt has actually been written off as mortgagee sales and bankruptcies have occurred. A voluntary rebalancing of the sort that seems to be occurring in New Zealand, where most households are able to service their existing loans but are reluctant to take on more debt, is more orderly but is likely to take longer.

### House prices still seem elevated.

Nominal house prices have only fallen about 5 percent from their peak, or about 13 percent in real (inflation adjusted) terms. While prices have not fallen far, housing market activity has been particularly weak over the past 18 months. Tax changes, low confidence, low net migration, and sellers' unwillingness to accept lower prices have all contributed to slow housing market activity. There are few signs of an excess of dwellings (with construction weak in recent years), particularly given the earthquake-related damage in Christchurch. Some recent data has also suggested Auckland house sales and rents are strengthening. However, given that prices appear elevated relative to historical relationships with incomes (figure 3.4) and rents, prices may yet drift lower, particularly in real terms, for example if enough buyers are unwilling to pay current prices and prefer to rent while sellers' expectations adjust. Any further negative news could cause a sharper downturn in the housing market, particularly if the labour market were to weaken sharply, or interest rates were to rise rapidly.

The Canterbury earthquakes are having profound effects on the housing market in the region, with the spillover likely to be felt nationwide. Housing transactions in the Canterbury region recovered relatively quickly after a short-lived decline around the time of the September quake (figure 3.5). However, it is less clear this will occur following the February quake. With many properties damaged (potentially in ways that are hard to assess) buyers will be cautious. Insurers are typically unwilling to provide

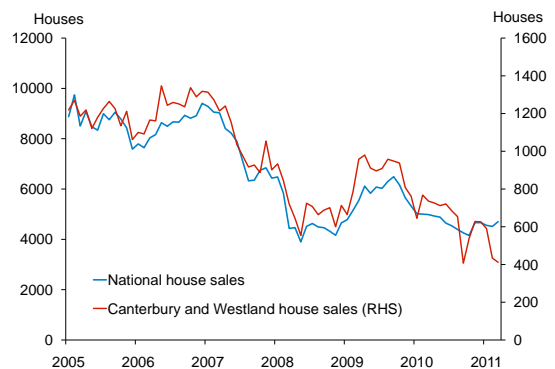
**Figure 3.4**  
House price to income ratio



Source: Quotable Value Ltd, RBNZ, Statistics New Zealand.  
Note: Average house prices are the value of housing divided by the number of dwellings. Average disposable income is total annual disposable income divided by the number of households.

any new policies in the Canterbury region (at least without an engineer's report being obtained) because of the risk that a property has pre-existing damage. This has the potential to impede property transactions, although contacts suggest that insurers are willing in some cases to continue to insure a property that they are already covering if the property changes hands.

**Figure 3.5**  
Monthly house sales



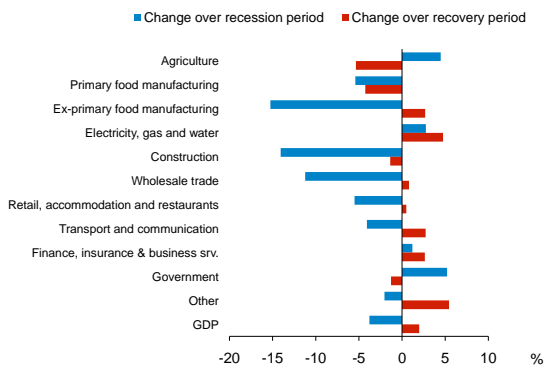
Source: REINZ.

### Business activity is barely growing...

Growth in business activity slowed over the second half of 2010, and GDP remains 1.9 percent below its December 2007 peak. Even though the business sector grew last year, growth has been uneven across industries with some recovering faster than others (figure 3.6). The manufacturing sector has seen some recovery in activity but it remains well

below the levels of a few years ago. The construction sector has been weak over the past three years, as investment by households and businesses alike has dried up. Earthquake-related activity will underpin construction demand in the medium term, although the period before this activity picks up may be difficult for some firms. While retail sector activity has seen a relatively mild fall, there are important compositional trends within retail, with some retailers in more discretionary store types (such as REDgroup Retail, which includes the Whitcoulls chain) suffering financial difficulties recently.

**Figure 3.6**  
**Components of production GDP**

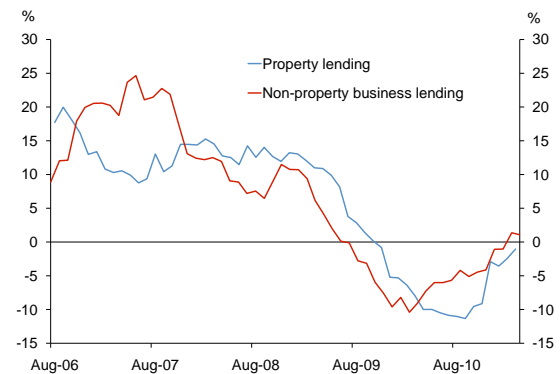


Source: Statistics New Zealand.  
Note: The recession period is from the cyclical peak in GDP in 2007Q4 to the trough in 2009Q1. The recovery period is from the trough to 2010Q4.

*...but business credit may be stabilising.*

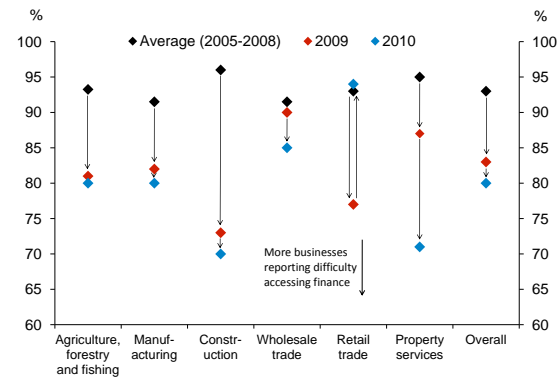
Growth in non-property business lending has begun to turn positive this year, reversing 18 months of negative growth (figure 3.7). Growth in property lending remains negative on an annual change basis but is nearing positive territory. Through the recession banks tightened lending standards while firms scaled back investment plans, so that overall credit outstanding declined. During 2009 and 2010, firms reported significant deteriorations in perceived access to finance (figure 3.8). With some stabilisation in the real economy there are signs that a few more firms are willing to invest and able to meet current bank lending criteria, which banks report have eased slightly recently (see chapter 4). However, access to credit is still substantially tighter than before the crisis.

**Figure 3.7**  
**Property and non-property business lending (annual percent change)**



Source: SSR.  
Note: Includes both bank and non-bank lending.

**Figure 3.8**  
**Businesses with access to finance on acceptable terms**



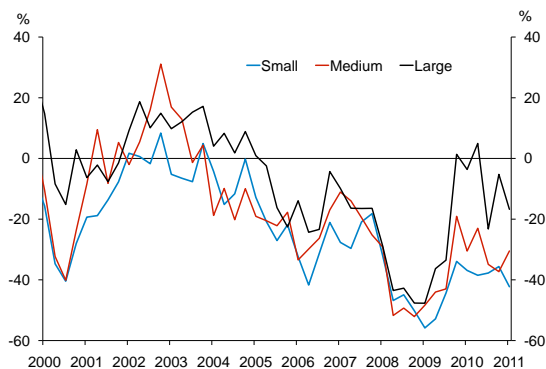
Source: Statistics New Zealand.  
Note: Percentage of firms that requested debt finance reporting that finance was available to them on acceptable terms. 2010 data collected for the last financial year to August 2010.

*SMEs and Canterbury firms face the biggest challenges.*

Patchiness of the recovery is also evident by firm size. Larger firms report that profits stabilised in the first half of 2010 before suffering a mild deterioration thereafter (figure 3.9). In contrast, small- to medium-sized businesses (SMEs) have been reporting continued weakness in profitability over the last few years. This will have contributed to the rising level of non-performing loans among SMEs (see chapter 4).

Aggregate business confidence had been relatively positive over 2010 and early 2011 until the February earthquake, which caused a measurable deterioration in expected activity, particularly in the Canterbury region (figure

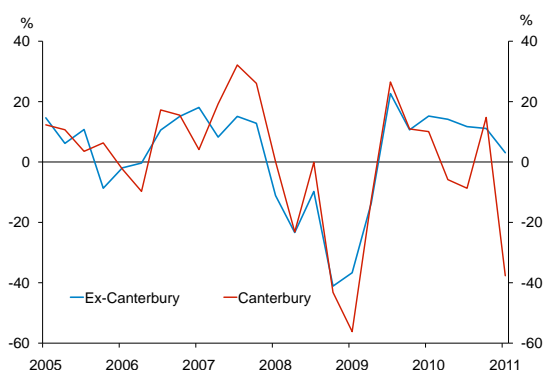
**Figure 3.9**  
**Profitability by firm size**  
*(net percentage)*



Source: NZIER Quarterly Survey of Business Opinion (QSBO).  
 Note: The data shown in the figure were supplied to the RBNZ by NZIER, on special request.

3.10). More recent surveys have seen some improvement in sentiment. Infrastructural difficulties (and access to buildings within cordoned off areas) are causing substantial problems for many Christchurch businesses. Some businesses will assess the costs and time involved in returning to normal operation and choose to instead shift or wind down their operations, although there have been relatively few announcements of this nature.

**Figure 3.10**  
**Domestic trading activity**  
*(net percentage)*

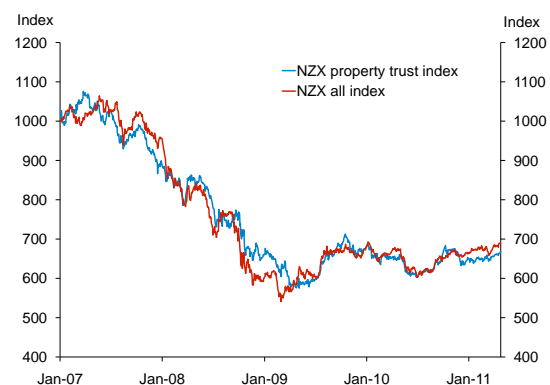


Source: NZIER QSBO.  
 Note: The data shown in the figure were supplied to the RBNZ by NZIER, on special request.

*Commercial property remains weak.*

Nationally, the commercial property sector remains weak, as soft economic activity has flowed through to lower demand for commercial property. Vacancy rates have remained at a high level compared to the previous decade, so there is likely to be widespread downward pressure on rents. These weak conditions appear to have been broadly as expected by the market, with share prices for listed property companies remaining relatively stable over the past year after falling significantly from their peak in 2007 (figure 3.11). Similarly, commercial property prices appear to be rising slowly and are about 8 percent lower than their peak in 2008, although transaction volumes are still low.<sup>5</sup>

**Figure 3.11**  
**Share prices of listed property trusts**  
*(January 2007 = 1000)*



Source: Bloomberg.

Given the weak demand for commercial property there has been little investment in the sector. Market reports suggest that some large office developments with prearranged tenants are proceeding, but little speculative construction is taking place.

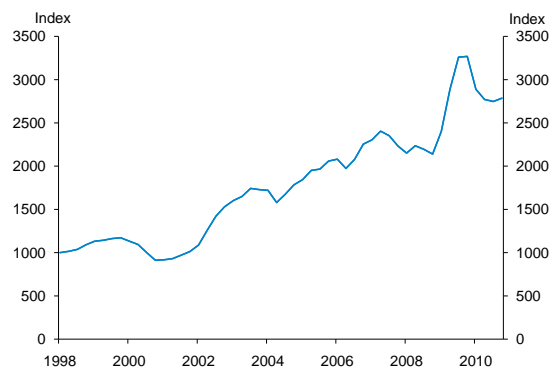
Overall, a relatively slow outlook faces the business sector in the near term, on top of a couple of years of weak activity and balance sheets that are likely to have become stressed in some cases. As construction sector and agricultural prospects improve, aggregate activity should increase, but conditions will not improve for all economic sectors. Non-performing loans in the business sector may thus remain elevated for some time.

<sup>5</sup> Listed property trust prices have fallen further than actual building prices since most property trusts use debt as part of their financing, creating leverage for investors in the trust.

### Farm debt remains high...

Previous Reports have documented the increase in agricultural debt, particularly in the dairy sector, since about 2001 (figure 3.12). High commodity prices were capitalised into land values, with some existing operations expanding by purchasing neighbouring farms using equity in their existing operations. Around the time of the global financial crisis, demand for farm land (and farm sales) declined sharply, as farm incomes fell and a number of farms experienced difficulty meeting loan repayments. More recently, higher commodity prices, along with lower interest rates, have helped relieve stress to some degree. However, drought conditions in parts of the North Island during summer and recent erratic weather have added to concerns for some farm operators.

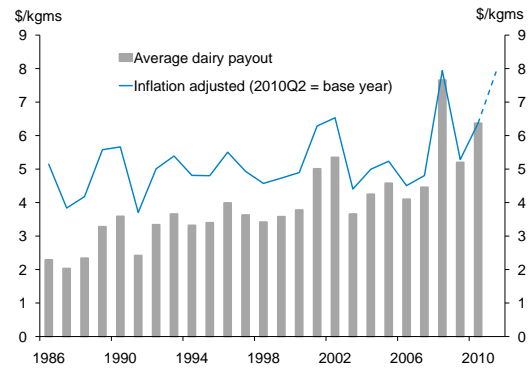
**Figure 3.12**  
Agricultural debt to agricultural GDP  
(March 1998 = 1000)



Source: Statistics New Zealand, SSR, RBNZ calculations.  
Note: Real agricultural GDP reflat by agricultural export prices.

Rising agricultural incomes have been used by many farmers to reduce debt over the past year, with expenditure limited to essential purchases. After the record dairy payout in 2007/08 of \$7.66/kgms the price (against most expectations) fell substantially to \$5.20 the next season (figure 3.13). This development underscored the volatility of commodity prices and has encouraged farmers and banks to reassess their exposure to risk. While the final payout for the current season is expected to be a new record, the recent experience of volatility means that increased income is likely to be used to consolidate financial positions rather than being capitalised into land prices.

**Figure 3.13**  
Historical dairy payout



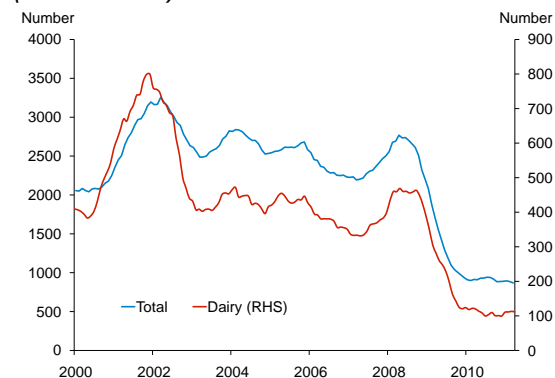
Source: Fonterra, Livestock Improvement Corporation, Statistics New Zealand.

### ...and the market for farms remains soft.

Farm sales remain sluggish as farmers' appetite for debt diminishes. Agricultural credit has slowed from growth rates of near 20 percent a few years ago to essentially zero today. The total number of farm sales is still at a depressed level, with around 850 sales over the past year, compared to nearly 3000 at the peak (figure 3.14).

Despite the recent improvement in earnings, some farmers remain stretched and lower land prices have reduced security values. Banks appear to be restructuring loan terms and working with farmers rather than pushing large numbers of operators into forced sales, despite an increased rate of non-performing loans. Most agricultural debt is held by the dairy sector, where the excellent returns expected this season should help improve balance sheets and stabilise land prices. However, the return on assets in the farming sector is still fairly low, and it is not clear if land prices will have to fall further to attract buyers.

**Figure 3.14**  
Farm sales  
(annual totals)



Source: REINZ.

## 4 New Zealand's financial institutions

The New Zealand banking system has continued to perform well despite a tough operating environment. Bank profitability has recovered significantly from its trough during the crisis when it was affected by elevated funding costs and high loan loss provisioning. Banks have also made significant progress in reducing some of the vulnerabilities that were highlighted during the crisis, in particular reducing reliance on short-term offshore funding and increasing liquid assets. Credit criteria, which were tightened during the past few years, appear to have eased recently, in some markets at least. Net interest margins have risen but are still below pre-crisis levels, suggesting that banks are competing for good business.

The non-bank sector has been through a period of rationalisation, particularly for finance companies. Remaining institutions are continuing to restructure and adapt to the new regulatory regime and operating environment.

Property insurers have a very large number of claims related to the Canterbury earthquakes, and will face operational challenges assessing and settling all of these claims. Fortunately, most claim costs will be met through international reinsurance arrangements. However, one major insurer with a large amount of Christchurch business (AMI) has required a support arrangement from Government to remove any uncertainty about its ability to meet quake-related claims. Insurers are also participating in the licensing process the Reserve Bank is implementing as it assumes a regulatory and supervisory role in the sector.

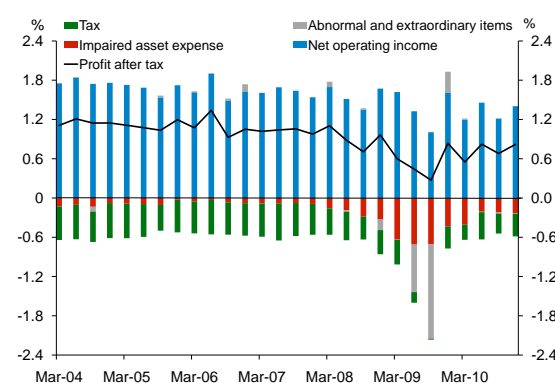
### 4.1 Banking sector

#### *Bank profitability recovered through 2010...*

The New Zealand banking system continues to perform well given a relatively weak macroeconomic environment. Profitability reached a trough during the middle of 2009 due to a combination of weak income growth, increasing bad debt expenses and a one-off tax charge (figure 4.1), and has recovered since. Abstracting from the tax issue, the improvement was driven by a reduction in bad debt expenses and an increase in net interest margins from their trough in 2009. Return on bank assets remains below the levels seen prior to the global financial crisis. This partly reflects bad debt expenses that still exceed pre-crisis levels, and lower transaction levels that have reduced fee income.

Figure 4.1

New Zealand bank profitability and bad debt charge  
(percent of total assets, annualised)

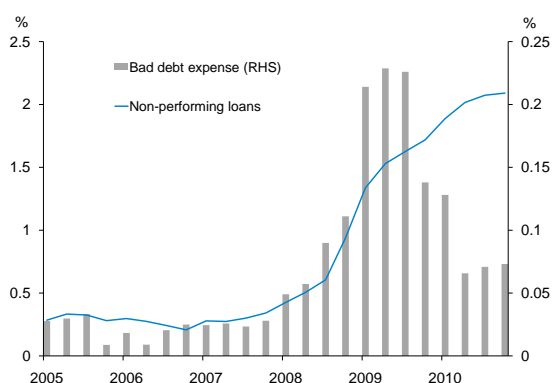


Source: GDS.

*...although non-performing loans remain elevated...*

Bank asset quality weakened further throughout 2010, reflecting the flow-on effects of the 2008/09 recession and recent subdued economic activity on the financial position of households and businesses. Aggregate non-performing loans have increased to just over 2 percent of bank lending, up from around 0.3 percent in June 2007 and 1.7 percent in December 2009 (figure 4.2). Banks provisioned for a substantial portion of likely loan losses during the first half of 2009. This allowed banks to decrease bad debt expenses in 2010 while keeping the overall level of provisions in line with current levels of asset quality.

**Figure 4.2**  
New Zealand bank asset quality and bad debt expense  
(percent of lending)

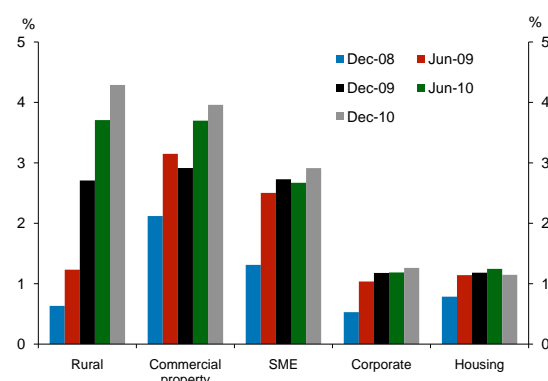


Source: GDS.

The ratio of problem loans to sectoral lending is relatively high in the rural, commercial property and SME sectors (figure 4.3). As discussed in chapter 3, a lengthy period of reduced cashflow has led to financial stress for some firms in the SME sector, and some remain vulnerable to continued weakness in trading activity. Delinquencies among heavily indebted farmers have also increased sharply since 2008. However, rising farm incomes should allow the sector to reduce debt levels while keeping delinquencies relatively contained (see chapter 3).

While non-performing loans in New Zealand have increased, bank asset quality remains strong compared to banks in some advanced economies such as the US and UK (see chapter 2). Non-performing loans are also relatively low

**Figure 4.3**  
Sectoral impaired and 90-day past due assets  
(percent of sectoral lending)



Source: Based on private reporting data from 8 registered banks.

Note: Data are not standardised and definitions may vary across banks.

compared to the New Zealand experience in the early 1990s, where impaired assets reached 9 percent of bank lending.

*...with potential for further increases in the near term.*

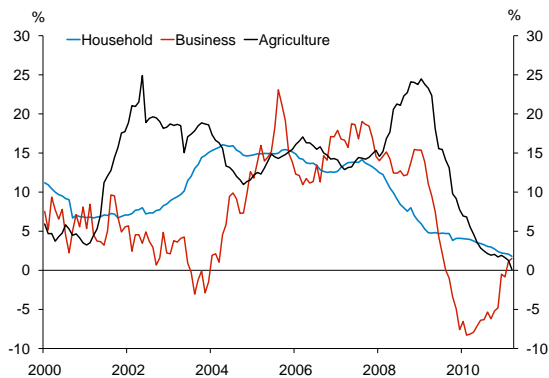
Non-performing loans are expected to gradually fall as the domestic economic environment improves. However, the recovery in non-performing loans could take longer than expected at the time of the November Report. This partly reflects the relatively lacklustre performance of the domestic economy through this period. In addition, the earthquake is likely to have some impact on non-performing loans for the banking system (box B). Partly because of the comprehensive insurance arrangements (and the Government's backstop of AMI), earthquake-related losses are likely to be small relative to operating profits for the banking sector as a whole, and should be manageable even for banks that have a relatively large share of their business in the Canterbury region.

*Lending growth remains muted.*

Bank lending growth has remained muted in all sectors since the November Report, much slower than the rapid expansion in credit seen between 2004 and 2008 (figure 4.4). Bank lending to businesses has been particularly weak over the past few years.



**Figure 4.4**  
Registered bank lending by sector  
(annual percent change)

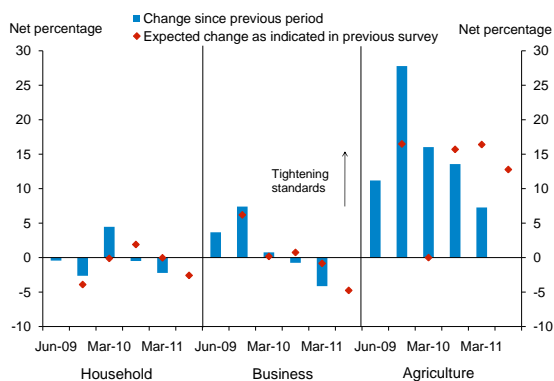


Source: SSR.

*Tight lending conditions appear to have recently begun to ease.*

While banks have tightened their lending conditions over the past two years, banks report credit conditions have eased slightly since the November Report (figure 4.5). There has been a material easing in lending standards in corporate lending, where a number of banks are competing for business. Some banks have also increased maximum loan-to-value ratio requirements for home buyers. The Reserve Bank will continue to monitor this lending, especially since house prices seem to remain elevated. As noted in box B, banks have been supportive of Christchurch customers affected by the earthquakes, with packages that go beyond

**Figure 4.5**  
Change in New Zealand bank lending standards



Source: RBNZ credit conditions survey.

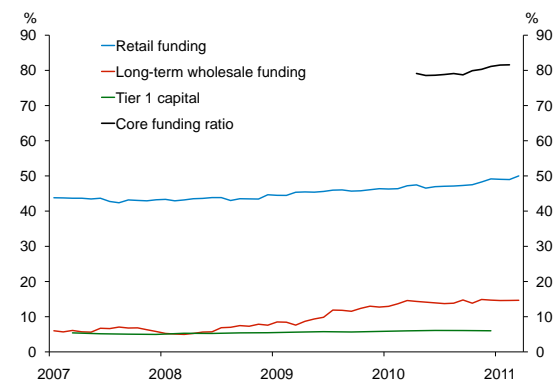
Note: Net percentage is the percentage of respondents reporting a tightening of lending standards minus the percentage of respondents reporting an easing. Individual bank responses are weighted by market share.

standard lending criteria in some areas. However, lending standards remain conservative in most sectors. Standards in the agricultural sector have continued to tighten as banks adjust lending standards that were too loose prior to 2009.

*Banks have continued to improve the stability of their funding...*

Banks have continued to improve the stability of their funding base by replacing short-term wholesale debt with 'core' funding, consisting mainly of long-term wholesale and retail funding (figure 4.6). Weak credit demand has made it relatively easy for banks to place their books on a more stable footing, as banks have not had to raise large amounts of core funding to fund balance sheet growth. The system level of core funding is currently significantly above the current minimum requirement of 65 percent, as well as the new minimum level of 70 percent which the Reserve Bank plans to impose in July.

**Figure 4.6**  
Regulatory core funding ratio and indicative composition of core funding  
(percent of loans and advances)



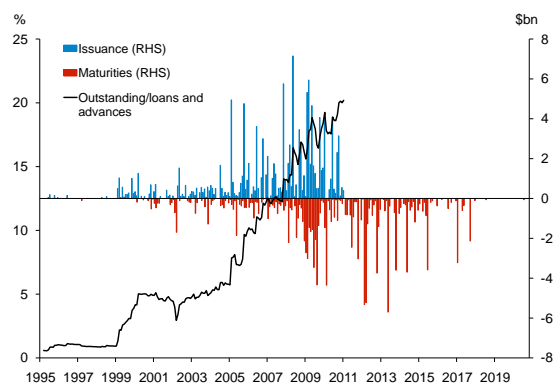
Source: SSR, GDS, liquidity policy returns.

Notes: The sum of retail funding, long-term wholesale funding and Tier 1 capital does not add up to regulatory core funding as the breakdown of core funding is indicative only.

*...and weak credit demand has seen banks scale back funding programmes.*

Weak credit demand has seen banks scale back funding programmes as expectations of balance sheet growth have fallen. As a consequence, there have been relatively few bond issues over the past six months, arresting the strong increase in bank bonds outstanding since 2005 (figure 4.7). Recent issuance has tended to be in local markets. Banks have been reluctant to issue term debt overseas given relatively unfavourable market conditions in the wake of geopolitical tensions in North Africa, the earthquakes in both Christchurch and Japan, and market concerns around certain European sovereigns and banks (see chapter 2).

**Figure 4.7**  
**Issuance and maturities of New Zealand bank bonds**



Source: Bloomberg.  
Note: Includes local and overseas issues reported on Bloomberg. Overseas denominated issues converted into NZD using exchange rate on issue date.

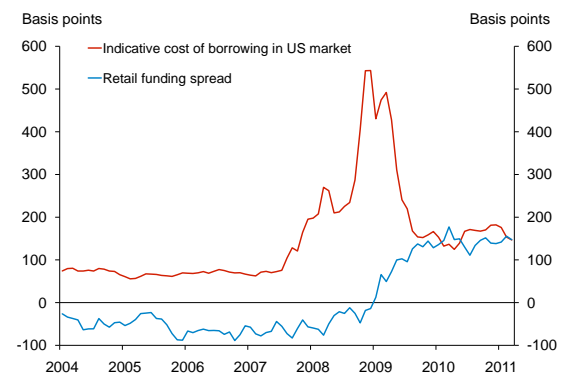
We expect bank bond issuance to pick up gradually as existing debt expires in the latter half of 2011. However, banks need to be conscious that the minimum core funding ratio is scheduled to rise to 75 percent in 2012. The major New Zealand banks have only recently started to issue significant amounts of debt in term markets and it may take time to expand the investor base. The commencement of covered bond programmes provides banks with an additional source of term funding.

*Funding costs remain elevated...*

Funding costs for the banking system remain elevated. Retail spreads have increased significantly since 2009, as pressure from rating agencies and new regulation encouraged

competition for retail deposits. Retail spreads are now similar to the spreads on long-term wholesale funding, which are much higher than prior to the global financial crisis (figure 4.8). As both funding sources are part of core funding, retail funding spreads are likely to remain correlated with wholesale funding spreads in the future.

**Figure 4.8**  
**Retail funding spread and indicative cost of long-term wholesale funding for New Zealand banks**



Source: Bloomberg, SSR.  
Note: The retail funding spread is the spread between the six-month deposit rate and the 180-day bank bill rate. The cost of long-term (5-year) wholesale borrowing is the cost of borrowing in US markets, estimated as the spread between AA-rated financial bonds and the government bond rate, plus the NZD basis swap.

*...although net interest margins are returning to more normal levels.*

The banking system net interest margin increased modestly over 2010, after trending down since 2003 (figure 4.9, p. 30). This downward trend initially reflected strong competition among banks seeking to grow loan books. The environment has now changed significantly – credit growth is weak and banks are more focused on ensuring that pricing adequately reflects credit risk. Net interest margins fell between 2008 and 2009 because funding costs increased faster than banks could pass them on to customers on fixed rates, but more recently banks have been able to reprice loans and push margins back up. As discussed in box C, the Bank continues to monitor the availability and pricing of credit provided by the banking system to the economy, as part of assessing financial system efficiency.

## Box C

### Understanding financial system efficiency

While this *Report* is primarily focused on financial system stability and soundness, as box A notes it is also a vehicle that the Reserve Bank is required by legislation to use to report on financial system efficiency. For example, in recent *Reports* we have given considerable attention to the extent to which the financial system was able to provide credit on acceptable terms to businesses while under pressure related to the global financial crisis. The soundness and efficiency implications of financial regulations introduced by the Reserve Bank are also regularly considered in these *Reports*.

Recently, the Bank has considered how a more systematic framework for analysing and reporting on financial system efficiency might be constructed. Clearly, it is important for a modern economy that the financial system is working efficiently. The financial system provides, among other things, a means to transact and settle financial obligations; a mechanism for pooling and allocating savings to productive uses; and ways of managing risk.<sup>1</sup>

In the aftermath of the global financial crisis policymakers are considering ways of making financial systems safer and more resilient to shocks. Since financial crises clearly create inefficiencies – through lost output, high unemployment and underutilised resources more generally – policies that promote financial stability have the potential to enhance the efficient allocation of resources over time. However, these same policies may impose costs on financial institutions during non-crisis periods. As a result, policymakers are balancing both financial system stability and efficiency considerations.

Efficiency concerns have also been prompted by the increase in market share seen by large financial institutions in several countries during the financial crisis, as a result of mergers and closures of some institutions, and the unwillingness of others to compete for new business

in the way seen prior to the crisis. In Australia and the UK, concerns that the financial system has become less competitive prompted the Australian Senate Inquiry into Banking Competition, and (to some degree) the UK Independent Commission into Banking. New Zealand's banking system is highly concentrated and contestability across the financial system may have further declined as a result of troubles in the non-bank sector and the reduced appetite of global banks to grow their New Zealand business.

The Bank's efficiency research to date has focused on developing a conceptual framework to assess and measure financial system efficiency in New Zealand, together with an initial attempt at understanding why our banking system appears to be relatively profitable compared to those in other countries. Our definition of efficiency and conceptual framework is outlined in figure C1. This starts with a list of the basic functions of the financial system, and defines the performance of the financial system with respect to its contribution to sustainable economic growth and welfare.<sup>2</sup> This can be divided into performance defined in terms of stability, and performance defined in terms of efficiency. As noted above, the relationship between stability and efficiency is complex, with soundness and efficiency coming into potential conflict in certain circumstances.

Our key interest is not in efficiency at an individual product level per se, but in economy-wide financial sector efficiency. However, direct measures of economy-wide financial sector efficiency (in the sense we define it) are not readily available. For this reason, concrete analysis is easier at lower levels of analysis, with a focus, for example, on comparing the efficiency of our banks to banks in other countries, or examining some of the specific functions of the financial system such as the payments system function, or particularly important financial products and services such as home loan availability and pricing.

<sup>1</sup> A fuller discussion of the Bank's efficiency research programme will be contained in a forthcoming *RBNZ Bulletin*.

<sup>2</sup> This list is taken from Merton, R and Z Brodie (1995), "A conceptual framework for analyzing the financial environment", in D. Crane et al (eds), *The global financial system: a functional approach*, Harvard Business Press, Boston.

Figure C1

A framework for understanding financial system efficiency

### *Functions of a modern financial system*

*Facilitating the allocation and deployment of economic resources across time and space, in an uncertain environment*

- Providing ways of clearing and settling payments to facilitate trade
- Mechanism for pooling resources
- Mechanism to transfer economic resources through time, across borders, among industries
- Way of managing risk
- Means of providing price information for decentralised decision making
- Means of dealing with incentive problems that make financial contracting difficult and costly

*Mediated by various market imperfections, frictions and failures.*



*Contribution of the financial system to sustainable economic growth and welfare.*

### *Assessing the financial system's contribution to economic growth and welfare – criteria.*

#### **Financial system efficiency**

- Allocating resources to their 'best use' (allocative efficiency)
- Performing functions in a cost effective manner (technical efficiency)
- Responding to changing consumer preferences and uncertainty through the development of new financial services and products (dynamic efficiency)

#### **Financial system stability**

- Smooth and sustainable allocation of resources across time and space
- Resilience to economic shocks
- Minimal disruption to the real economy from any impairment in the functioning of the financial system

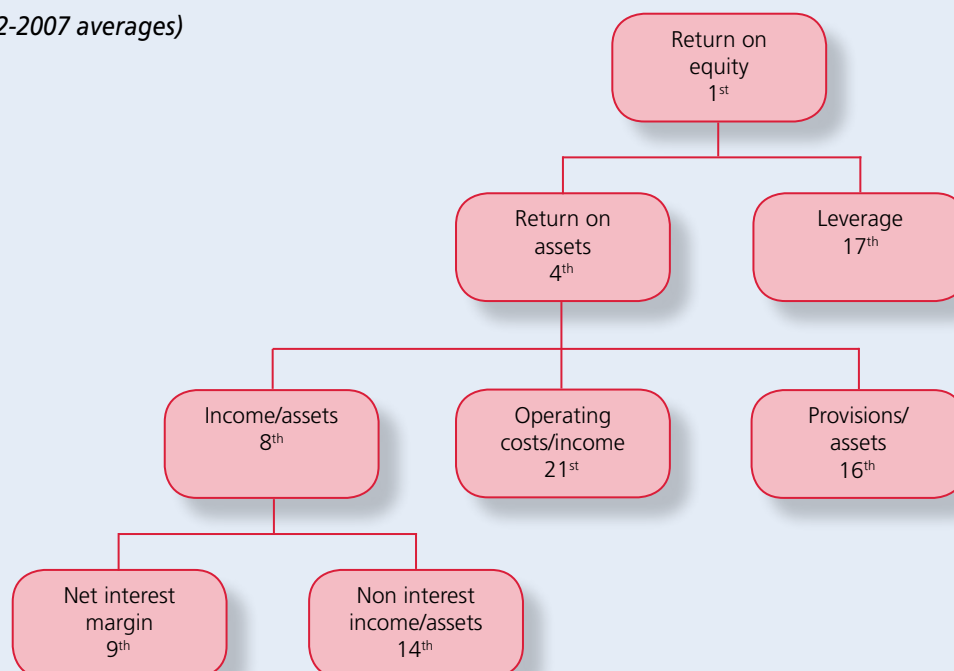


### *Assessing financial system efficiency – analytical levels.*

- Economic system – relationship between the financial sector and the real economy
- Financial system – relationship between financial institutions and markets
- Financial institutions or markets – eg comparing individual banks and banking systems across countries
- Financial activity – examining intermediation, or payments functions etc
- Financial products – eg residential mortgage lending margins, credit card interchange fees etc

Figure C2

Decomposition of return on equity: New Zealand banks' ranking relative to 22 OECD countries (2002-2007 averages)



Source: OECD, Australian Prudential Regulation Authority (APRA), RBNZ calculations.

Prior to the financial crisis other research has suggested that despite high levels of concentration, sufficient competition did exist and the financial sector was contestable given the reasonably low barriers to entry and exit.<sup>3</sup> However, the financial crisis may have changed the competitive dynamics across the New Zealand financial system as a whole given that finance companies and international banks are much less involved in new lending. It is also interesting to note that our capital markets remain small and are a limited alternative source of financing for SMEs in particular – factors potentially reinforcing the predominant position of the four major banks. The Bank will continue to monitor lending markets for any signs that this predominant position is affecting the availability or pricing of lending (see chapters 3 and 4 for more discussion of lending margins and loan availability). We also intend to analyse formal and informal barriers to entry

and exit in the current environment. This will include some of the reasons why customers might be reluctant to switch between existing financial services providers, something which may deter potential new entrants.

In recent years, the New Zealand banking system has appeared to achieve high rates of return on equity (ROE) by international standards. This can be explained, in an accounting sense, by relatively low operating costs and a limited need to make provisions for bad loans over the period surveyed, coupled with reasonably healthy margins (figure C2). However, there are difficulties in comparing accounting metrics like this across countries. It is also interesting to note that, as in Australia, ROE for the bank sector is not that high relative to that achieved by some locally listed companies.

The profitability (ROE) of the New Zealand banking system is an important efficiency indicator, because the scale of the major banks almost certainly gives them cost advantages (for example in wholesale funding markets). If the major banks did not vigorously compete, these cost advantages might lead to inefficiently large profits for the sector via excessive margins on lending. For these

<sup>3</sup> For example: NZIER (2002), *Competition and efficiency in banking services: some economic perspectives on New Zealand conditions*: report to the RBNZ, March; and NZIER (2004), *The performance of the New Zealand banking sector: report to the Reserve Bank of New Zealand*, 26 November.

reasons we will continue to analyse the data and related arguments made above. We will also consider product-level lending margins directly. For example, we have already considered home loan margins, which do not seem out of line internationally. This likely reflects the fact that banks do compete quite vigorously in that market.

Looking ahead, as we will discuss in more detail in a forthcoming *Bulletin* article, we intend to continue to develop this framework and use it to consider financial sector efficiency in a more formal way, including in future *Reports*.

**Figure 4.9**  
New Zealand retail banks' net interest margins  
(3-month average)



Source: GDS, Net Interest Margin Survey.

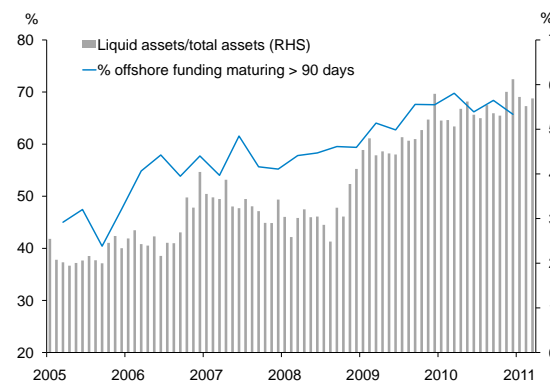
*Banks have significantly reduced their exposure to rollover risk...*

Banks have made significant progress in addressing their vulnerability to short-term disruptions in key external funding markets. The proportion of bank offshore funding not maturing for more than 90 days has increased from around 45 percent in 2005 to around 65 percent at the end of 2010, as banks work to boost their core funding ratios (figure 4.10). Alongside this reduced reliance on short-term funding, banks have significantly increased their holdings of liquid assets to help buffer against short-term funding disruptions. Both of these developments have contributed to banks currently having liquidity mismatch ratios that are better than the minimum standards set out in the Reserve Bank's liquidity policy.

*...and capital positions remain strong.*

The capital positions of locally incorporated New Zealand banks remain strong. Banks are all compliant, or in a few cases nearly compliant, with the new and stricter Basel III

**Figure 4.10**  
Rollover risk and liquid assets



Source: Statistics New Zealand, SSR.

standards (which will not be fully in force internationally for at least five years, see chapter 6 for more discussion in the New Zealand context). The subsidiaries of the major Australian banks have continued to increase their capital levels, focusing on relatively high quality capital. Tier 1 capital ratios have increased from an average of below 8 percent of risk-weighted exposures in 2007 to almost 10 percent at the end of 2010 (figure 4.11, p. 33). The capital positions of the smaller locally incorporated banks also remain strong.

The Australian parents of the major banks have weathered the financial crisis well, having recently returned to pre-crisis levels of profitability and bolstered their already solid capital positions. Consequently, the Australian parents would be well placed to provide capital support to the New Zealand subsidiaries if the need arose. The Australian Prudential Regulation Authority (APRA) has recently conducted stress tests of these banks and their New Zealand subsidiaries. The tests indicated that current capital buffers should serve to withstand material deterioration in macroeconomic and financial conditions (box D).

## Box D

### Recent stress tests of the major New Zealand banks

Stress testing – producing estimates of how the financial system would perform under adverse conditions – is one tool used by the Reserve Bank in assessing the health and vulnerability of the New Zealand financial system.

It is possible to perform stress tests using stylised models of the exposures of the financial system. For example, the Reserve Bank maintains a simple credit risk model of New Zealand housing loans made by banks. This produces estimates of the losses that may occur on bank residential portfolios under certain macroeconomic assumptions.

A contrasting form of stress testing involves giving a macroeconomic scenario to financial institutions, and getting them to produce estimates of how their loans and other exposures would perform under that scenario. A range of stress tests of this sort were run in the New Zealand system during 2003, and reported in the October 2004 *Financial Stability Report*. Financial institutions are also expected to run stress testing exercises on an individual basis, as part of prudent credit risk management.

Recently, APRA led a system stress testing exercise for the Australian banking system, and included the four major New Zealand banks (since they are significant portions of their parent bank's balance sheets). This allowed New Zealand results for the major banks to be compared to the Australian results for the parent banks.

As a recent APRA article describes,<sup>4</sup> the scenario assumed that the economic downturn associated with the global financial crisis deteriorated further from the middle

of 2009, and more severely impacted key economies (such as China) which had remained resilient up to that point. This was assumed to lead to sharp falls in commodity prices, severe domestic recessions in Australasia, and sharp falls in asset prices. Since New Zealand was already in recession in mid-2009, the peak to trough impact on New Zealand variables was relatively large. For example, GDP fell about 5 percent peak to trough in the scenario, while house prices fell nearly 30 percent.

The four major New Zealand banks maintain credit risk models which are able to produce estimates of loss under stress scenarios, although some element of judgement will likely still be required in an exercise like this. Differing methods and judgements can make results differ across banks, and it is common for the architects of a system-wide stress test to double check results by then imposing a common set of assumptions about the deterioration in credit quality. As the APRA article explains, this 'phase 2' was conducted in the APRA stress test, and the results below are presented on that harmonised basis.

Figures D1 to D4 show aggregate stress test results for the four major New Zealand banks. They follow the same order as the Australian result charts in the APRA article and can be compared with those results. Some key results are as follows:

- The profile of return on assets (figure D1) for the major New Zealand banks is similar to that for the Australian banks. The banks' average return on assets across the three years is near to zero (and slightly worse than the equivalent Australian figure).
- The weak return on assets reflects significant loan losses over the three years (figure D2). Residential mortgages (which represent about half of all New

Table D1

#### Stress scenario used for New Zealand in APRA stress test

	2009/10	2010/11	2011/12
GDP growth (annual)	-2.3	3.0	3.0
Unemployment rate (percent)	9.8	9.7	8.9
House price growth (annual)	-11.4	-6.6	0.3

<sup>4</sup> Tattersall, P (2010), "Stress-testing for authorised deposit-taking institutions", *APRA Insight*, Issue 2.

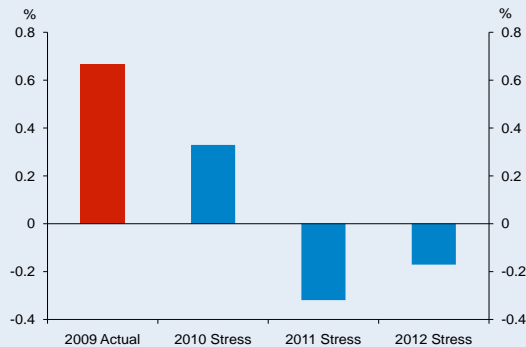
Zealand lending) are relatively resilient. Losses come more from SME (including farm), corporate, and commercial property lending. This is also true in Australia, where overall losses are slightly lower.

- The capital ratios of the major New Zealand banks are reduced by these losses. Capital ratios are also reduced as loans are reclassified as riskier (so that risk weighted assets expand). This re-weighting turns out to have a larger impact than the losses (figure D3). Across the four banks, the Tier 1 capital ratio falls from around 9.5 percent to 6.2 percent across the three years (figure D4). This aggregate movement (3.3 percentage points) is very close to the equivalent Australian figure (3.1 percentage points).

It is important to note that these are 'gross' test results that exclude any mitigation action that banks may have taken during a real stress event. In reality, banks would have looked to raise additional capital and restructure lending (eg asking some customers to reduce borrowing and/or raise additional equity) in order to mitigate the impact on capital ratios.

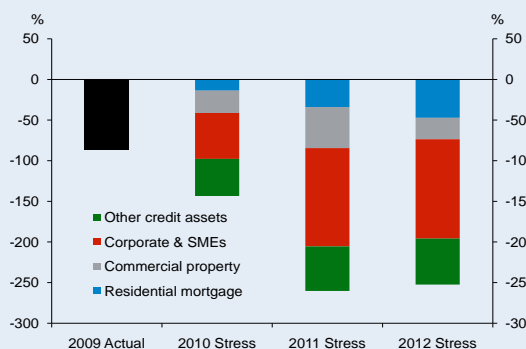
Overall, these results suggest the major Australasian banks would be able to withstand a substantial and unexpected deterioration in the economic environment. Looking forward, the Reserve Bank will continue to monitor internal stress testing done by New Zealand banks. At some point in the future we are likely to conduct a further system-wide test including all New Zealand incorporated banks.

**Figure D1**  
New Zealand major bank profits in stress scenario  
(profit before tax as percent of total assets)



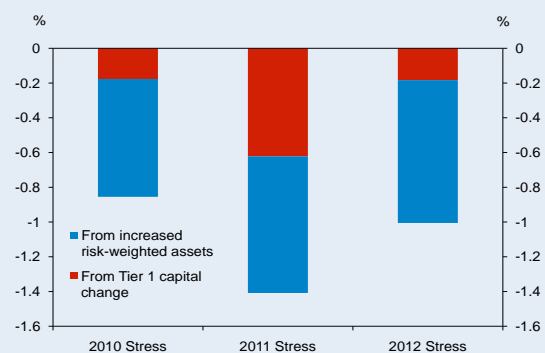
Source: APRA.

**Figure D2**  
New Zealand major bank bad debts by loan type in stress scenario  
(relative to 2009 net profit before tax)



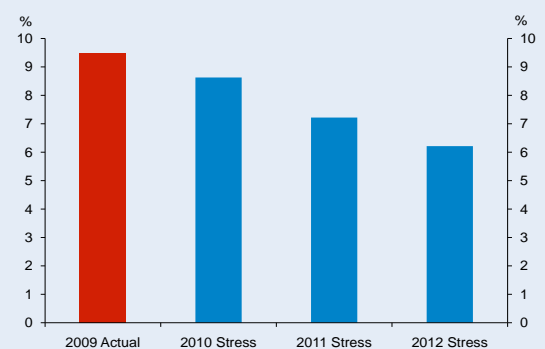
Source: APRA.

**Figure D3**  
New Zealand major bank Tier 1 capital ratio change  
(stress scenario, percent of risk-weighted assets)



Source: APRA.

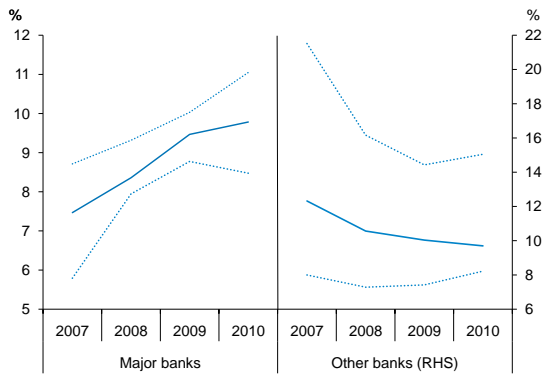
**Figure D4**  
New Zealand major bank Tier 1 capital ratios  
(stress scenario, before mitigation actions)



Source: APRA.



**Figure 4.11**  
**New Zealand bank Tier 1 capital ratios**  
*(locally incorporated banks, figure shows weighted average and range)*



Source: GDS.  
 Note: 'Major' banks refers to the New Zealand subsidiaries of the four major Australian banks. 'Other' banks comprises Rabobank New Zealand Ltd, Kiwibank Ltd, Southland Building Society, TSB Bank Ltd. Calculations exclude institutions with less than \$100 million of assets.

## 4.2 Non-bank sector

*The non-bank sector has been through a period of rationalisation...*

The non-bank sector has shrunk significantly since 2006, due to the failure of a large number of deposit-taking finance companies. A common feature of many companies that failed was a heavy reliance on lending for property development. The institutions that continue to operate in the sector tend to be less involved in this form of lending (figure 4.12). This includes savings institutions (ie building societies and credit unions), which focus on retail lending, and non-deposit taking finance companies. Both of these sectors are now larger than the surviving companies in the deposit-taking finance company sector. Remaining finance companies are increasingly focused on more stable markets such as lease finance.

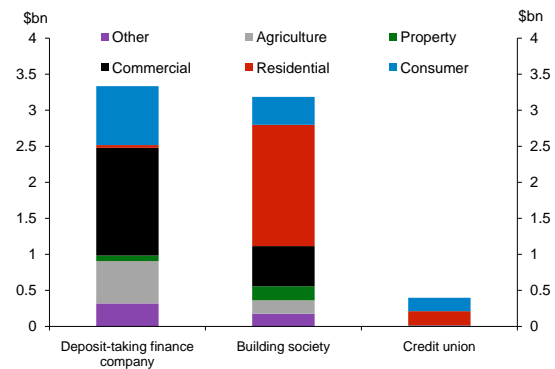
*...and regulation in the sector is being gradually introduced.*

Many surviving non-banks returned to profitability in 2010. Savings institutions have shown the strongest performance reflecting an improvement in net interest margins, and a reduction in bad debt expenses as non-performing loans have begun to plateau. By contrast, many deposit-taking

finance companies are continuing to work through legacy problems with asset quality, which has inhibited profitability.

The majority of those remaining in the sector have reasonable capital positions (figure 4.13) and better risk and liquidity management practices. On 1 December, the Reserve Bank introduced regulations on capital levels, liquidity regulations, governance requirements and restrictions on related party exposures (disclosure requirements are still being worked on – see chapter 6 for further details). The new regulatory framework will reinforce institutions' own resolve to improve their ability to withstand future crises in light of recent finance company failures.

**Figure 4.12**  
**Composition of non-bank assets**  
*(as at February 2011)*



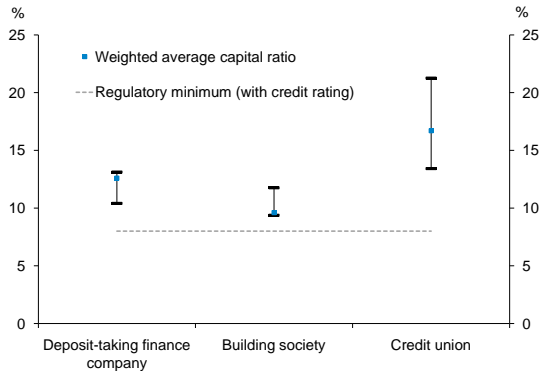
Source: NBDT regulatory returns.

The cost of becoming compliant has created incentives for mergers and acquisitions to achieve scale and loan book diversification. Recently, there have been some examples of mergers, including the merger of Marac Finance Ltd with the Canterbury and Southern Cross Building Societies. In addition to becoming compliant with new regulations, the non-bank institutions that are currently part of the extended retail deposit guarantee scheme will need to manage their exit carefully as the scheme expires in December 2011.

*Lending is likely to remain weak.*

Given the focus on restructuring, lending by the non-bank sector has remained very weak, particularly lending by finance companies (figure 4.14). Difficult funding conditions have also contributed to weak lending growth. In particular, non-banks have experienced heightened competition for funding as banks have significantly increased efforts to attract retail

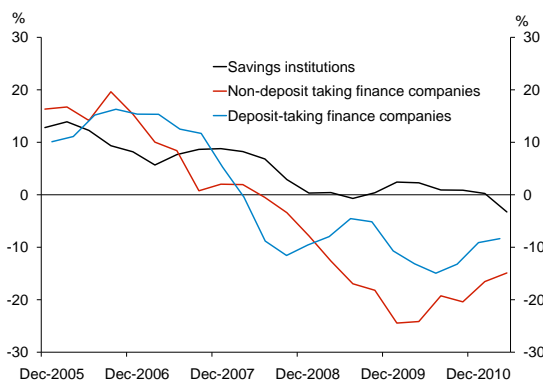
**Figure 4.13**  
**Regulatory capital ratios of non-banks**  
*(percent of risk-weighted exposures, figure shows weighted average and range)*



Source: NBDT regulatory returns.  
 Note: As at February 2011. The regulatory capital ratio without a credit rating is 10 percent. Maximum and minimum capital ratios exclude institutions with less than \$100 million of assets.

deposits. Confidence in the deposit-taking finance company sector has been dented by the large number of failures over the past four years, so that funding conditions have been particularly difficult for these companies. Non-deposit taking finance companies have also continued to reduce overall lending.

**Figure 4.14**  
**Non-bank lending**



Source: SSR.  
 Notes: Annual percent change. Series break adjusted.

### 4.3 Insurance sector

The Canterbury earthquakes have resulted in exceptionally high levels of claims, both in terms of quantity and cost, particularly for property insurers. Insurers will be directly liable for some of this cost but the majority of claims will be covered by reinsurance. This will test the adequacy of reinsurance arrangements and the Reserve Bank is

monitoring developments closely as the cost of claims becomes better known.

Despite the substantial use of reinsurance, the size of the earthquake has created doubts about the ability of one of the larger local insurers, AMI, to meet its claims. Without the government support package that has been announced, the associated uncertainty could have disrupted the rebuilding of Christchurch by delaying (and possibly reducing) payouts to AMI customers. Uncertainties would also have been created for AMI customers outside Christchurch, and for the broader insurance sector. For these reasons, the Reserve Bank supported the Government's decision to assist AMI.

While it was in some ways a very unusual event, in undertaking its new role as regulator of the insurance sector the Reserve Bank will naturally consider lessons from the Christchurch earthquake. As discussed in chapter 6, the Reserve Bank is currently processing licensing applications from insurers. The Reserve Bank's assessment so far is that the insurance sector overall is sound and functioning well. However, some insurers may fall short of the standards expected under the new licence requirements, and this could lead to some industry consolidation and exits. One insurer, Western Pacific Insurance, became insolvent in the reporting period and has been placed into liquidation.

The cost of reinsurance has been falling in recent years on a global basis and this trend reflects a general over-capacity in the reinsurance market. Alongside the Canterbury earthquakes, reinsurers are also facing costs from other major catastrophes including the earthquake and tsunami in Japan and floods in Australia. The cumulative impact from these events will significantly reduce reinsurers' profits for the year. It is not yet known if the elevated claims will result in an increase in the price of the insurance. However, regions impacted by catastrophes have typically been subject to an increase in the cost of reinsurance and a tightening of the terms on which cover is made available. It is likely that New Zealand will have a similar experience, particularly in regard to earthquake cover.

## 5 Payment and settlement systems

Key payment systems have continued to operate satisfactorily in recent months, with contingency arrangements successfully used to minimise the impact of two recent incidents. The recent downward trend in ESAS transaction volumes seems to have come to an end, and NZD volumes in CLS have also been strong recently. The new NZCDC system has continued to experience some problems, but availability has improved more recently. Retail payment systems have operated well, even in the face of the February earthquake. The Reserve Bank and international agencies continue to work to increase the robustness of payment systems and other financial market infrastructure.

### *Payment and settlement systems have continued to function satisfactorily.*

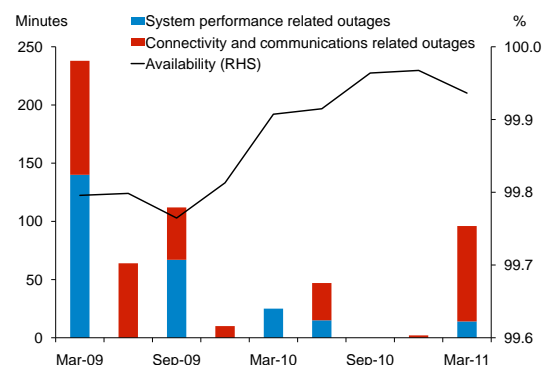
The continued smooth operation of the financial system and of the economy more generally requires that the payment and settlement infrastructure operates effectively. New Zealand's key payment and settlement systems have continued to do so. Payments and settlements have been successfully completed even in the face of incidents that have disrupted the normal operation of some systems.

In terms of the total value of transactions settled, the Exchange Settlement Account System (ESAS) and the Continuous Linked Settlement (CLS) system are the two most important payment systems.<sup>1</sup>

While during 2010 the overall availability of the ESAS/NZClear system improved with no significant outages occurring, this trend was halted by two incidents in March.<sup>2</sup> However, the response by the system operator and the contingency arrangements in place meant that payments were still completed. The successful use of contingency arrangements was particularly important on one of the two

occasions when normal functioning was disrupted because the disruption to ESAS coincided with the settlement period for the CLS system. Inability to settle large value New Zealand dollar payments during that period would have disrupted the normal settlement of the foreign exchange transactions, not just of New Zealand banks but also of overseas institutions. ESAS infrastructure is duplicated across Auckland and Wellington in case of a failure at one site. Thus the February earthquake did not materially influence ESAS availability.

**Figure 5.1**  
ESAS/NZClear availability and outages



Source: RBNZ.

Note: Availability is the percentage of core business hours that the system was fully available to all users over the 12 months to the current period.

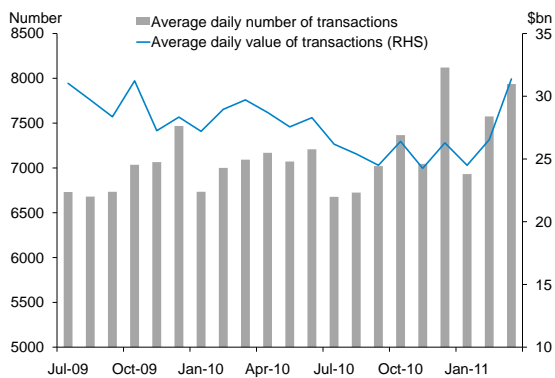
<sup>1</sup> ESAS is owned and operated by the Reserve Bank. It is the system through which inter-bank settlement occurs. CLS is an international system used to settle foreign exchange trades in 17 major currencies.

<sup>2</sup> NZClear is a securities settlement system operated by the Reserve Bank that is technically linked to ESAS. ESAS and NZClear availability are reported together because of the close links between the two systems and because that is the way that the system operator reports.

*Transaction volumes are rising.*

Over 2010, there was a continuing downward trend in the average daily value of transactions settled in ESAS, largely reflecting subdued trading of the New Zealand dollar in foreign exchange markets. This trend appears to have come to an end with the average daily value settled rising in recent months (figure 5.2).

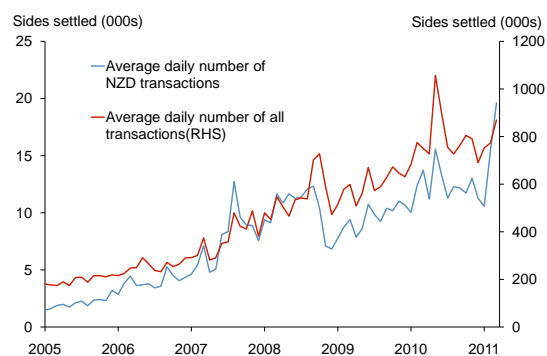
**Figure 5.2**  
**ESAS transactions**



Source: RBNZ.

The CLS system is important for the management of foreign exchange settlement risk by New Zealand banks. The number of transactions settled within this system (both for all currencies and for the New Zealand dollar individually) has shown steady growth (figure 5.3). As noted in the previous Report, trading activity in international markets soared in May 2010 as these markets experienced a volatile period with market participants reacting to uncertainty about sovereign debt levels. As a result, there was a significant increase in the number of foreign exchange transactions submitted for settlement in the CLS system. Since then the

**Figure 5.3**  
**CLS transactions**



Source: CLS Bank.

number of transactions settled by the CLS system has been lower, but still above levels seen before the commencement of the global financial crisis (figure 5.3).

The CLS System has operated without serious disruption and has continued to settle all transactions within standard timeframes. New Zealand dollar transactions were very substantial in March, likely reflecting earthquake insurance related flows and a volatile month for the NZD. These influences also contributed to the stronger ESAS volumes mentioned previously.

Another important part of the New Zealand payment and settlement landscape is the NZCDC settlement system used for settling trades on NZX markets. NZCDC is the only securities settlement system to have been declared a designated settlement system since the scope of designation was broadened by amendments to the Reserve Bank of New Zealand Act in 2009.<sup>3</sup> The system is therefore subject to ongoing oversight by the Reserve Bank and the Financial Markets Authority.

The NZCDC system commenced operations in September 2010 and since being established has settled trades averaging in total value around \$100 million a day.

The system has experienced a number of technical problems since commencing operations. The two most significant incidents occurred in September and December last year and resulted in the system being unavailable for several hours. However, on both occasions settlement of the transactions due to be settled on the day of the outage was still completed, albeit somewhat later than usual. The overall availability of the system has improved more recently.

*Payment systems handled the earthquake well.*

While the systems used for interbank settlement and the settlement of financial market transactions (large value systems) are at the heart of the financial system infrastructure, the payment systems that process smaller value payments such as cheques, electronic debits and credits and EFTPOS transactions (retail payment systems)

<sup>3</sup> ESAS and the CLS System were designated under the previous provisions that allowed for the designation of payment systems. These systems remain designated but as 'pure payment systems' are regulated only by the Reserve Bank.

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play a very important role in supporting economic activity more generally. With no major payment and settlement infrastructure and few users of large value systems being based in Christchurch, it was the retail payment systems that were most affected by the February earthquake. For around two hours immediately following the earthquake some businesses connecting to the EFTPOS systems using ordinary telephone lines experienced some processing delays as the telephone networks experienced a large spike in calling volumes. The affected businesses were smaller enterprises and the problems were intermittent. Generally the two EFTPOS systems (Paymark and EFTPOS NZ) remained available as normal to businesses that had a working terminal, electricity and telecommunications links.

#### *Work to reduce payment system risk continues.*

The banks and the Reserve Bank have continued to progress the implementation of the settlement before interchange (SBI) arrangements. SBI aims to eliminate inter-participant settlement risk in the retail payment system by having transactions settled at the same time that payment details are exchanged. With some banks having incurred delays with their internal projects, the target date for the implementation of SBI is now expected to be late 2011 or early 2012.

In March, the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organisation of Securities Commissions (IOSCO) released for consultation revised principles for financial market infrastructure. The draft principles are the result of a review of the existing sets of international standards covering systemically important payment systems, securities settlement systems and central counterparties (CCPs). The CPSS and IOSCO are seeking to consolidate those previous standards into one clear set of principles that apply to payment and settlement systems, CCPs and trade repositories and to strengthen the standards in some areas. The Reserve Bank is reviewing the proposed standards and we will consider incorporating them into our oversight of payment and settlement systems once they have been finalised.

As discussed in the May 2010 *Report*, one aspect of the international discussions on improving the resilience of the financial system has been consideration of the role that financial market infrastructure can play in better managing systemic risk. Steps have now been taken in several countries to encourage or require over-the-counter derivatives to be cleared through CCPs. The Reserve Bank is monitoring developments with a view to determining the implications for New Zealand financial institutions and any action that may be required to ensure that those institutions have access to appropriate clearing and settlement arrangements for financial instruments.

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## 6 Recent developments in financial sector regulation

The Reserve Bank has developed a set of principles to guide our response to the evolving international bank regulatory framework (Basel III). In general, we expect to adopt Basel III standards, in many cases ahead of the Basel Committee's timetable, with some adaptation to suit local conditions. The Reserve Bank is also beginning work on bank pre-positioning for Open Bank Resolution (OBR), to help ensure OBR is an effective option for failure resolution in the future. The Bank continues to consider prospects for macroprudential policy, with a March conference and recent speech addressing the area.

Other elements in the Bank's regulatory work programme include a framework for covered bonds, revised capital adequacy requirements for farm lending, and new streamlined disclosure requirements for the banking sector. The Bank is also working on disclosure requirements for non-bank deposit takers (with the Ministry of Economic Development), anti-money laundering regulations, and the new licensing regime for insurers.

### International regulatory framework (Basel III)

In December 2010 the Basel Committee on Banking Supervision (the Basel Committee) released the new 'Basel III' global regulatory standards for bank capital adequacy and liquidity as endorsed by G20 leaders at their November 2010 summit.<sup>1</sup>

For now, the Basel II framework still forms the basis of the Reserve Bank's current minimum capital requirements for New Zealand banks. However, New Zealand banks are generally well placed with respect to the Basel III capital regime as their capital holdings generally substantially exceed Basel II minimum requirements. This outcome is consistent with the expectations of the Reserve Bank and of other stakeholders such as rating agencies and providers of wholesale funding.

Our approach to implementation of Basel III will be guided by the following principles:

#### *General principles*

- Although New Zealand banks' capital is generally well above current formal minimum requirements, we do not wish to see any material weakening of capital positions ahead of the formal adoption of new standards.
- We generally support the strengthening of international capital standards and we expect to adopt most of the Basel III standards.
- We will adapt the Basel III standards, as necessary, to ensure a suitable fit for New Zealand conditions.
- We will seek to coordinate our Basel III policy and implementation with APRA.
- We will undertake an economic impact assessment of the Basel III proposals and will consult with New Zealand banks prior to finalising our Basel III policy.
- Many jurisdictions are likely to implement Basel III ahead of the Basel Committee's timetable, and we expect to do likewise.

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<sup>1</sup> Chapter 6 of the November 2010 Report provides a summary of the Basel III standards.

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### Liquidity requirements

- While our liquidity policy is different in form to Basel III, the substance is similar, and we do not propose to modify the policy in the near term.
- We will continue to monitor how our liquidity policy aligns with the global standard (which is still not finalised), and with APRA's liquidity requirements.

### Leverage ratio

- As the leverage ratio is not risk based, it can provide a misleading picture of risk.<sup>2</sup> However, we will explore practical issues with the ratio before making a final decision on whether to implement in New Zealand.

The Reserve Bank will be developing its Basel III policy during 2011 and we plan an initial consultation later this year.

## Open Bank Resolution

A consultation paper on pre-positioning for Open Bank Resolution (OBR) was released by the Reserve Bank in March 2011. OBR is an option which the Government and Reserve Bank could use to ensure a troubled bank is open for business on the next business day after its temporary closure following an insolvency event. OBR is intended to provide customers with full or partial access to their accounts and other bank services without the necessity of government bailout.

The OBR policy provides for continuity of core banking services to retail customers and businesses, while placing the cost of a bank failure primarily on the bank's shareholders and creditors rather than the taxpayer. A fully pre-positioned OBR policy will therefore help to manage any perceived implicit public guarantee.

OBR is a key feature of the Reserve Bank's failure management toolkit. The Reserve Bank developed the OBR policy following a review of its crisis management policies and instruments after the 1997 Asian financial crisis. Significant

work has been undertaken in recent years to ensure that the structure of financial institutions in New Zealand and the payments system are consistent with the implementation of OBR as a live policy option. Major Reserve Bank policies such as outsourcing, local incorporation and governance were designed to facilitate the implementation of OBR. The pre-positioning of banks' internal systems, to ensure that an effective open bank resolution can be implemented within the necessary timescales, represents the next stage in that implementation process.

The Reserve Bank has proposed that the pre-positioning requirement be mandatory for all locally incorporated banks with retail funding of over \$1 billion. The outcomes that will need to be met by the pre-positioning exercise are discussed in the consultation paper. The consultation represents the first stage of the pre-positioning process, seeking views on the practicality of meeting required outcomes and the costs and timing of the implementation of pre-positioning.

The Reserve Bank has set banks a deadline of 30 June 2011 to respond to the consultation paper. During this initial period the Reserve Bank expects to have discussions with the banks to clarify policy or the expected pre-positioning outcomes. Banks are then asked to present their pre-positioning work plan by the end of the year. Phase two would be the actual pre-positioning implementation, ie development, implementation and testing of the systems' upgrade. This is expected to be completed by the end of 2012.

## Updates on other policies

### Covered bonds

As outlined in the last *Report*, the Reserve Bank supports the issuance of covered bonds by New Zealand banks. The Reserve Bank consulted on a regulatory framework to support the development of covered bonds by New Zealand banks in October 2010. In January 2011 the Reserve Bank announced its decision to set a regulatory limit to constrain the issuance of covered bonds. Under the new limit, no bank is allowed to encumber more than 10 percent of its total assets for the benefit of covered bondholders. This limit was formalised within the banking supervisory framework through new Conditions of Registration for all locally-

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<sup>2</sup> In the Basel III context, the leverage ratio is defined as capital as a percentage of total exposures (total exposures is a measure of assets). The Basel III framework includes precise definitions of capital and total exposures for the purposes of calculating the leverage ratio.

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incorporated banks on 1 April 2011. The Bank intends to review the appropriateness of this limit within two years.

The Reserve Bank is continuing to work on the development of the wider regulatory framework, including legislative changes to provide additional certainty to investors, and disclosure requirements. We expect to finalise the framework by the end of 2011.

### *Capital adequacy requirements for farm lending exposures*

The four largest banks in New Zealand were accredited to operate as 'internal models' (IM) banks under the Basel II capital framework which took effect from 2008. Under this approach, banks are allowed to use their own models as a basis for determining their minimum capital requirements, subject to their models being accredited by the Reserve Bank. At the time they were accredited, the Reserve Bank advised IM banks that the models they applied to New Zealand farm exposures were inadequate and would be further reviewed post-accreditation. In cases where models were insufficiently conservative, it was necessary to require banks to hold additional capital pending this further work.

The Reserve Bank has recently consulted on new farm lending capital requirements. The new requirements will better take into account the possibility of large falls in farm land prices and the homogeneity of farm lending exposures. The new requirements will also reflect the Reserve Bank's view that contractual maturity is not a significant driver of corporate loan systemic risk. These new capital requirements will take effect for IM banks from 30 June 2011.

### *Macroprudential policy*

As outlined in a recent speech,<sup>3</sup> the Bank continues to consider possible macroprudential tools and instruments. The Bank's analysis of the likely efficacy of macroprudential tools suggests that they are unlikely to stop credit cycles, but may have some ability (where well applied) to reduce the peaks and troughs of those cycles. In general, tools are likely to be more effective at building resilience for downturns

rather than curbing credit booms. Active macroprudential policy needs to be evaluated against more mechanistic or 'rule based' policy and the costs and benefits of macroprudential policy need to be more carefully evaluated. It is worth remembering that sound microprudential policy (including many of the Basel III initiatives noted above) can also potentially limit the cyclical nature of lending by increasing scrutiny on bank management. For example, higher capital ratios within financial institutions increase the incentive for shareholders to monitor bank credit origination decisions and policy. OBR gives similar incentives to bank creditors.

### *Other banking sector policies*

Since the last *Report*, the Reserve Bank's corporate governance policy for banks has been finalised and brought into effect through new Conditions of Registration for all locally incorporated banks from 1 April 2011, after which a one-year transition period applies. This policy is aimed at reinforcing the expectation that overseas-owned locally incorporated banks will operate independently, in a way more likely to protect New Zealand's financial stability in a crisis. Comments received during consultation, and a regulatory impact assessment, are available on the Reserve Bank website.

The Bank Disclosure Review described in the last *Report* has also been completed. Two new Orders in Council related to disclosure, published in the *New Zealand Gazette* of 28 February 2011, implement the changes which take effect for reporting periods ending 31 March 2011. The Reserve Bank has permitted banks to delay their implementation of the new requirements by up to six months. In the medium term, disclosure requirements for the banking sector may be further reviewed based on the outcome of the Securities Law Review that is under way. The Reserve Bank will also be considering whether any additional prudential private reporting is required, in light of the revisions to the disclosure regime.

The Reserve Bank is also progressing with the implementation of the prudential liquidity policy. Last year when the liquidity policy was introduced, the Core Funding Ratio (CFR) was set at 65 percent. At that time the Reserve Bank indicated its intention to increase the ratio in two steps

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<sup>3</sup> Bollard, A (2010), "Where we are going with macro and micro-prudential policies in New Zealand", speech to the Basel III Conference, Sydney, 25 March, <http://www.rbnz.govt.nz/speeches/4327011.html>



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in July 2011 and July 2012 to 70 percent and 75 percent respectively. The Reserve Bank is close to finalising the first of these step increases. The effect of a higher CFR will be to extend banks' funding profile and reduce their exposure to short-term debt markets.

In December 2010, the Reserve Bank consulted on a proposal for a new significant acquisitions policy for locally incorporated New Zealand registered banks. The proposal was that banks would be required to obtain a notice of non-objection from the Reserve Bank before undertaking a significant acquisition. The policy aims to ensure that the Reserve Bank has adequate information and tools to assess any risks arising from significant acquisitions; and provide greater certainty to banks as to which acquisitions may give rise to concerns. The Reserve Bank is considering submissions on the discussion document with the intention of finalising the policy this year. The Reserve Bank is also reviewing its policy on dual registration of a branch and a locally incorporated subsidiary of an overseas parent bank. A further consultation paper on proposed policy changes will be released shortly.

### *Non-bank deposit-taker regime*

The Reserve Bank and the Ministry of Economic Development have been working together to develop disclosure requirements for non-bank deposit takers (NBDTs). Disclosure of prudential information is necessary for greater transparency of an NBDT's risks, allowing investors to make more informed investment decisions. Proposed disclosure requirements for the sector are set out in the consultation paper released on 21 April 2011. The proposals include a set of standardised prudential disclosures to enable easy comparison of risks across the NBDT sector. The proposed prudential disclosures will contain different layers of information to cater for different levels of investor financial literacy. Submissions to the consultation are due by 19 May 2011.

The Reserve Bank has also undertaken consultation on a second NBDT Bill to complete the legislative framework for the Bank's regulation of the NBDT sector. As noted in the last *Report*, we expect this Bill to be introduced to Parliament in 2011.

### *Anti-money laundering regulations*

The Anti-Money Laundering and Countering Financing of Terrorism Regulations 2011 are expected to be gazetted soon. These regulations form an important part of the new regime as they will require all institutions covered by the Anti-Money Laundering and Countering Financing of Terrorism Act 2009 (the Act) to comply with the Act by the date set out in regulations. The regulations also set out the applicable thresholds and definitions for the application of obligations in the Act, the scope of simplified due diligence and a series of regulatory exemptions.

In March 2011, the Reserve Bank published a Sector Risk Assessment for registered banks, non-bank deposit takers and life insurers that it supervises. This Sector Risk Assessment sets out the Reserve Bank's views on the risk of money laundering faced by these entities and provides guidance to reporting entities on the specific risks that are relevant to their sector. The Reserve Bank also plans to issue industry guidance this year regarding the risk assessments that institutions will be required to undertake.

### *Insurance licensing*

The Reserve Bank is progressing with implementation of the new prudential supervision regime that came into force through the Insurance (Prudential Supervision) Act 2010. Insurers have begun the process of providing the Reserve Bank with licensing information. This process is also helping the Reserve Bank monitor the soundness of the sector. The Reserve Bank expects upwards of 150 licence applications, which should be received by 30 June 2011. The regime will be fully in place by September 2013. Licensing requirements include suitability of senior personnel, appropriate risk management policies and compliance with solvency standards.

# Graphical appendix<sup>1</sup>

## International

Figure A1a

Real GDP growth  
(annual percent change)

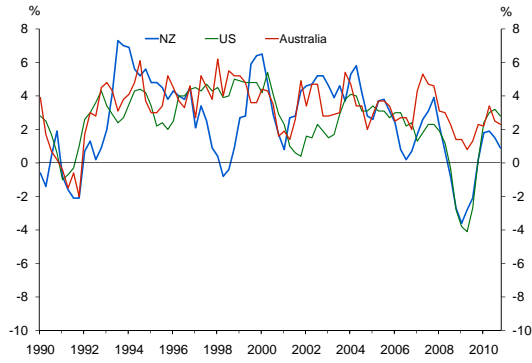


Figure A1b

Real GDP growth  
(annual percent change)

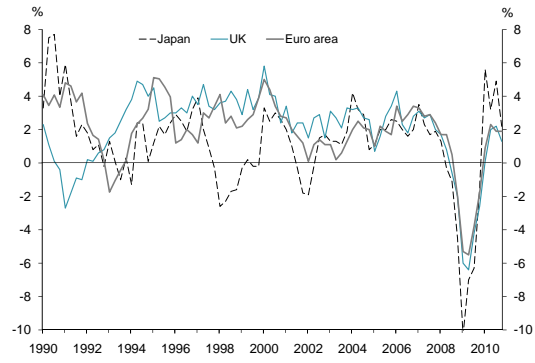


Figure A2a

Current account balance

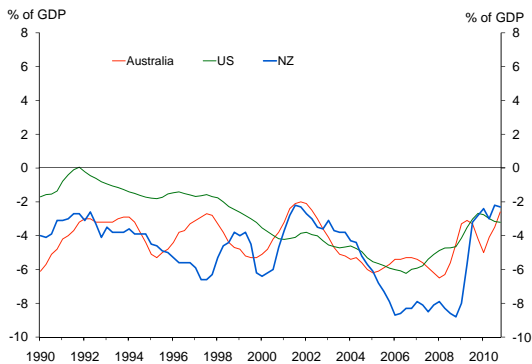


Figure A2b

Current account balance

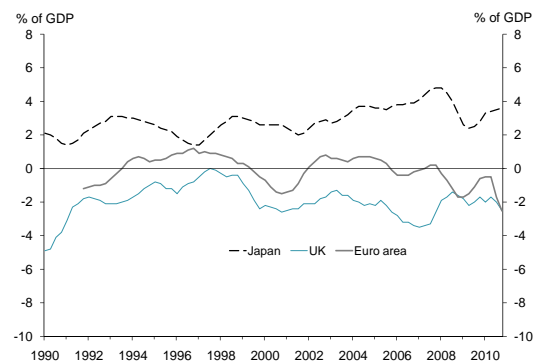


Figure A3

Trade-weighted exchange rate indices

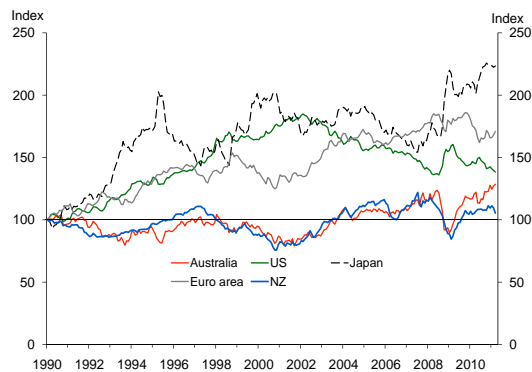
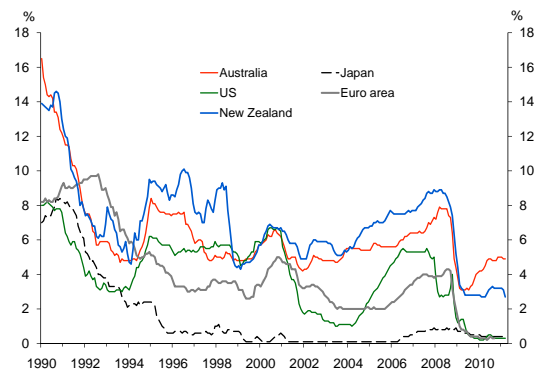


Figure A4

Short-term interest rates



<sup>1</sup> The data contained in this appendix were finalised on 22 April 2011. Definitions and sources are listed on pages 49-50.

## Asset prices

Figure A5  
Equity market indices

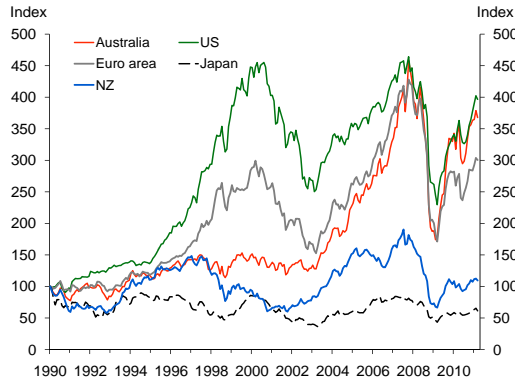
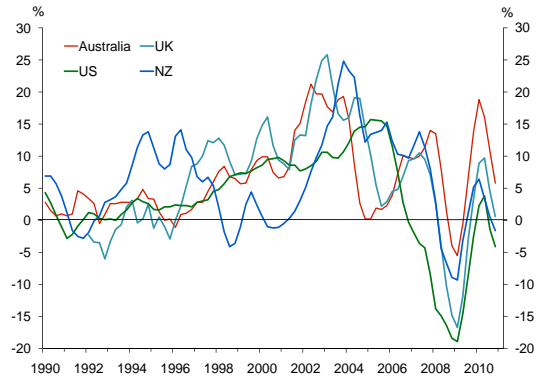


Figure A6  
House price inflation  
(annual percent change)



## New Zealand

Figure A7  
Household debt and servicing costs

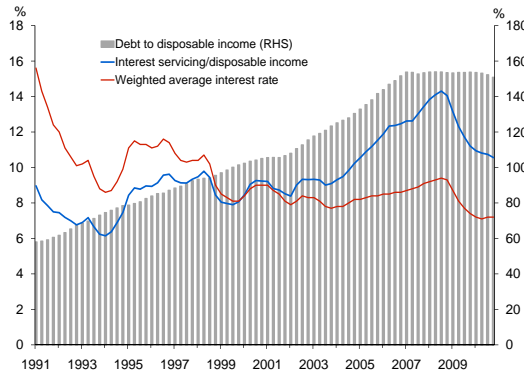


Figure A8  
Household assets and liabilities

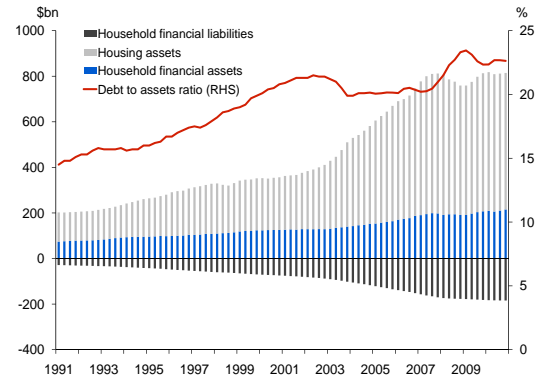


Figure A9  
Property prices  
(1990 = 100)

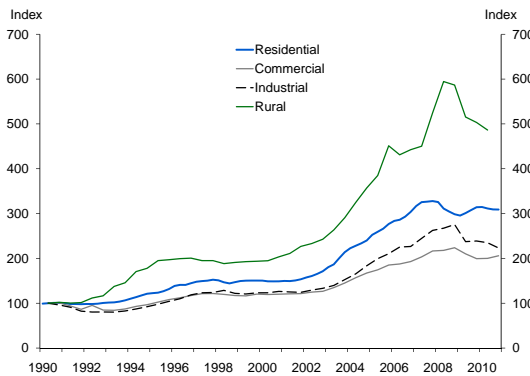
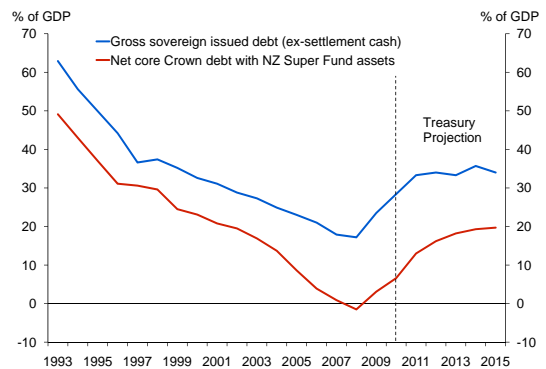
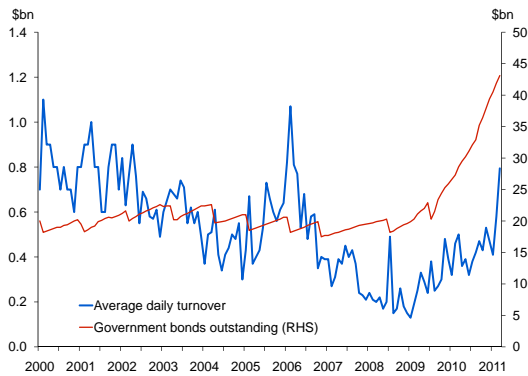


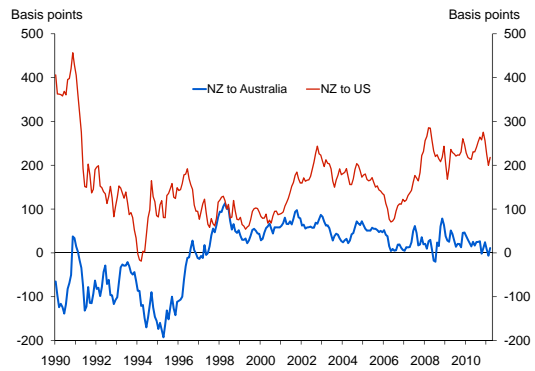
Figure A10  
Government debt



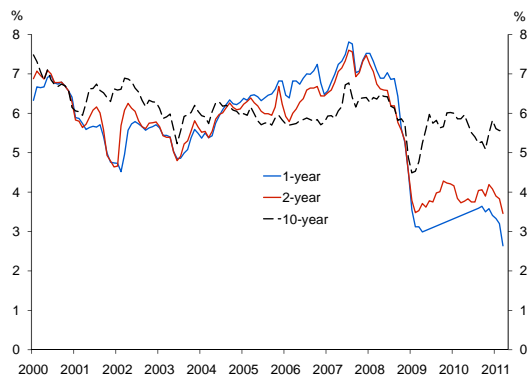
**Figure A11**  
Government bonds on issue and turnover



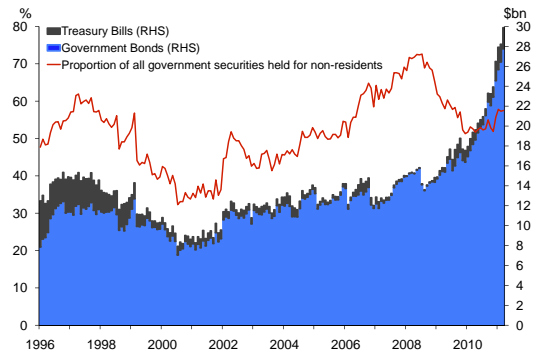
**Figure A12**  
Ten-year government bond spreads



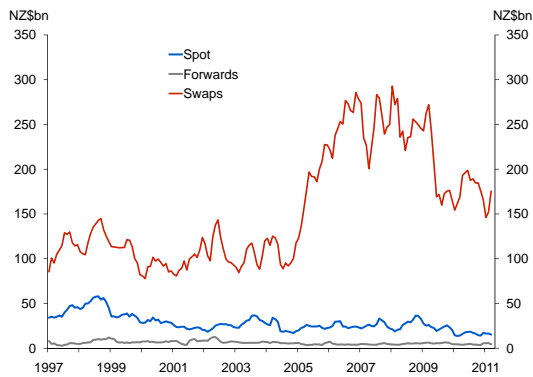
**Figure A13**  
Yields on New Zealand government securities



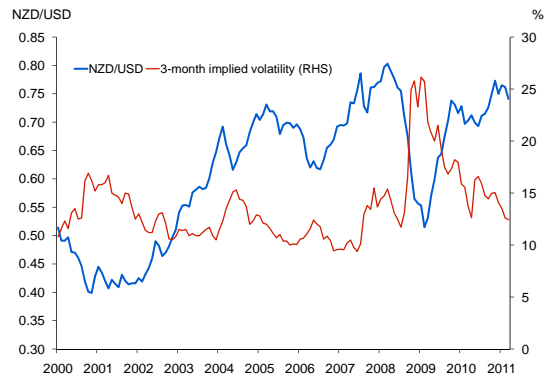
**Figure A14**  
Non-resident holdings of New Zealand government securities



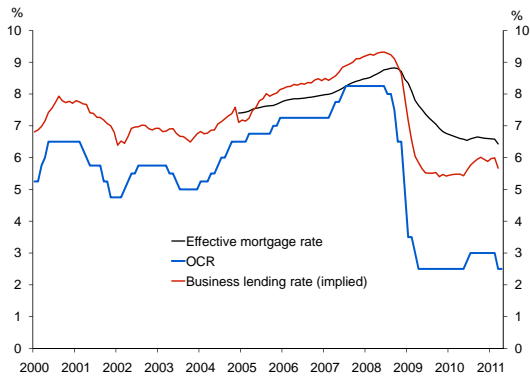
**Figure A15**  
NZD/USD turnover in domestic markets



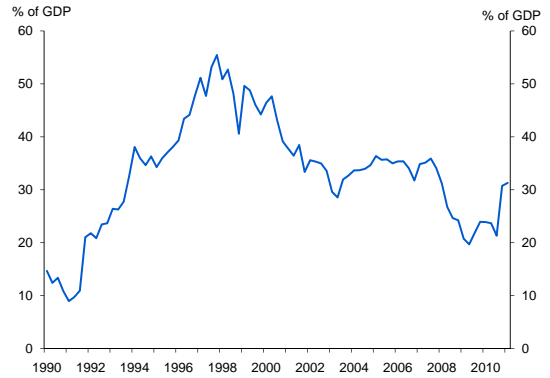
**Figure A16**  
NZD/USD and implied volatility



**Figure A17**  
OCR, estimated business lending rate and effective mortgage rate

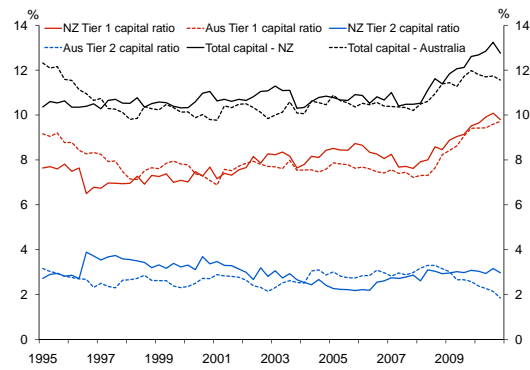


**Figure A18**  
Equity market capitalisation

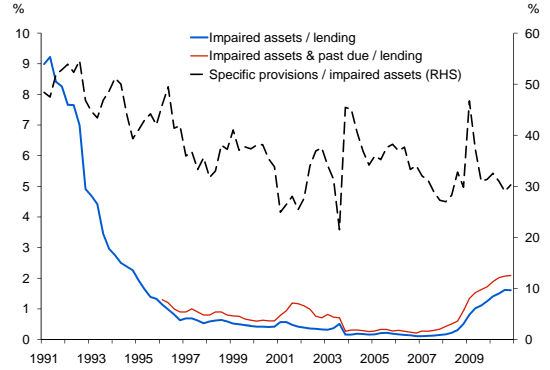


**Banking sector indicators**

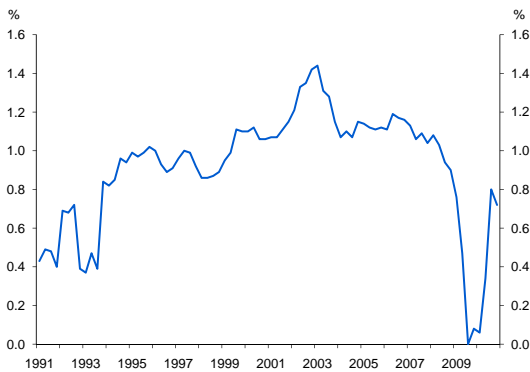
**Figure A19**  
System-wide capital adequacy ratios



**Figure A20**  
Asset quality



**Figure A21**  
Return on assets



**Figure A22**  
Operating costs to income

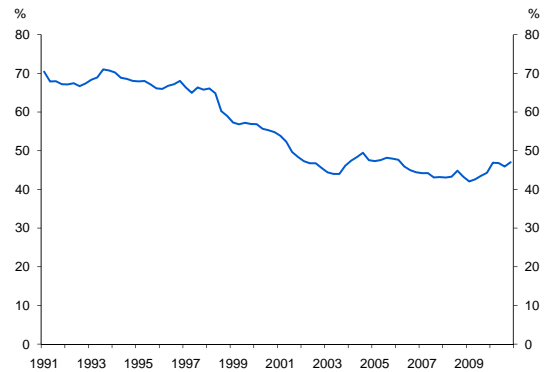


Figure A23  
Interest margin

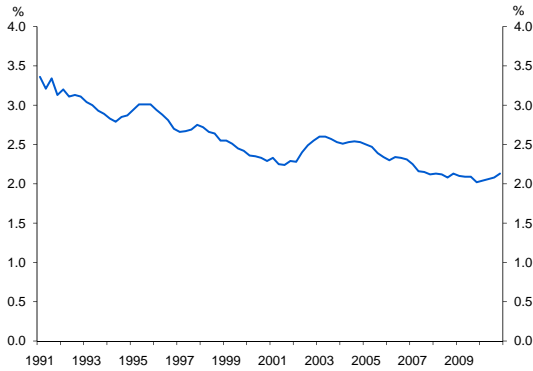


Figure A24  
Registered bank offshore funding

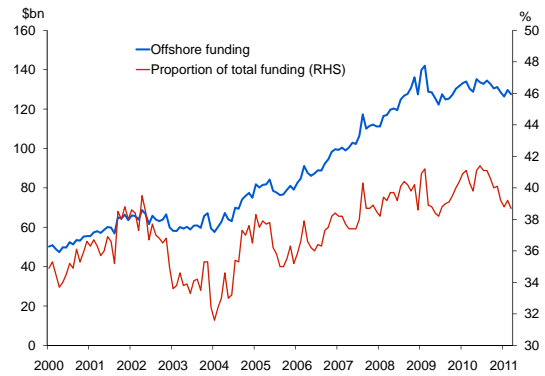


Figure A25  
Bank asset composition

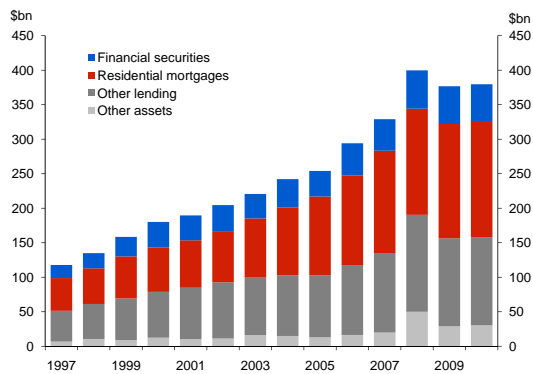


Figure A26  
Bank funding composition

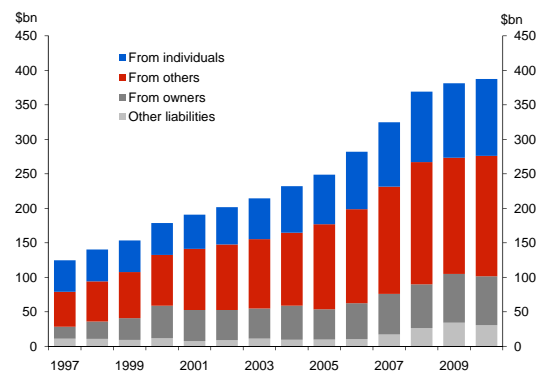


Figure A27  
Bank asset growth  
(annual percent change)

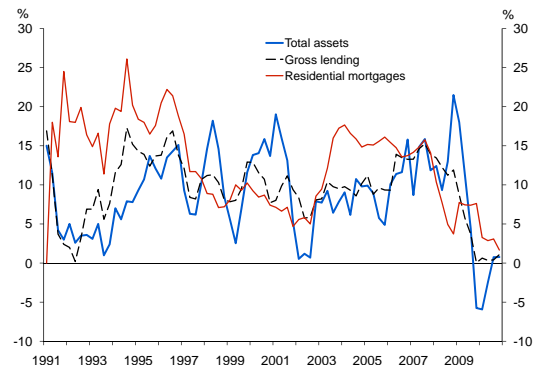
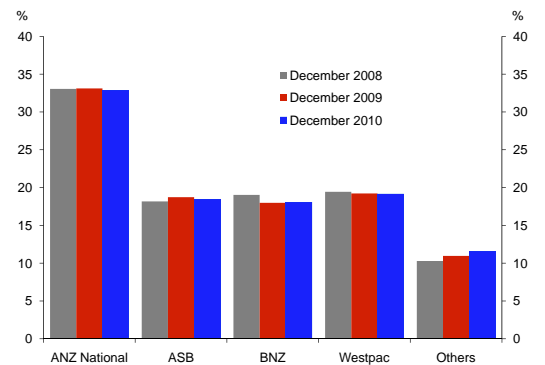


Figure A28  
Bank market share



## New Zealand financial system assets and liabilities

Table A1

### Financial system liabilities

As at 31 December \$bn	1990	1995	2000	2006	2007	2008	2009	2010
<b>Banks</b>								
Households	24	32	41	70	79	90	93	98
Other residents	29	35	54	90	98	113	101	102
Non-residents	11	22	56	100	111	128	132	128
Other liabilities and equity	14	14	29	35	41	69	51	52
Total	78	103	180	294	329	400	377	380
<b>Other non-bank lending institutions</b>								
Households	2	3	5	13	13	10	9	8
Other residents	3	2	4	7	8	8	6	7
Other liabilities and equity	1	1	1	11	12	11	10	8
Total	6	6	10	31	33	28	25	23
<b>Funds under management</b>								
Household assets	26	42	56	64	64	55	61	64
Other sector assets	1	1	5	7	8	7	7	8
Total	27	43	61	71	72	62	68	72
Total financial system liabilities	111	152	252	396	434	490	470	474

Table A2

### Financial system assets

As at 31 December \$bn	1990	1995	2000	2006	2007	2008	2009	2010
<b>Banks</b>								
Households	20	42	67	135	153	163	170	174
Other residents	36	45	74	113	127	149	135	136
General government	8	6	7	3	4	5	13	17
Non-residents	2	2	17	14	15	16	16	13
Other assets	12	8	16	29	30	66	42	39
Total	78	103	180	294	329	400	377	380
<b>Other non-bank lending institutions</b>								
Households	2	3	5	14	15	12	10	9
Other residents	3	2	4	13	14	12	11	10
Other assets	1	1	1	4	4	4	4	4
Total	6	6	10	31	33	28	25	23
<b>Funds under management</b>								
Domestic fixed interest	na	na	28	26	26	26	26	27
Domestic equities	na	na	7	9	9	6	7	8
Domestic other	na	na	4	6	6	6	5	5
Overseas investments	na	na	22	30	31	24	30	32
Total	27	43	61	71	72	62	68	72
Total financial system assets	111	152	252	396	434	490	470	474

Source: RBNZ surveys and registered banks' GDS.

Note: General insurance companies not surveyed. Property syndication included in 'domestic other' funds under management. Minor values for RMBS not included. Totals and sub-totals may not add due to rounding.

Table A3

## New Zealand registered banks

Registered bank's name <sup>1</sup>	Market share <sup>2</sup>	Credit ratings			Ultimate parent	Country of parent
		S&P	Moody's	Fitch		
Australia and New Zealand Banking Group Limited (B)	2.8	AA	Aa1	AA-	Australia and New Zealand Banking Group Limited	Australia
ANZ National Bank Limited	30.0	AA	Aa2	AA-	Australia and New Zealand Banking Group Limited	Australia
Commonwealth Bank of Australia (B)	1.7	AA	Aa1	AA	Commonwealth Bank of Australia	Australia
ASB Bank Limited	16.7	AA	Aa2	-	Commonwealth Bank of Australia	Australia
Bank of New Zealand	18.1	AA	Aa2	-	National Australia Bank	Australia
Bank of Baroda (New Zealand) Limited	0.0	-	-	BBB-	Bank of Baroda	India
Bank of India (New Zealand) Limited	-	BBB-	-	-	Bank of India	India
Citibank N A (B)	0.7	A+	A1	A+	Citigroup Inc.	USA
Deutsche Bank Aktiengesellschaft (B)	0.9	A+	Aa3	AA-	Deutsche Bank Aktiengesellschaft	Germany
JPMorgan Chase Bank, N.A. (B)	0.1	AA-	Aa1	AA-	JPMorgan Chase & Co	USA
Kiwibank Limited	3.4	AA-	-	-	New Zealand Post Limited	New Zealand
Kookmin Bank (B)	0.1	A	A1	-	Kookmin Bank	South Korea
Rabobank Nederland (B)	0.6	AAA	Aaa	AA+	Rabobank Nederland	Netherlands
Rabobank New Zealand Limited	1.9	AAA	-	-	Rabobank Nederland	Netherlands
Southland Building Society	0.7	-	-	BBB	Southland Building Society	New Zealand
The Bank of Tokyo-Mitsubishi, Ltd (B)	0.5	A+	Aa2	A	Mitsubishi UFJ Financial Group Inc.	Japan
The Hongkong and Shanghai Banking Corporation Limited (B)	1.3	AA	Aa1	AA	HSBC Holdings PLC	UK
TSB Bank Limited	1.2	BBB+	-	-	TSB Community Trust	New Zealand
Westpac Banking Corporation (B)	4.4	AA	Aa1	AA	Westpac Banking Corporation	Australia
Westpac New Zealand Limited	14.8	AA	Aa2	AA	Westpac Banking Corporation	Australia

<sup>1</sup> Banks marked (B) operate in New Zealand as branches of overseas incorporated banks. All other banks are incorporated in New Zealand.

<sup>2</sup> Registered bank's assets as a proportion of the total assets of the banking system, as at 31 December 2010.



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## Notes to the graphical appendix

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

1	Real GDP growth	Annual percentage change in real GDP. <i>Haver Analytics</i> .
2	Current account balance	Current account balance as a percentage of GDP, four-quarter total. <i>Haver Analytics</i> .
3	Trade-weighted exchange rate indices	Trade-weighted indices, January 1990 = 100. <i>Bank of England, Datastream</i> .
4	Short-term interest rates	Yields on 90-day bank bills. <i>Reuters</i> .
5	Equity market indices	Morgan Stanley Capital Indices, January 1990 = 100. <i>Datastream</i> .
6	House price inflation	Annual percentage change in national house price indices. <i>Haver Analytics, Quotable Value Ltd</i> .
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 <i>Statistics New Zealand</i> , with <i>RBNZ</i> forecasts. The weighted average interest rate is obtained from published <i>RBNZ</i> mortgage data (SSR, part E5.10) for residential mortgages and <i>RBNZ</i> calculations for consumer interest rates.
8	Household assets and liabilities	Housing assets are the aggregate private sector residential dwelling value. Data is from <i>Quotable Value Ltd</i> from 1995, with <i>RBNZ</i> estimates based on the House Price Index for prior years. Household financial assets are as published annually by <i>RBNZ</i> , with aggregate quarterly figures interpolated prior to 1995. From 1995, quarterly figures are survey-based with minor estimation. Household liabilities are from <i>RBNZ</i> series as for figure A7.
9	Property price inflation	Property price inflation, indexed to June 1990 = 100. <i>Quotable Value Ltd</i> .
10	Government debt	Net core Crown Debt is debt attributable to core Crown activities and excludes Crown entities and state-owned enterprises. Forecasts are from 2010 onwards and are taken from the Half-year Economic and Fiscal Update. <i>The Treasury</i> .
11	Government bonds on issue and turnover	Total government securities on issue and New Zealand government bond turnover survey. <i>Reuters</i> .
12	Ten-year government bond spreads	Yield on 10-year benchmark New Zealand government bonds, less yield on US and Australian equivalents. <i>RBNZ</i> .
13	Yields on New Zealand government securities	One-year series discontinued between May 2009 and July 2010. <i>Reuters, RBNZ</i> .
14	Non-resident holdings of New Zealand government securities	<i>RBNZ</i> .
15	NZD/USD turnover in domestic markets	Three-month moving average of the monthly totals. <i>RBNZ survey</i> .
16	NZD/USD and implied volatility	Standard deviation used to price three-month NZD/USD options. <i>Bloomberg</i> .

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17	OCR, estimated business lending rate, and effective mortgage rate	The effective residential mortgage interest rate is item E5.10 from the registered bank aggregate SSR. The estimated business lending rate is determined residually using information from the SSR for total registered bank NZD lending rates, effective residential mortgage rates, and estimates of consumer and interbank rates. It does not include the effects of hedging activity such as interest rate swaps. <i>RBNZ</i> .
18	Equity market capitalisation	Total market capitalisation of the 50 largest companies listed on New Zealand Stock Exchange, as a percentage of annual nominal GDP. Latest GDP value is estimated. <i>Datastream, Statistics New Zealand</i> .
19	System-wide capital adequacy ratios	Capital as a percentage of risk-weighted assets for all locally incorporated banks. <i>Registered banks' general disclosure statements (GDS), Reserve Bank of Australia</i> .
20	Asset quality	Impaired assets plus past due as a percentage of total lending; specific provisions as a percentage of impaired assets; for all registered banks. <i>GDS</i> .
21	Return on assets	Net profits after tax and extraordinary items, as a percentage of average total assets, four-quarter average, for all registered banks. <i>GDS</i> .
22	Operating costs to income	Operating expenses as a percentage of total income, four-quarter average, for all registered banks. <i>GDS</i> .
23	Interest margin	Net interest income as a percentage of average interest-earning assets, four-quarter average, for all registered banks. <i>GDS</i> .
24	Registered bank offshore funding	<i>RBNZ</i> .
25	Bank asset composition	As at 31 December. <i>GDS</i> .
26	Bank funding composition	As at 30 September and 31 December. <i>GDS</i> .
27	Bank asset growth	Year-on-year change in total assets of all registered banks. Gross lending before provisions. <i>GDS</i> .
28	Bank market share	Bank assets as a percentage of total assets of registered banks. <i>GDS</i> .