

# Financial Stability Report

November 2012

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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 26 October 2012.  
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)

ISSN 1176-7863 (print)  
ISSN 1177-9160 (online)

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## Objectives of the *Financial Stability Report*

The Reserve Bank of New Zealand Act 1989 (as amended in 2008) requires the Reserve Bank to produce a *Financial Stability Report* twice a year. This document must report on the soundness and efficiency of the financial system and the measures undertaken by the Reserve Bank to achieve its statutory prudential purposes set out in the Act. The *Report* must also contain the information necessary to allow an assessment of those activities.

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# 1 Overview

New Zealand's financial system continues to face a challenging international environment. Global economic activity is weak and this is affecting emerging market economies, including China. Conditions in the euro area remain fragile and the underlying fiscal and structural issues facing the region are substantial. Global growth could be further undermined by the prospect of a material tightening in US fiscal policy. This external environment poses significant risks for the New Zealand financial system.

Despite this backdrop, financial market sentiment has improved since the last *Report*. This partly reflects further monetary easing around the globe, which has kept interest rates at unprecedented lows, and various measures to help manage the crisis in the euro area by supporting the financially distressed member countries. The uplift in sentiment has improved the major New Zealand banks' access to global funding markets over the past few months and has contributed to upward pressure on the New Zealand dollar.

New Zealand's banks have continued to build their liquidity and capital buffers, giving them greater ability to cope with future periods of financial market volatility or a slowdown in economic growth. The banks are comfortably meeting existing regulatory requirements for core funding and are well placed to meet the increase in the core funding ratio from 70 to 75 percent that comes into effect on 1 January 2013. Profits have recovered to near pre-crisis levels although rates of return on equity remain lower due to recent increases in capital ratios.

In recent years, New Zealand's financial system has reduced its overall reliance on external funding due to the recovery in private savings. This has been reflected in rapid growth in retail deposits and muted credit growth. In contrast, the public sector's net external liabilities have

increased given recent fiscal deficits. In order to reduce New Zealand's vulnerability to external economic and financial shocks, it is important that the public sector continues to reduce the fiscal deficit and that the private sector continues to strengthen its balance sheets.

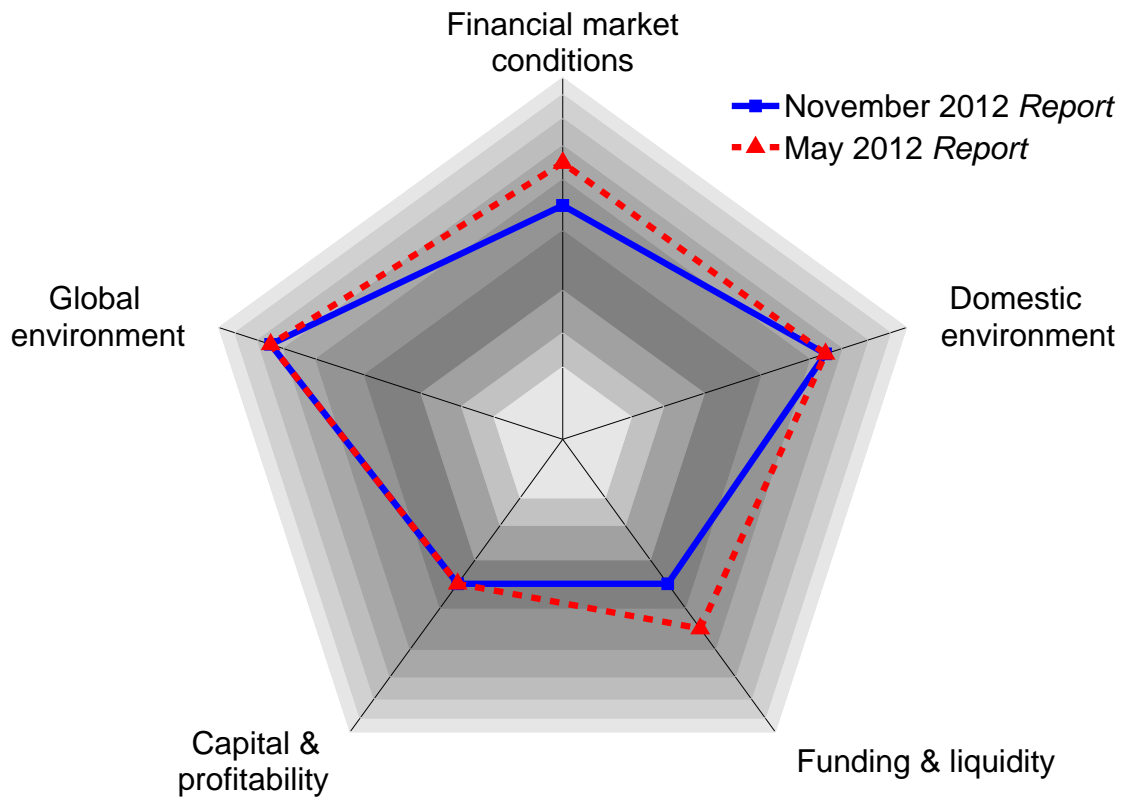
With economic activity growing modestly, credit growth has begun to pick up and banks are competing for new customers in both the corporate and residential mortgage sectors. Some increase in credit will be necessary to sustain economic growth but excessive credit growth could hinder rebalancing of the economy and accentuate existing vulnerabilities.

Leverage in the agricultural sector remains high, especially among some dairy farmers, leaving the sector vulnerable to a fall in incomes. Households are also relatively indebted due to the substantial rise in borrowing over the past two decades. House prices are rising, particularly in Auckland, in the face of housing supply constraints. Excessive credit growth could worsen housing market imbalances given that house prices appear overvalued on a number of measures.

The Reserve Bank seeks to strengthen the New Zealand financial system in the wake of the lessons learned from the global financial crisis. In September 2012, the Reserve Bank issued a consultation package to put into effect the main elements of the Basel III capital adequacy regime designed to improve the quality and minimum level of capital in the New Zealand banking system.

As part of the Basel III changes, the Reserve Bank is implementing a counter-cyclical capital buffer framework aimed at improving the resilience of the banking system in the aftermath of credit booms. The Reserve Bank is also developing a broader macro-prudential policy toolkit to help achieve this objective. At present, credit growth is still reasonably subdued but the Reserve Bank remains

Figure 1.1  
Financial stability cobweb



Source: RBNZ.

Note: Movements towards the centre of the diagram represent a decrease in current financial stress. The darkest part of the band represents normal financial conditions.

alert to developments that might warrant macro-prudential intervention.

The Reserve Bank is also working through the implementation of a new prudential regime for the insurance sector. All insurers are required to have a full licence by September 2013. The insurance sector continues to process claims related to the Canterbury earthquakes, with nearly \$11 billion being paid out so far, out of an expected total claims cost now well in excess of \$30 billion.

Other policy developments include engaging with banks on their implementation plans to pre-position for Open Bank Resolution (OBR) and a review of the Reserve Bank's statutory powers in overseeing the payments and settlement system.

Figure 1.1 summarises movements in financial system stress since the last *Report* in May. Stress on most dimensions of the cobweb remains above normal, although funding and liquidity conditions have improved as the banking system has increased its core funding buffers. Current financial market conditions are also shown to have improved slightly, albeit largely due to extraordinary international policy measures, as discussed in chapter 2.

Graeme Wheeler

Governor

## 2 The international environment and financial markets

Global economic conditions remain fragile and there are signs that growth is slowing in China and other emerging market economies. Economic activity in the euro area has contracted over the past six months and the region continues to face considerable challenges in addressing the competitiveness and fiscal issues underlying the sovereign debt crisis. Growth in the US has been modest, and while additional quantitative easing may continue to support economic activity, the looming fiscal 'cliff' has created additional uncertainty. The difficult global outlook poses financial stability risks for New Zealand via the impact on export demand and commodity prices, and through the potential impact on the price and availability of offshore funding.

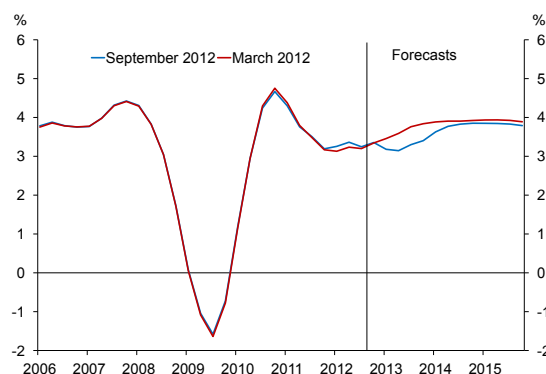
Despite this backdrop, financial market sentiment has improved since the *May Report*, supported by easier global monetary policy and strong statements from euro area policymakers illustrating a resolve to address the sovereign debt crisis. Policy measures have reduced volatility and risk premia in financial markets, and boosted liquidity. The major New Zealand banks have found it easier to issue offshore debt at a lower cost than earlier in the year. However, there is a risk that positive financial market sentiment could reverse rapidly due to further developments in the euro area or more negative global economic news.

### *World recovery has faced setbacks.*

Expectations for global growth have been pared back further over recent months (figure 2.1) with weak activity in the euro area and signs of a slowdown in China and other emerging economies. This follows a pattern of frequent setbacks to world economic growth over the past three years as major advanced economies have grappled with an overhang of public and private sector debt. Government support to boost economic growth and help stabilise financial institutions during the global financial crisis in 2008/09, coupled with declining tax revenue, have added to unsustainable public debt positions (figure 2.2). Placing public debt on a sustainable path, and strengthening weak banking systems, have proven particularly challenging in an environment of weak economic activity. Questions remain about the sustainability of the euro given underlying structural issues facing some of its members, including

Greece, Spain and Italy. These concerns have, at times, weighed heavily on global financial markets.

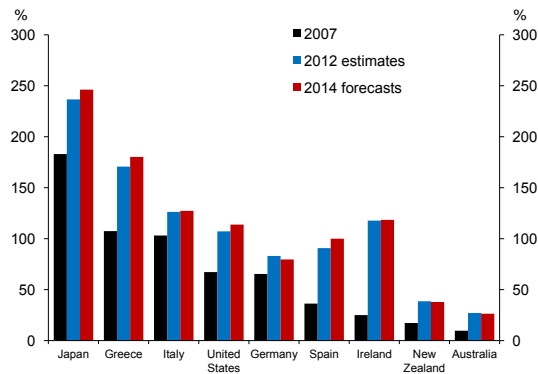
Figure 2.1  
World GDP growth  
(annual average percent change)



Source: RBNZ.

Note: World growth is an export-weighted index of New Zealand's 16 largest trade partners.

**Figure 2.2**  
Gross government debt  
(percent of GDP)



Source: Haver analytics and IMF *Fiscal Monitor*.

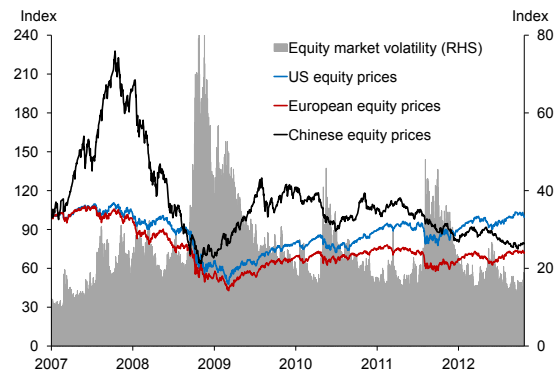
The capacity for fiscal support of economies has been limited in many countries and policy interest rates have been close to the zero bound in the UK, US, Japan and other countries for some time. This has seen central banks adopt a range of quantitative easing measures, which have helped to drive long-term interest rates to record lows, boosting financial market confidence and asset prices. This monetary policy support has weakened currencies such as the US dollar (USD) and UK pound, contributing to recent upward pressure on the exchange rates of some emerging economies as well as Australia and New Zealand. In the case of countries with large external debts, such as New Zealand, this development has hindered prospects for rebalancing.

**Financial market sentiment has improved since the last Report...**

Global financial sentiment deteriorated earlier in the year with concerns about Greek fiscal default, the health of the Spanish banking system and speculation that some countries would leave the euro. More recently, equity prices have risen strongly, credit spreads have narrowed, and measures of volatility have fallen towards pre-crisis levels (figure 2.3). The rise in sentiment has been underpinned by a string of market positive outcomes. These include signs that Greece's new government is committed to remaining in the euro area and an agreement by euro area finance ministers that Spanish banks will be provided with up to €100 billion in rescue loans. Sentiment

has been further bolstered by the German Constitutional Court confirming the legality of the region's proposed new bailout fund – the European Stability Mechanism (ESM) – and the ECB's new bond-buying programme known as Outright Monetary Transactions (OMT) announced in early September. The US Federal Reserve's announcement of a third round of quantitative monetary easing in September has further underpinned market confidence.

**Figure 2.3**  
Global equity markets and volatility



Source: Bloomberg.  
Note: S&P 500, MSCI Europe, and Shanghai composite indices have been rebased to equal 100 in January 2007. Equity market volatility is the VIX index.

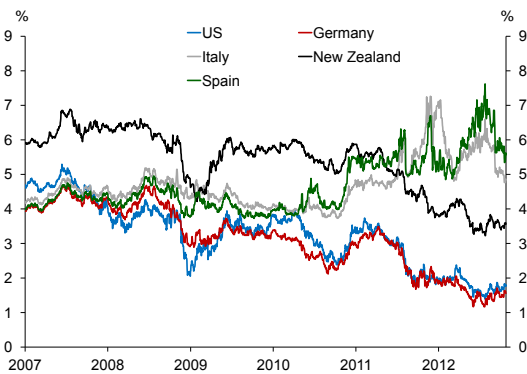
**...following the announcement of the ECB's OMT programme.**

The stated purpose of OMT is to improve the monetary policy transmission mechanism in the euro area. Borrowing rates for households and businesses in countries such as Spain and Italy are much higher than rates in Germany, reflecting an added credit default risk premium. Under OMT, the ECB will purchase government bonds in the secondary market, focusing on those with a remaining maturity of 1–3 years. A country can enter into the programme only after formally requesting assistance from the European bailout funds. Continued participation in OMT requires countries to strictly adhere to the fiscal and structural reform conditions of the assistance. Before OMT, the markets had regarded the existing bailout funds as too small to be a credible backstop, but the possibility of 'unlimited' firepower from the ECB has provided more confidence that near-term euro break-up scenarios may be averted. To date, no country has requested financial assistance under OMT.

Peripheral bond yields fell considerably following comments in July that the ECB 'will do whatever it takes to save the euro'. The ongoing fall in long-term bond yields for some peripheral European sovereigns suggests market confidence that OMT could pave the way for a solution to the crisis. Yields in Germany and some other countries, including New Zealand, remain very low by historical standards (figure 2.4).

Figure 2.4

10-year government bond yields



Source: Bloomberg.

**Fundamental structural challenges remain.**

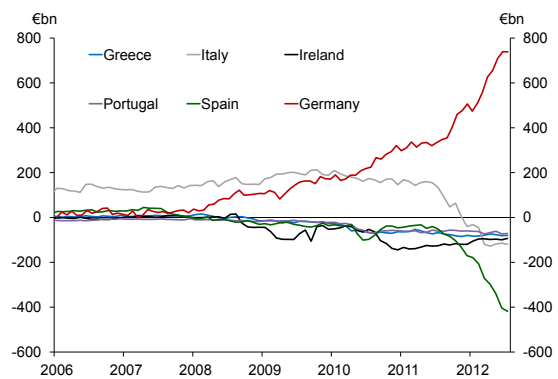
Despite the improvement in market sentiment following the expansion in the ECB's policy measures, several members of the euro area continue to face fundamental fiscal challenges and competitiveness problems. Progress in implementing fiscal austerity is likely to remain difficult in the face of a challenging economic and political environment. By cutting expenditures, governments risk a further reduction in growth that could undermine short-run revenues. Moreover, in the absence of a more sustainable fiscal position, several countries, including Spain, face ongoing difficulty raising long-term funds in the market and elevated bond rates. Some peripheral euro area members face strong real exchange rates due to their higher rates of inflation since the creation of the euro. Downward price and wage adjustment is crucial for the shift toward export-driven growth in those countries, but makes fiscal consolidation more difficult.

**Euro area banks remain stressed.**

The rapid build-up in private sector debt that fuelled housing and asset market bubbles in a number of euro area countries in the years leading up to the global financial crisis, has left a lasting legacy of non-performing loans and stressed balance sheets for many euro area banks. With weaker member states, such as Spain, now unable to adequately support their banking systems, bank deposits have been flowing from the periphery to the core of Europe in response to fears that those member states may eventually leave the euro area (figure 2.5).

Figure 2.5

TARGET2 net balances



Source: ECB, Bloomberg.

Note: TARGET2 is an interbank payment system for the real-time processing of cross-border transfers throughout the euro area. An increasing balance suggests capital inflow to that country.

In September, the European Commission called for a banking union as an important step to restore confidence in euro area banks and the single currency. Elements of this proposal would include centralised banking supervision for the euro area, possibly involving the ECB, and a common resolution agency for distressed banks. While establishing a banking union could help to restore banking sector stability, it is likely to be a complex and protracted process.

**US faces fiscal 'cliff'.**

In contrast to the euro area, the US economy has continued to grow moderately with recent economic data having a slightly more positive tone. However, at the start of 2013, a substantial fiscal tightening is scheduled to occur (referred to as the fiscal 'cliff'), a result of earlier failures to reach political agreement on how to achieve

fiscal consolidation. The full fiscal 'cliff' would involve a permanent, and one-off, reduction in spending and an increase in taxation equivalent to a net 4.5 percent of GDP in 2013. An adjustment of this magnitude would impair the recovery. There are already signs of an impact on the economy, with a slowdown in business investment due to heightened uncertainty. Much of the burden of adjustment would fall on the household sector, and would slow the pace of growth in the US economy. Reaching an agreement that avoids the full extent of the fiscal 'cliff' will be an important step in both removing uncertainty for financial markets, and avoiding a sharp contraction in economic growth.

Meanwhile, the Federal Reserve has embarked on a third round of quantitative monetary easing and announced an 'open ended' commitment to purchase mortgage backed securities (MBS). Thus far there has been a significant reduction in MBS pricing, which should help to lower retail mortgage interest rates. This has been combined with a commitment to keep policy interest rates near zero until 2015. The measures are explicitly aimed at bringing down unemployment, which has remained stubbornly high despite the return to moderate rates of economic growth over the past two years.

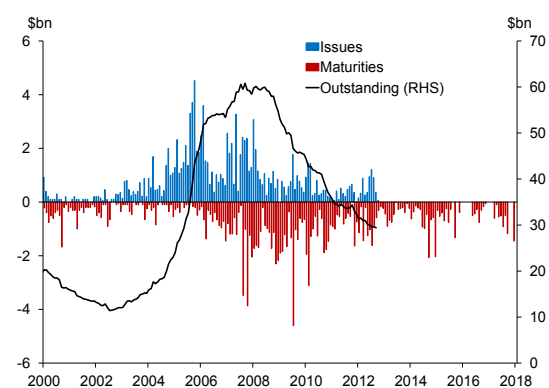
#### *Positive sentiment sees debt markets open for business...*

The improvement in market sentiment over the past three months has resulted in an increase in debt issuance by both US and European corporates in response to a considerable narrowing of yields. The appetite to buy corporate debt has been partly fuelled by pension funds searching for yield in response to record low yields on safe haven government debt.

The recovery in debt markets has also enabled New Zealand banks to issue debt at considerably lower spreads than earlier in the year, taking some pressure off funding costs, with indicative estimates showing a decline in spreads of around 50 basis points compared to six months ago. The availability of funding has also improved, with banks able to obtain enough long-term funding to cover most of their expected requirements for the coming year.

However, the cost of swapping foreign currency funding into New Zealand dollars (NZD) – the basis swap – remains elevated and accounts for more than half of the landed cost of funding in some instances. The high basis swap spread partly reflects the subdued issuance of NZD securities by offshore entities in the Kauri, Eurokiwi and Uridashi markets (figure 2.6). New issuance has replaced only a portion of maturing debt in those markets with the outstanding stock continuing to fall. As a result, the availability of counterparties for the banks to swap their foreign borrowing back into NZD through the basis swap market has declined.

**Figure 2.6**  
NZD securities issued by non-residents



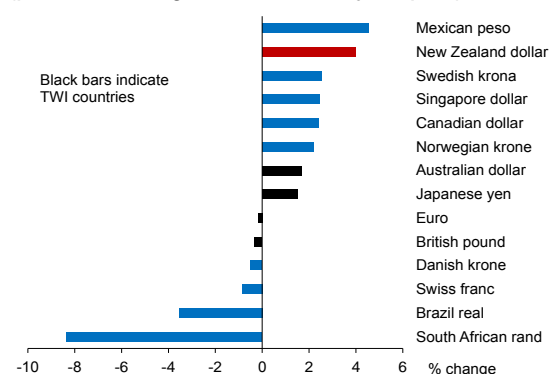
Source: Bloomberg.  
Note: Uridashis, Eurokiwis and Kauris are New Zealand dollar securities issued by foreign issuers.

#### *...and has supported the New Zealand dollar.*

The improvement in market sentiment since the last *Report* has led to an appreciation in the NZD both against the USD (figure 2.7) and on a trade weighted index (TWI) basis. Renewed policy support in the form of unconventional monetary policy, together with actions from policymakers attempting to resolve the European sovereign debt crisis, have lowered foreign long-term interest rates and created a general 'risk-on' environment which has supported a number of currencies such as the NZD. While a return to a 'risk-off' environment could see the exchange rate shift lower in line with recent declines in the terms of trade (export prices relative to import prices), a period of further strength remains possible. This would particularly be the case if New Zealand's relative growth outlook continued to be perceived as favourable, despite the lower terms of trade.



Figure 2.7  
 Movements in currencies against the USD  
 (percent change since the May Report)



Source: Bloomberg.

**Monetary stimulus has suppressed volatility.**

Price-based measures of volatility (measures of variation in the prices of financial instruments over time) have been surprisingly low in recent months and credit spreads have narrowed from earlier in the year despite ongoing uncertainty about the ability of some euro area sovereigns to repay debt. This is in marked contrast to periods during the global financial crisis when volatility increased significantly. Low volatility is likely to reflect, in part, the large liquidity injections to the global financial system from major central banks that have resorted to unconventional measures to stimulate their economies. The search for yield in a low interest rate environment has encouraged investors towards riskier assets, such as lower grade corporate bonds, thereby compressing credit spreads and their volatility. While monetary stimulus may be providing some short term support for the global economy, important longer term issues relate to the risks this stimulus could create for future credit growth, asset prices and inflation, together with practical issues surrounding the withdrawal of this policy support at an appropriate time.

**Advanced economy stress could affect emerging markets.**

Emerging market economies have continued to grow relatively strongly since the global financial crisis despite the large disruption in global trade and the subsequent

subdued recovery in global growth. Emerging economies, however, are not immune to global shocks. Weakening import demand in most developed countries has already led to slower export growth in emerging economies, particularly in Asia. Asian bond markets received large inflows of capital in the early part of 2012, as investors looked to diversify out of troubled advanced economy markets. The environment in emerging markets has since become more challenging with heightened concerns surrounding Asia's growth outlook, which could lead to a destabilising outflow of capital from the region.

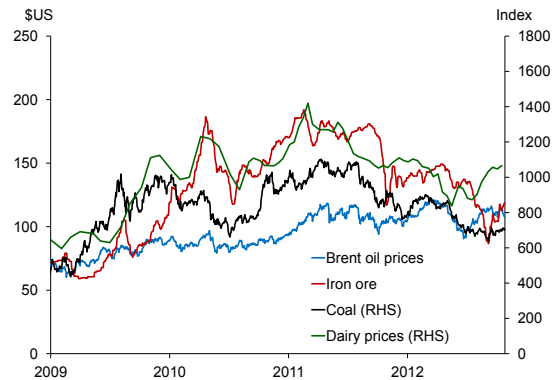
**Emerging market asset price growth slowing.**

Several economies in Asia are vulnerable to late credit cycle risks following several years of strong credit growth and rapidly rising property prices. In China, credit has expanded rapidly in recent years with much financial intermediation occurring outside the regulated banking system, especially after the authorities tightened bank lending conditions in the aftermath of the 2009-10 credit boom. Driving this high demand for credit has been the sustained increase in property prices and infrastructure investment. More recently, credit quality has started to deteriorate. Certain market segments are showing signs of weakening loan quality, such as lending to small firms, which may have a disproportionate impact on the informal finance sector.

**Global commodity prices have weakened.**

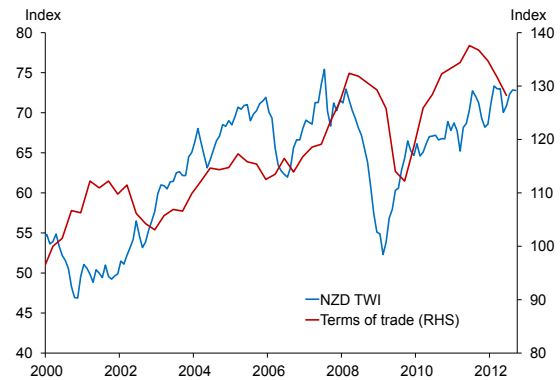
Slowing growth in China has moderated demand for construction materials. Iron ore has been a key input for investment and construction projects, and expectations that construction might slow have led to a sharp reduction in iron ore prices (figure 2.8). Prices for soft commodities, including dairy, have also declined over the past year, but have more recently recovered some lost ground. Global agricultural prices have been supported in part, by drought conditions in the United States.

Figure 2.8  
Global commodity prices



Source: Bloomberg, Global Dairy Trade.

Figure 2.10  
New Zealand terms of trade and TWI



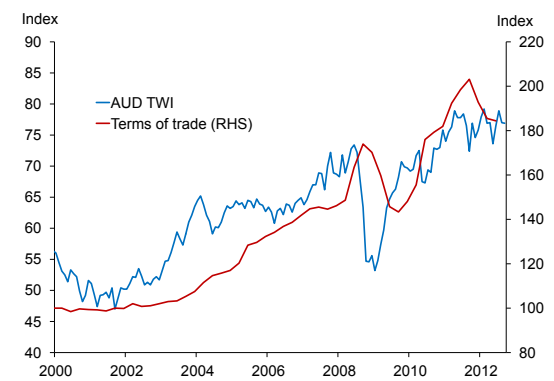
Source: Statistics New Zealand, RBNZ.

**Australia vulnerable to a sharp decline in commodity prices.**

Australia has outperformed most other advanced economies in recent years, largely due to its resource sector expansion to supply the growing Chinese economy. Exports of ore minerals comprise about 38 percent of total exports from Australia. Activity in the rest of the economy has been more subdued, with the high exchange rate restraining export sectors outside the resource sector. Large multi-year investment projects initiated in response to rising hard commodity prices have been adding significantly to GDP growth.

However, with a weaker outlook for commodity prices, some planned construction projects in the mining sector have been delayed. Australia is highly exposed to hard commodity prices and therefore to the Chinese economy. As is the case for the NZD, a weakening terms of trade would normally be expected to result in a fall in the Australian dollar (figures 2.9 and 2.10).

Figure 2.9  
Australian terms of trade and TWI

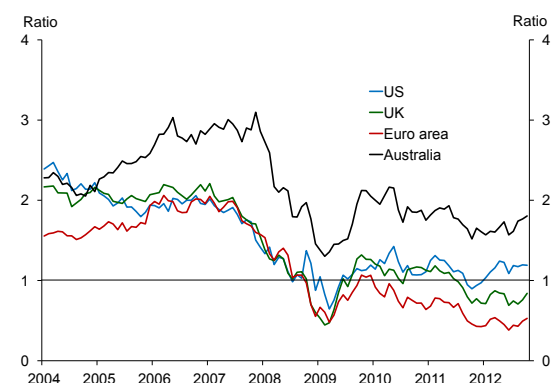


Source: Bloomberg, RBA.

**Australian financial system remains strong.**

The Australian banking system remains in a relatively strong position with banks improving their funding, liquidity and capital positions over the past few years – developments in common with the New Zealand banking system (see chapter 4). Non-performing loans, which became elevated for parts of the commercial sector following the global financial crisis, have since declined. Australian bank equity is worth considerably more than the book value of shareholders funds (figure 2.11), indicating that markets expect ongoing solid performance. The Australian banks have increased the share of domestic deposits in their total funding, enabling them to rely proportionately less on offshore borrowing. Overall, these trends have improved the system's ability to cope with further periods of volatility in global markets, or a more pronounced slowing in global or domestic growth.

Figure 2.11  
Bank price-to-book value ratio



Source: Bloomberg.  
Note: Price-to-book value ratio is market capitalisation divided by balance sheet equity.

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## Box A

### London Interbank Offered Rate (LIBOR)

The London Interbank Offered Rate (LIBOR) is an indicator rate published on behalf of the British Bankers Association (BBA). It represents the cost of funds to large global banks operating in London financial markets or with London-based counterparties. LIBOR rates are presently calculated for ten currencies, including the New Zealand dollar (NZD), for periods ranging from overnight to one year. Since LIBOR plays an important role as a benchmark for contracts of value well in excess of USD300 trillion, its integrity is paramount.

In making a contribution to the LIBOR rate set panel, the key question a contributing bank has to answer is: “At what rate could you borrow funds, were you to do so by asking for and then accepting interbank offers in a reasonable market size just prior to 11am?” The transparency of banks in answering this question – in particular, the price discovery process – has been at the centre of inquiries by various authorities. A weakness of the current LIBOR rate set process is that banks do not need to contribute an actual traded rate. Thus the contributions may not necessarily truly reflect the rates at which institutions are borrowing.

The investigations found serious deficiencies in the LIBOR rate set process and have brought allegations and admissions of fraudulent behaviour. With LIBOR being of such importance globally, the British government set up an inquiry to look into the structure and governance of LIBOR and make recommendations on how the system should be reformed to ensure that credibility and trust in this important benchmark are fully restored.

The inquiry came to three conclusions and recommended a ten-point plan for the various technical, institutional and governance reforms that were required.<sup>1</sup> A key conclusion was that transaction data should be explicitly used to support LIBOR submissions.

One of the recommended reforms was to cease publication of a number of currencies’ LIBOR rates, including the NZD rates. In practice NZD LIBOR is rarely used in financial contracts involving the NZD. Instead, the key reference rate, known as the Bank Bill Market (BKBM) rate, is overseen by the New Zealand Financial Markets Association (NZFMA). This interest rate is set each day for trades between participating banks.

A significant difference between the BKBM and LIBOR rate set methods is that the BKBM method is based on observable, published, traded rates. Transparency and discipline are enhanced by the collection and publication of the individual trades that occur in the two-minute window on which each rate set is based. These factors make it less likely that a market participant could attempt to manipulate BKBM and avoid detection. Notwithstanding the confidence that participants have in the BKBM rate set process, it is important that the NZFMA periodically reviews its processes used to set BKBM. As an observer and participant on the NZFMA, the Reserve Bank will continue to encourage and contribute to such reviews.

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<sup>1</sup> Available at: [http://cdn.hm-treasury.gov.uk/wheatley\\_review\\_libor\\_finalreport\\_280912.pdf](http://cdn.hm-treasury.gov.uk/wheatley_review_libor_finalreport_280912.pdf)

## 3 Financial risks to the New Zealand economy

New Zealand's external debt remains high relative to GDP, leaving the economy exposed to a deterioration in offshore markets affecting the price or availability of debt. Although the private sector has reduced its external indebtedness – reflected primarily in reduced bank borrowing from offshore – this reduction has been partly offset by a rise in public sector indebtedness.

The New Zealand economy has continued to expand modestly and private sector credit has begun to grow again after being flat in recent years. There has been an increase in housing market activity in parts of the country and an associated increase in household credit demand. While the lift in credit demand has been relatively subdued to date, a significant reversal in household savings behaviour and excessive credit growth would be a cause for concern – particularly if seen in conjunction with a surge in house prices and/or excessive risk taking by the New Zealand banks.

The private sector remains heavily indebted and balance sheet positions could come under pressure if macroeconomic conditions deteriorate. Agricultural sector debt remains particularly high and heavily concentrated, leaving the sector vulnerable to external shocks such as additional slowing in global growth or further falls in export prices.

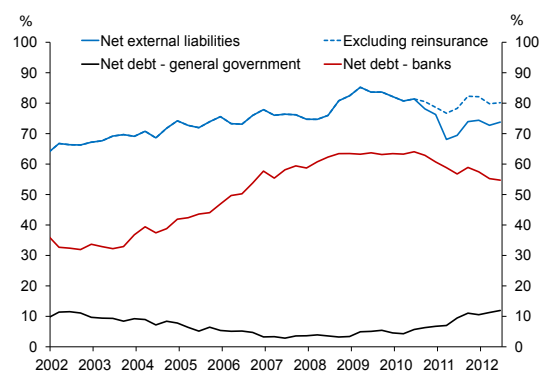
### 3.1 External financing vulnerabilities

#### *External debt intermediated through the banking system has fallen...*

New Zealand's net external liabilities are high by international standards, reflecting the accumulation of persistent current account deficits. Net external liabilities peaked at 85 percent of annual GDP in 2009. The subsequent decline has been driven primarily by falls in private sector net borrowing intermediated through the banking system and the temporary effects of earthquake-related claims on international reinsurers (figure 3.1).<sup>1</sup> The overall decline in the private sector's net external liabilities has been partly offset by an increase in the net external debt of the government associated with ongoing fiscal deficits.

<sup>1</sup> Statistics New Zealand estimates that reinsurance claims from the Canterbury earthquakes will ultimately amount to \$17.9 billion.

Figure 3.1  
Net external liabilities  
(percent of annual GDP)



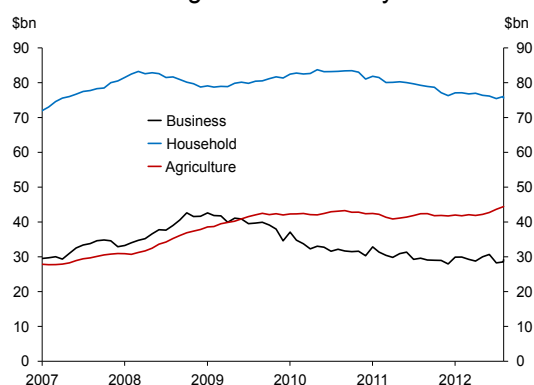
Source: Statistics New Zealand.

#### *...as the private sector has continued to consolidate.*

The modest fall in private sector net external debt since 2009 has largely reflected a cyclical narrowing of the current account deficit. Weak domestic demand and strong retail deposit growth have reduced external financing needs, while low interest rates have reduced

debt servicing costs. The household and business sectors have reduced their net debt position against the banking system since 2008 (figure 3.2). In contrast there has been little reduction in the net indebtedness of the agriculture sector.

**Figure 3.2**  
Net debt with registered banks by sector



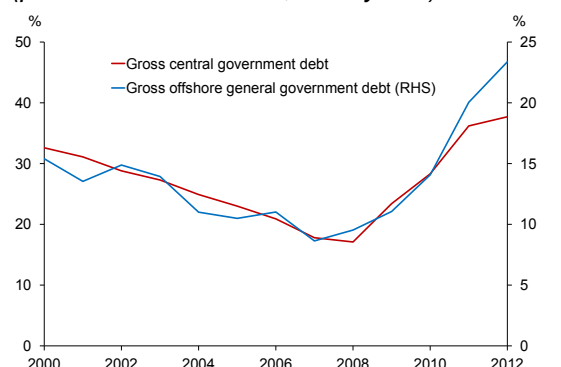
Source: RBNZ Standard Statistical Return (SSR).  
Note: Net debt is lending minus deposits.

The cash settlement of some insurance claims from the Canterbury earthquakes has increased retail deposits from households and firms, and helped to reduce the banking system's reliance on external funding. Remaining insurance claims are expected to be paid over the next several years. In addition some reinsurance funds have been deposited in New Zealand ahead of reinsurers making payment to insurers. As the rebuild progresses some of this increase in deposits is likely to reverse.

#### **Government's external indebtedness is rising.**

While the net external debt of the banking sector has been trending down, fiscal deficits in recent years have seen a rise in government borrowing, including from non-residents. The fiscal deficits have reflected weaker than expected economic activity in recent years, and one-off costs associated with the Canterbury earthquakes. Gross offshore general government debt has risen substantially (figure 3.3), increasing the government's exposure to a possible deterioration in sovereign debt markets. To reduce this vulnerability and overall net indebtedness, the Government aims to return to surplus by 2014/15.

**Figure 3.3**  
Government debt  
(percent of annual GDP, June years)



Source: Statistics New Zealand, Treasury.  
Note: General government debt includes both central and local government debt.

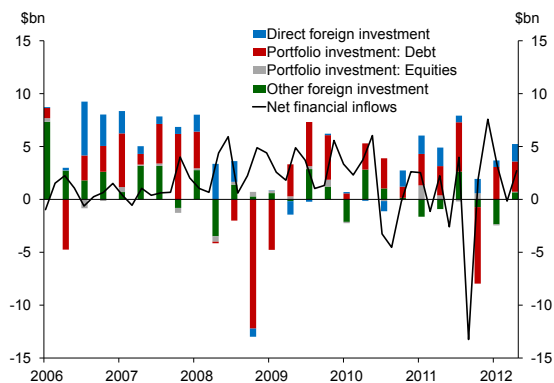
#### **Further rebalancing would reduce external vulnerabilities.**

The domestic economy remains vulnerable to changes in investor sentiment and conditions in global funding markets notwithstanding recent improvements in market conditions. Should market stresses re-emerge, New Zealand could experience reduced availability and higher costs of funding, potentially resulting in a tightening of the domestic credit supply and constraints on economic growth. A further reduction in New Zealand's reliance on external funding would reduce exposure to potentially adverse developments in offshore financial markets.

Currently, the high NZD and weak global demand are hampering prospects for some firms. New Zealand's comparatively high interest rates relative to other economies are leading to increased foreign holdings of New Zealand portfolio debt, putting upward pressure on the currency. Portfolio flows are relatively volatile compared with other foreign investment inflows and could reverse suddenly in the event of an adverse shock (figure 3.4).

In the event of an adverse external shock the New Zealand economy would be insulated somewhat by the buffering role of the floating exchange rate and an external debt that is largely denominated in New Zealand dollars (either directly or through currency hedging). Exchange rate depreciation – as would be expected in the event of a severe external shock – would have little impact on

**Figure 3.4**  
Foreign investment in New Zealand and net financial inflows



Source: Statistics New Zealand.  
Note: Net financial inflows are investment flows from foreigners into New Zealand (graphed) net of investment flows offshore by New Zealanders.

the local currency value of the external debt. A fall in the exchange rate, if sustained, would also help support a rebalancing of domestic resources towards the tradables sector.

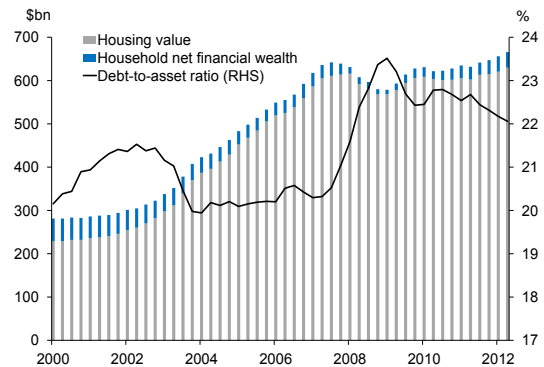
## 3.2 Sectoral credit risks

### *Household balance sheets have strengthened.*

The household sector's balance sheet position has improved over the past six months. The sector's debt-to-asset ratio has fallen and net financial assets have risen, partly reversing the losses experienced at the onset of the crisis (figure 3.5). Equity in housing has also increased slightly in recent quarters with moderate increases in house prices in some regions, while growth in mortgage debt has been subdued. However, the general improvement in the net wealth of the household sector is likely to mask significant variation across the balance sheets of individual households.<sup>2</sup> Unemployment remains high and is likely to be creating financial pressure for some households.

<sup>2</sup> See box C, Financial vulnerability of owner-occupied mortgage debt, November 2011 *Financial Stability Report*.

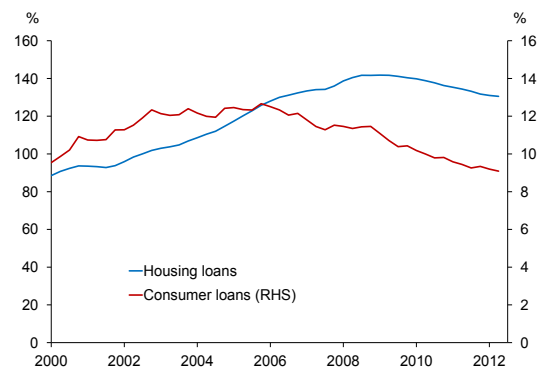
**Figure 3.5**  
Household wealth and debt-to-asset ratio



Source: RBNZ Household Financial Assets and Liabilities Statistics.

Consumer confidence surveys indicate that households feel pessimistic regarding their financial situations and feel financially worse off than a year ago.<sup>3</sup> This is in spite of labour income growth, low interest rates and improved housing market activity. In aggregate, households have continued to reduce debt relative to income over the past six months (figure 3.6).

**Figure 3.6**  
Household debt-to-income ratios  
(percent of household disposable income)



Source: RBNZ Household Financial Assets and Liabilities Statistics.

### *Balance sheet improvements could reverse.*

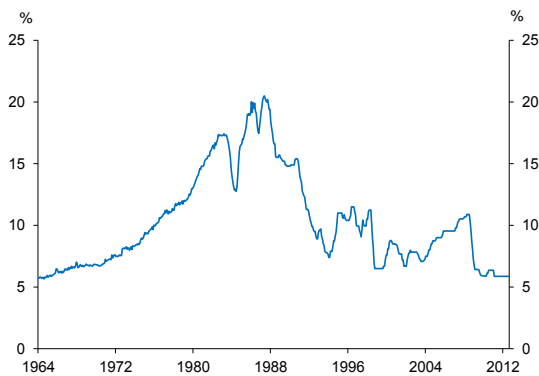
A stronger balance sheet position should help to improve the resilience of the household sector to adverse economic conditions, but the sustainability of recent improvements is unclear. Recent sharp gains in equity

<sup>3</sup> Based on the Westpac McDermott-Miller Consumer Confidence and ANZ-Roy Morgan NZ Consumer Confidence surveys.

prices that have contributed to the growth in financial assets could falter if there is renewed pressure on global economic confidence, while some of the recent increase in household deposits may be a temporary result of earthquake insurance settlements.

While households remain cautious at present, the recent uplift in household savings could unwind as the economic recovery gathers pace and households become more optimistic. Debt servicing costs have continued to trend down relative to income over the past six months as labour incomes have grown and mortgage rates remain at historic lows (figure 3.7). In recent months, household credit growth has begun to pick up, reflecting further increases in housing market activity and increased competition by banks. Residential mortgage lending conditions appear to have loosened with high loan-to-value ratio (LVR) lending becoming more prevalent (see chapter 4). If credit demand was to strengthen significantly, and banks were willing and able to accommodate that demand, indebtedness (relative to income) could resume an upward trend eroding households' resilience to shocks.

**Figure 3.7**  
Floating mortgage rate  
(weighted average of registered banks)

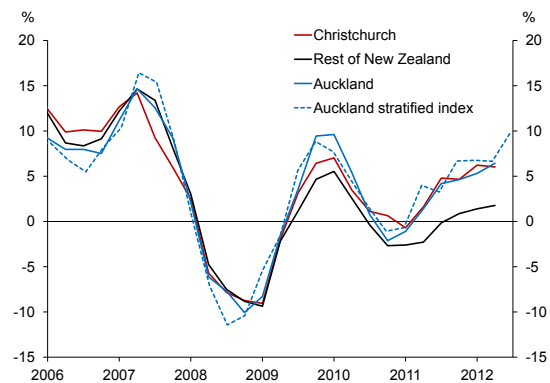


Source: RBNZ Retail Interest Rate Survey.  
Note: Floating mortgage rate is the new customer first mortgage housing rate.

**Housing market activity strengthening.**

Some regions have shown only very subdued rates of house price appreciation over the past year, while Auckland and Christchurch, which account for a significant portion of the housing market, have seen significant increases (figure 3.8).

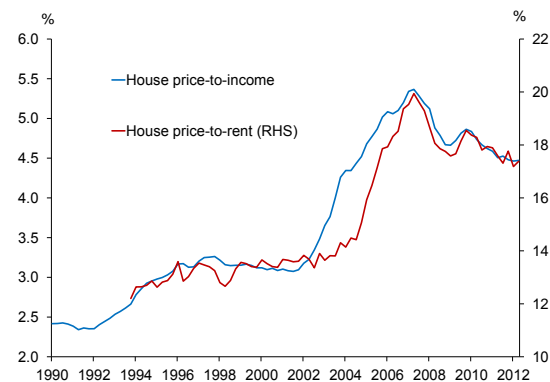
**Figure 3.8**  
Regional house price indices  
(annual percent change)



Source: Quotable Value Ltd., REINZ.

It is expected that expansion in the supply of housing and housing affordability constraints will moderate house price inflation. House prices are already elevated relative to fundamental metrics, such as income and rents, and a property market rebound would exacerbate the risk of a sharp property price correction at some point in the future (figure 3.9). Household debt is largely secured on property assets and a substantial property price correction could result in significant strain on household and bank balance sheets.

**Figure 3.9**  
House prices relative to fundamental indicators



Source: Property IQ, RBNZ, Statistics New Zealand, Department of Building and Housing.  
Note: House price-to-rent is the lower quartile house price-to-median rent.



### Canterbury rebuild will boost growth...

The New Zealand economy has continued to expand modestly over the past six months. Over the next few years, the Canterbury rebuild will provide an impetus to demand and boost sectors such as construction, though resource availability may constrain the process. There has been a large increase in the number of both residential and non-residential building consents over the past six months as rebuild activity gains momentum. To date, the rebuild has been hampered by delays in the processing of private insurance claims, reflecting the ongoing assessment of land suitability, reviews of whether buildings meet the Building Code's earthquake standards, and delays in the Earthquake Commission's (EQC) claims processing.

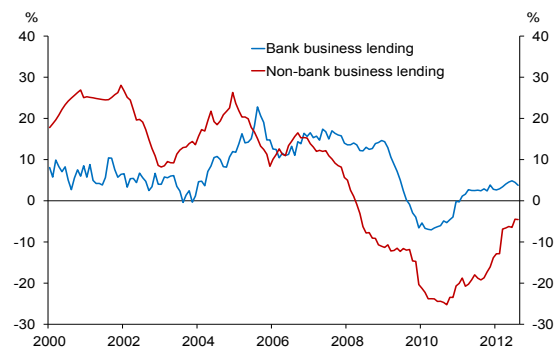
In recent months the availability of insurance coverage for businesses and households in the region has also improved. This will help support rebuild activity.

### ...but some businesses face headwinds.

After declining markedly in the wake of the financial crisis, lending to the business sector has grown modestly over the past year. Banks report that larger businesses have been seeking finance for investment activities. The current low interest rate environment is contributing to increased activity in some industries, including construction and plant, machinery and equipment manufacturing. Some businesses, on the other hand, continue to face headwinds, with export earnings being dampened by the high NZD and services industries continuing to be affected by low consumer demand.

Larger businesses appear to be in a better financial position, and more able to access credit, than their smaller counterparts. Indeed, some well-rated corporate borrowers can raise market funding more cheaply than banks. Anecdotal evidence suggests that bank credit is readily available for low-risk ventures, especially if the borrower is a well-rated corporate or if the loan is well collateralised. In contrast, lending to the small and medium enterprise (SME) sector has been weak for some time. Non-bank financial institution lending to businesses has also continued to contract (figure 3.10) and anecdotal evidence suggests that this may be creating a gap in the market where profitable projects are not being funded.

Figure 3.10  
Business lending  
(annual percent change)

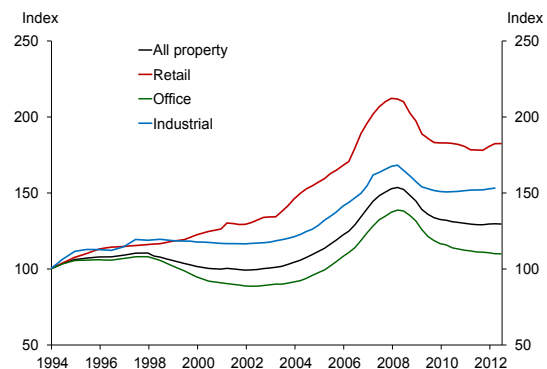


Source: RBNZ SSR.

### The commercial property sector is being affected by new earthquake standards.

Commercial property prices appear to have stabilised after falling sharply following the financial crisis (figure 3.11). However, the expense of bringing buildings up to new earthquake standards, along with more costly insurance premiums and tighter eligibility criteria, is resulting in increased costs for the commercial property sector. In some cases, high-risk properties are no longer able to secure insurance at all. Concerns around earthquake standards and insurance availability are being reflected in buyer and tenant demand, resulting in some signs of polarisation in the market. If this trend continues, it could result in further falls in prices and rents for properties that do not meet the appropriate standards.

Figure 3.11  
Commercial property capital returns  
(indices equal 100 in December 1993)



Source: IPD.

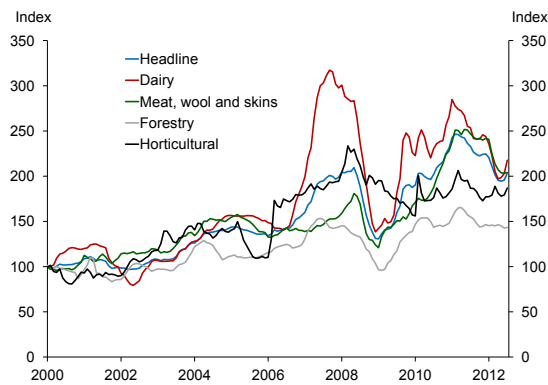
Note: Capital returns are calculated net of capital expenditure.



**Agricultural earnings have fallen...**

Agricultural export earnings have fallen over the past six months due to lower export commodity prices and the appreciation of the NZD. Falls in export commodity prices have been most prominent for dairy exports and, to a lesser extent, meat, wool and skins (figure 3.12). This has been driven, in part, by expanding global production, particularly of dairy products. However, recently, New Zealand's export commodity prices appear to have stabilised, which can at least partly be attributed to US drought conditions.

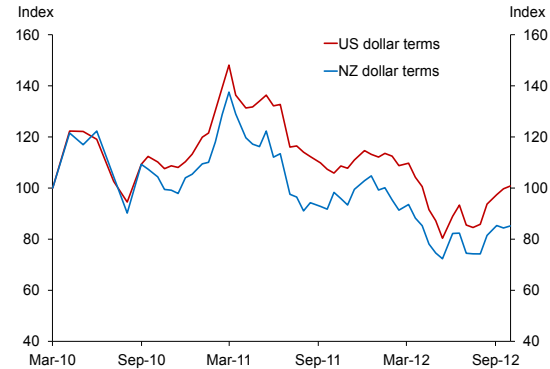
**Figure 3.12**  
Export commodity prices  
(SDR terms, rebased to equal 100 in January 2000)



Source: ANZ.  
Note: SDRs (special drawing rights) are claims on IMF member countries whose value is calculated as a weighted average of the USD, euro, pound and yen.

For the dairy sector, good growing conditions have contributed to increased milk production over the past six months. Dairy prices have fallen from the peaks seen in early 2011. More recently, Fonterra dairy auctions have seen stronger demand and auction prices have begun to recover (figure 3.13). Earnings expectations remain underpinned by the assumption that global dairy prices will be supported by drought conditions in the US and ongoing demand from Asia. There is a risk that further slowing in trading partner growth, particularly in Asia, could weaken demand for New Zealand's commodities.

**Figure 3.13**  
Dairy auction prices  
(average winning price per tonne, indexed to equal 100 in March 2010)

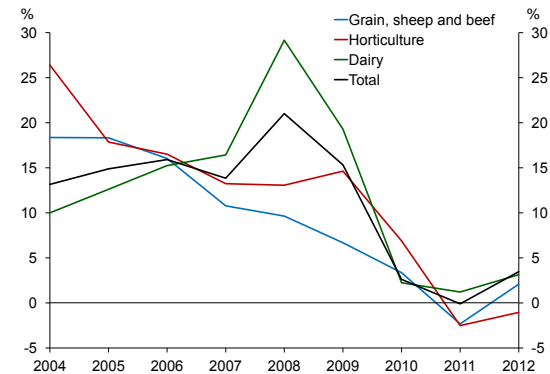


Source: Fonterra.

**...and the horticultural sector is still under stress.**

Some participants in the horticultural sector, which represents seven percent of agricultural bank lending, remain under financial pressure. Bank lending to the sector continues to contract (figure 3.14), primarily driven by weakness in the viticulture industry, which has been under pressure for a number of years. The industry has continued to consolidate over the past year – with more takeovers and shutdowns of wineries and vineyards – and remains constrained by high levels of debt. Any further weakening in global demand could see the sector come under increased stress.

**Figure 3.14**  
Registered bank lending to agriculture  
(annual percent change, June years)



Source: RBNZ Annual Agriculture Credit Survey.  
Note: Total agricultural lending includes all other types of agriculture.

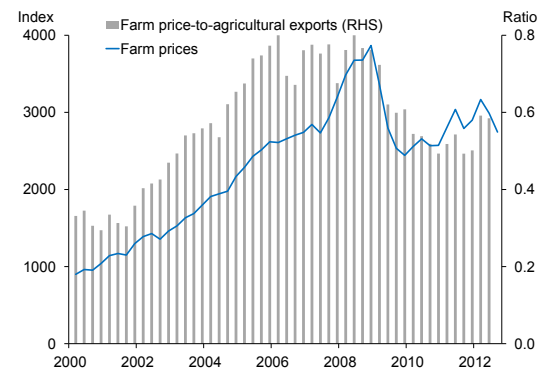
*The agricultural sector remains vulnerable due to its high levels of debt.*

Borrowing by the agricultural sector has slowed significantly over the past few years. However, there have recently been signs that borrowing is picking up, with credit growth increasing to an annual rate of 4.5 percent from close to zero at the start of the year. This increase partly reflects the lagged effect of the recovery in the farm market throughout 2011, as well as some borrowing for working capital due to lower farm income. Both farm prices and sales have been considerably weaker throughout 2012, which may limit any pickup in credit growth.

With debt levels remaining elevated, and revenue and land values sensitive to commodity export prices, the agricultural sector is vulnerable to an adverse external shock. A fall in export commodity prices could erode export earnings and place the sector under renewed pressure – particularly if the NZD remained elevated.<sup>4</sup> The dairy subsector would be particularly vulnerable in such a scenario due to its high levels of debt (see box B for more

detail). Stress on the sector could also be exacerbated if land values fell at the same time as commodity prices, as was the case following the global financial crisis (figure 3.15). The sector faces other risks, including drought or other adverse climatic conditions. On the other hand, interest rates are expected to remain low for some time, making debt servicing easier for many farmers.

Figure 3.15  
Farm price index and farm price-to-agricultural exports ratio



Source: REINZ, Statistics New Zealand.

<sup>4</sup> Typically, the New Zealand dollar tends to depreciate if commodity prices fall – however, extraordinary monetary easing in crisis-affected economies is at least partly underpinning recent NZD strength, and so this relationship may no longer be guaranteed.

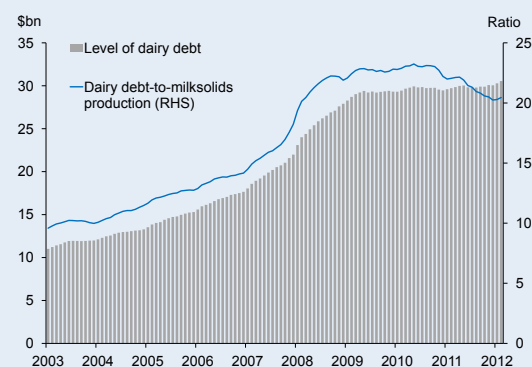
## Box B

### An update on the vulnerability of dairy farms

Debt in the dairy sector increased from \$11 billion to \$24 billion between 2003 and 2008. Dairy debt accounted for around 10 percent of aggregate bank and non-bank lending and 63 percent of lending to the agriculture sector. Almost half of this debt was held by the most indebted 10 percent of farmers, leaving those farmers highly exposed when milk prices fell sharply in the wake of the global financial crisis. This box updates earlier analysis of dairy sector indebtedness in light of forecasts that dairy payouts may drop below \$6 again for the 2012/2013 season.<sup>5</sup>

The decline in milk prices over the 2008/2009 season, although short-lived, illustrates that dairy returns can be highly volatile. This has led to greater caution in the sector in recent years. However, it is not clear that the overall debt position of the sector has materially improved. Borrowing increased sharply in the immediate aftermath of the decline in milk prices, as farmers drew down on credit lines for working capital. Debt levels have since declined as a share of milk solids production, but still remain higher than in the 2007/2008 season (figure B1).

Figure B1  
Dairy sector indebtedness



Source: RBNZ *Annual Agricultural Survey*, RBNZ SSR.

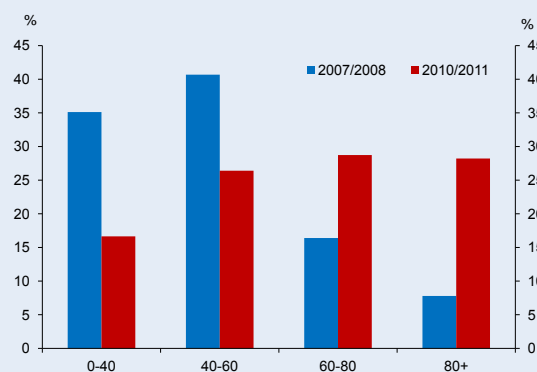
Note: Dairy debt is interpolated to monthly frequency using annual agricultural debt data.

<sup>5</sup> For a detailed assessment of dairy sector vulnerabilities in the 2007/2008 season, see Hargreaves, D and G Williamson (2011) "Stress testing New Zealand banks' dairy portfolios", Reserve Bank of New Zealand *Bulletin*, 74(2), pp. 15-25.

These aggregate debt numbers may disguise a change in the debt position of the most leveraged farmers. To investigate potential changes in the distribution of debt, data from DairyNZ's annual *DairyNZ Economic Survey* are analysed. This survey captures balance sheet and profit-and-loss information on a sample of around 200 dairy farms. There are some limitations with this dataset: larger farms are under-represented,<sup>6</sup> and this survey counts 'soft' loans from family members as part of farm debt.<sup>7</sup> The average market value of land within the dataset also appears to lag available measures of farm price indices, and so for the purposes of this analysis, market values are adjusted to more closely reflect movements in the QV dairy price index.

The most notable shift over the past four years has been a marked increase in loan-to-value ratios (LVRs), reflecting the 20 percent decline in dairy farm prices between the 2007/2008 and 2010/2011 seasons. The proportion of debt in high LVR buckets has increased significantly, which is likely to make banks less comfortable forbearing on troubled operations (figure B2).

Figure B2  
Distribution of farm debt by LVR



Source: DairyNZ, RBNZ calculations.

Note: The LVR ratio distribution includes loans from family members.

<sup>6</sup> The largest farm in the sample has a land area of 420 hectares. Within the more comprehensive dataset presented by Hargreaves and Williamson (2011), 25 percent of bank lending is directed towards farms larger than this threshold. These larger farms are more indebted than average.

<sup>7</sup> Discussions with DairyNZ indicate that soft loans account for around 20 percent of farm debt within the *Economic Survey*.

Table B1

Selected financials of high LVR farms compared to average farms  
(\$ per kg of milk solids produced)

Season	Top quartile of farms by LVR				Average			
	07/08	08/09	09/10	10/11	07/08	08/09	09/10	10/11
<b>LVR</b>	<b>&gt;50</b>	<b>&gt;72</b>	<b>&gt;78</b>	<b>&gt;71</b>	<b>38</b>	<b>53</b>	<b>55</b>	<b>52</b>
<b>Profitability</b>								
Dairy revenue	7.3	5.3	6.2	7.2	7.4	5.4	6.1	7.3
- Breakeven payout	5.3	5.6	5.4	5.6	4.7	4.8	4.7	4.9
of which working expenses	3.9	4	3.7	4	3.9	3.8	3.7	3.9
of which interest	1.7	2.2	2	1.9	1.4	1.5	1.5	1.4
= Cash operating surplus	2.0	-0.3	0.8	1.6	2.7	0.6	1.3	2.4
<b>Flow of funds</b>								
Investment	4.4	3.9	1.4	1.2	3.0	2.2	0.9	1.1
Growth in current assets	0.9	-0.4	0	0.4	0.6	-0.4	0.2	0.4
Growth in debt	4.2	4.4	1.4	0.7	2.3	2.1	0.6	0.1

Note: 'Breakeven payout' is defined as working expenses plus interest payments, minus non-dairy cash income.

Table B1 shows key profit-and-loss information for farms in the top quartile by LVR, compared to average farms. High LVR farms have similar average farm working expenses to other farms. However, they have tended to invest significantly more than average, which partly explains how they have come to have high debt. Higher debt servicing costs in turn mean that the average breakeven payout is around 70c/kgms higher for the high debt farms.

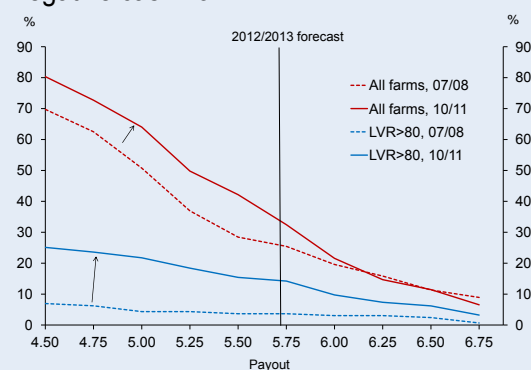
There is little evidence that these leveraged operations are in a less vulnerable position compared to the 2007/2008 season. Despite the exceptional returns of the past few seasons and low interest rates, net debt levels (debt less current assets) remain elevated at \$28/kgms, \$2.40/kgms higher than in 2007/2008. However, debt accumulation among leveraged farmers has slowed sharply over the past four seasons, owing to a significant reduction in investment. Indebted farms have also made some progress in rebuilding buffers of liquid assets that were drawn upon during the 2008/2009 season.

Figure B3 gives a sense of the extent of stress that could be caused by a lower payout. For different payout levels, it shows the proportion of dairy debt held by farms that would be operating at a cash operating loss (i.e. below their 'breakeven payout'). Under the current

Fonterra payout forecast of \$5.65-5.75 for the 2012/2013 season, approximately 36 percent of dairy sector debt would be held by operations with negative cash flow if farm working expenses remained unchanged. This would increase to 64 percent of debt if the payout fell sharply to \$5.

Farmers may be able to reduce working expenses in response to these lower payouts, reducing the proportion of operations that have negative cash flow. This is particularly true for the 2012/2013 season where the reduced payout has been signalled well in advance. Farm working expenses fell by 23c/kgms between the

Figure B3  
Proportion of debt held by farmers with negative cash flow



Source: DairyNZ.

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2007/2008 and 2009/2010 seasons, partly in response to lower payouts.

Compared to the 2007/2008 season, the equity positions of these troubled farms is weaker. In a scenario where the payout fell to \$5, approximately 22 percent of dairy debt would be held by farms operating at a loss and with LVRs of above 80 percent, compared with only 4.4 percent in the 2007/2008 season. Those numbers could be higher still if land prices declined, although the scope for price falls is now lower than in 2007/2008 – given current farm prices now appear more in line with fundamentals (see figure 3.15).

The dairy sector appears more vulnerable to a sharp decline in the payout than at the time of the peak in dairy prices. Aggregate debt is higher now than it was in 2007/2008, and a slightly greater proportion of this debt is now held by the most indebted portion of farmers. Declining farm land prices have eroded the equity buffers of indebted farmers, implying that banks would consider foreclosing on a larger proportion of farms if the payout fell sharply and was expected to remain weak.

## 4 New Zealand's financial institutions

The New Zealand banking system has continued to perform strongly, with one measure of profitability – return on assets – returning to near pre-crisis levels. The return on equity has also increased but remains below pre-crisis levels as banks are increasing their capital buffers in anticipation of new regulatory requirements, which come into effect at the beginning of 2013. Banks have also increased their liquidity buffers, which, along with higher capital ratios, provide the banking system with a greater ability to cope with periods of stress.

Bank lending to households, business and agriculture has increased over the past six months, but still remains subdued compared to pre-crisis growth rates. Banks are competing actively for new business, especially in the residential mortgage market, with lending standards easing since the *May Report*. However, as discussed in chapter 3, if credit demand strengthened significantly, banks could find funding that loan growth more challenging as wholesale funding remains expensive and global funding markets may be subject to further disruption.

The licensing process continues as part of the new prudential regime for the insurance sector under the Insurance (Prudential Supervision) Act 2010. All insurers will be required to have a full licence by September 2013. The insurance sector continues to process claims related to the Canterbury earthquakes, with nearly \$11 billion having been paid out so far.

### 4.1 Banking sector

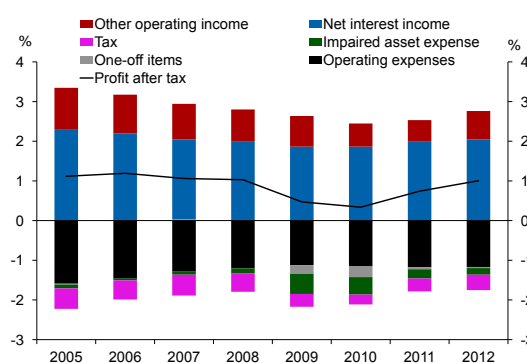
#### *Banks are earning solid profits...*

The New Zealand banking system continues to cope well with the volatile global environment and relatively subdued domestic economy. An improvement in asset quality has allowed the banks to reduce loan provisioning. With underlying earnings fairly strong, this has meant the banks are earning a return on assets of around one percent per annum, not far from pre-crisis levels (figure 4.1).

#### *...and loan quality is improving slowly.*

Non-performing loans remain at a level that is elevated by the standards of recent history, but much lower than in many other countries (figure 4.2). The level of non-performing loans is also low relative to the early 1990s experience. However, non-performing loan rates have fallen only slightly over the past year or so, despite the stabilisation in economic activity. While it is normal for

Figure 4.1  
New Zealand bank profitability  
(percent of assets, June years)

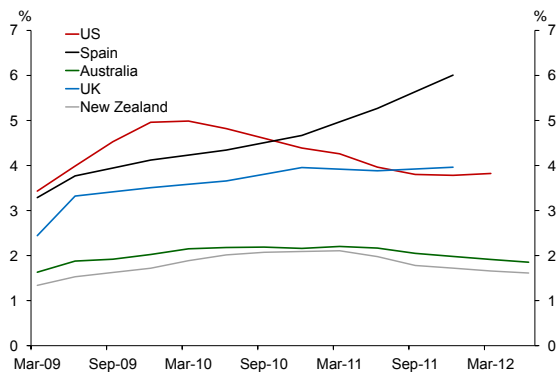


Source: *General Disclosure Statements (GDS)*.

non-performing loan rates to lag the economic recovery, the unusually subdued pace of economic recovery may have exacerbated the lag in the current cycle with the improvement in cash flows for some borrowers not sufficient to bring them up to date with loan repayments.

The non-performing loans reported by banks are

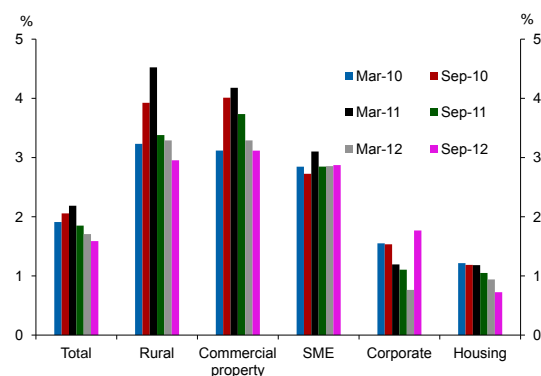
**Figure 4.2**  
**Non-performing loans**  
*(percent of lending, selected countries)*



Source: IMF *Financial Soundness Indicators*, GDS.  
 Note: Definition of non-performing loans and the composition of lending may vary across countries.

disproportionately concentrated in the rural and business sectors. Non-performing corporate loans have spiked higher in recent months, due to a few large exposures becoming impaired. A smaller, and declining proportion of residential mortgages are past due or otherwise impaired (figure 4.3). While rural non-performing loans have declined, further stress is possible (see chapter 3).

**Figure 4.3**  
**Sectoral non-performing loans**  
*(percent of sectoral lending)*



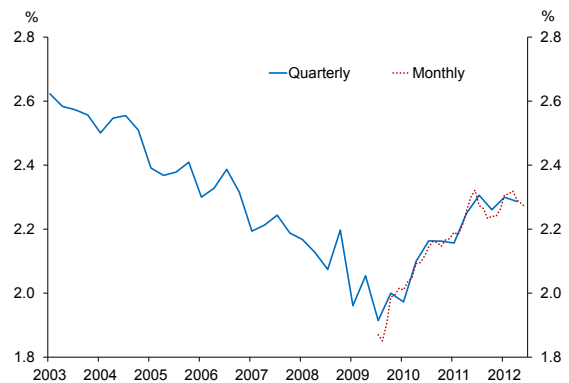
Source: Based on private reporting data from eight registered banks.  
 Note: Includes impaired and 90-day past due assets. Data are not standardised and definitions may vary across banks.

**Banks have rebuilt margins...**

Net interest margins declined over 2008 and 2009 as banks held a large proportion of fixed rate mortgage assets, partly financed with floating wholesale liabilities. The banks were hedged against benchmark interest rate risk, but not against fluctuations in the spread over benchmark interest rates that they had to pay for

wholesale funding. This spread increased during the crisis and has remained high. Interest rate margins for fixed-rate mortgages taken out before the crisis declined when banks subsequently faced higher interest rate spreads. More recently, as pre-crisis fixed mortgages have been re-priced, banks have been able to restore margins to around pre-crisis levels (figure 4.4).

**Figure 4.4**  
**New Zealand retail banks' net interest margins**



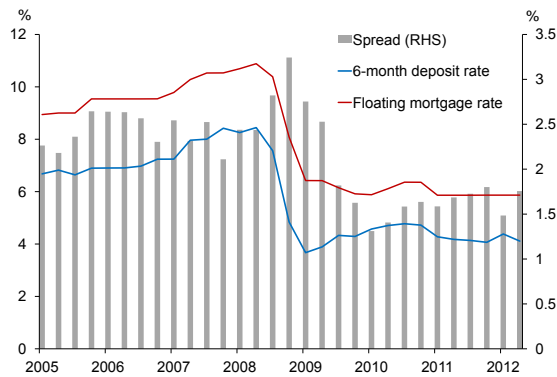
Source: GDS, RBNZ *Net Interest Margin Survey*.  
 Note: Net interest margins are defined as net interest income divided by average interest earning assets. Series are annualised and monthly data is a three month moving average.

**... but are still competing for most business.**

Banks generally appear to be keen to grow lending, particularly in sectors they regard as performing well. Terms and conditions for residential mortgage loans appear to have been relaxed somewhat over the past year, after a tightening in conditions around 2009. Discussions with banks suggest that high loan-to-value ratios (LVR) loans are now beginning to form a significantly larger share of new mortgage lending than has been the case for most of the period since the financial crisis. Since the crisis, the margin between floating mortgage rates and benchmark deposit rates has declined (figure 4.5). However, with households still relatively indebted and house prices remaining over-valued on some metrics, banks will need to remain alert to the risks associated with a marked acceleration in credit growth to the household sector.

Banks also report easing lending standards for business and (to a lesser degree) agricultural lending

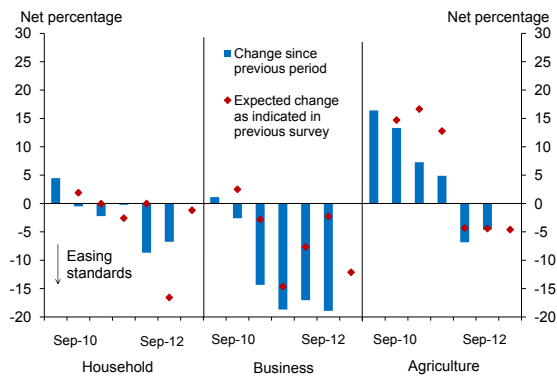
**Figure 4.5**  
6-month term deposit rate and floating mortgage rate



Source: RBNZ Retail Interest Rate Survey.

(figure 4.6), with competition among banks leading to reduced margins and fees for some customers. The easing in business lending standards is reported to be concentrated in the corporate/institutional market, with terms for SME customers easing but not to the same degree.

**Figure 4.6**  
Change in New Zealand banks' 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.

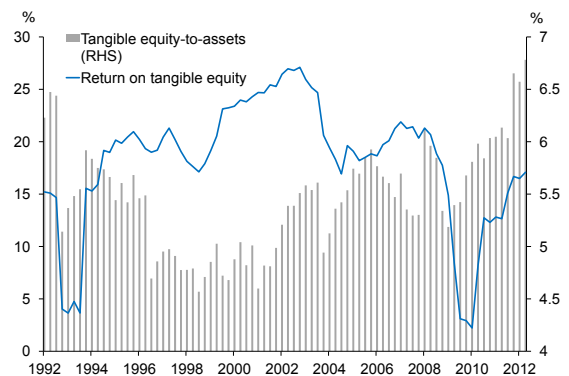
The relaxation of lending standards partly reflects weak loan demand. Loan growth over the last couple of years has been broadly matched by deposit growth, so that banks have not had to expand wholesale borrowing from offshore. While the banking system currently appears to have capacity to meet stronger demand for lending, returning to rates of credit growth well in excess of domestic deposit growth would require the banks to increase their reliance on offshore funding in the manner

seen prior to the financial crisis. The difficult external funding environment, along with both regulatory core funding requirements and banks' own efforts to place a greater emphasis on retail deposits, may place a brake on future upswings in credit expansion.

**Banks are holding more capital.**

While net interest margins and return on assets have broadly returned to pre-crisis levels, the owners of New Zealand banks now have a larger equity stake, so the profit per dollar of equity has not increased to the same degree (figure 4.7). With larger capital buffers it is likely bank owners will be willing to accept lower rates of return on equity in normal years, in return for reduced volatility and lower losses in bad years (see box C). Tangible equity (relative to assets) has increased to levels higher than seen over the previous 20 years.<sup>1</sup> However, while earlier comparisons are difficult to make, the banking system would have had a substantially higher capital ratio further back in history.

**Figure 4.7**  
Equity-to-assets, and return on equity (locally incorporated major banks)



Source: GDS, RBNZ calculations.

Note: Tangible equity is shareholders funds and retained earnings less intangible assets such as goodwill. Return on tangible equity is after-tax.

<sup>1</sup> When a bank makes a loss, tangible equity is reduced, so the level of tangible equity is one measure of a bank's capacity to absorb losses.



## Box C

### Why increasing bank capital reduces expected rates of return on equity

Banks obtain a relatively small proportion of funding from their shareholders, but importantly, it is the shareholders who absorb any loss that a bank makes in a difficult year.<sup>2</sup> As the proportion of funding provided by shareholders (equity relative to total assets) rises, the potential consequences of a difficult year for shareholders become less serious. Shareholders expecting a particular average rate of return will need lower returns in normal years as the ratio of equity to assets rises (given that losses in difficult years are smaller). More subtly, returns available to the shareholder also become less volatile, so they may be prepared to tolerate a lower average rate of return overall.

A simple stylised example makes this clear: if a bank has 5 percent equity (or 20x leverage) and suffers a loss of 3 percent of assets in a bad year, the shareholders have lost 60 percent of their investment. If a bad year is expected once every 11 years on average, shareholders would require an additional 6 percent per annum return in the 'normal years' to compensate for the risk they face

during bad years. If shareholders require a 5 percent excess return (over the risk free rate of 5 percent) on average overall, the target return they seek in normal years will be 16 percent.

As the bank becomes less leveraged, the reduced volatility of the returns lowers the risk premium on the bank stock.<sup>3</sup> For example, at 10 percent equity (or 10x leverage), only a 2.5 percent risk premium is required. Additionally, bad year losses are only 30 percent for each shareholder. Overall, the return investors are looking for in normal years declines to 10.5 percent (table C1).

This is a stylised representation of an argument in the Reserve Bank's recent *Regulatory Impact Assessment* of Basel III capital requirements in New Zealand (see chapter 6). Actual expected return on equity (ROE) will be affected by other factors including intangible assets, taxation, and the level of interest rates, but the substantial relationship between equity and expected ROE will remain. Finally, in this example it is assumed, for simplicity, that debt is riskless. In reality, rising equity capital will also tend to reduce the spreads at which a bank can borrow, and these two effects mean that increasing capital requirements should have little or no permanent impact on the bank's weighted average cost of capital or lending rates.

Table C1  
Expected investor returns – a stylised example

Equity to assets ratio	Risk premium	Expected return	Loss in bad year	Additional normal year return expected	Total normal year expected return
%	%	%	%	%	%
3.3	7.5	12.5	90	9.0	21.5
5.0	5.0	10.0	60	6.0	16.0
6.7	3.8	8.8	45	4.5	13.3
10.0	2.5	7.5	30	3.0	10.5

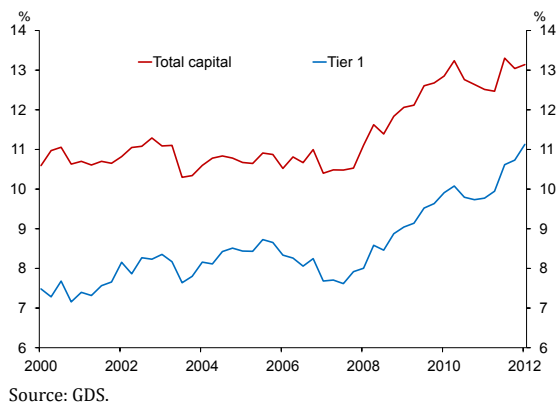
Note: Loss in bad year is assumed to be 3 percent of total assets.

<sup>2</sup> In this box the possibility that the bank may become insolvent is ignored for simplicity, and it is assumed that the book value (as recorded on the balance sheet) and market values of the bank's equity are the same.

<sup>3</sup> See Miles, D *et al* (2011) "Optimal bank capital", Bank of England External MPC Unit, *Discussion Paper* No. 31, for an explanation of how the riskiness of a banking stock (and thus required risk premium) is proportional to its leverage.

The increase in tangible equity means the banking system is well placed to meet the new Basel III minimum capital requirements that will come into effect on 1 January 2013 (see chapter 6). The current ratio of Tier 1 capital to risk-weighted assets (figure 4.8) would also enable New Zealand locally incorporated banks to meet the higher minimum capital requirements and the additional 'conservation buffer' of 2.5 percent common equity, which will come into effect on 1 January 2014.<sup>4</sup> Banks are permitted to operate within the conservation buffer, but would face some restrictions on the distribution of earnings to shareholders.

Figure 4.8  
New Zealand bank regulatory capital ratios  
(locally incorporated banks, percent of risk-weighted assets)



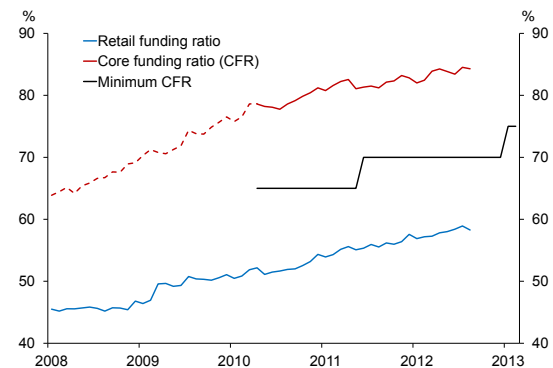
The banking system's capacity to absorb credit losses is bolstered by the underlying profitability of the system. Profits naturally help offset credit losses, and expectation of future returns helps provide an incentive for shareholders to contribute additional capital if capital becomes depleted. The healthy equity cushions and earnings of the Australian major banks also strengthen the position of their New Zealand subsidiaries. Nevertheless, results from stress tests (box D) suggest that these buffers could be tested in a severe economic downturn.

<sup>4</sup> Current regulatory capital ratios calculated using Basel II definitions are not strictly comparable to the calculated ratios that would prevail under the new enhanced Basel III standards.

*Reliance on short term wholesale funding has declined.*

Since the financial crisis, banks have sought to reduce their reliance on short-term wholesale funding by increasing the portion of their balance sheet funded with retail and other non-market funding, and by borrowing for longer terms in wholesale markets. Core funding, which includes customer deposits, longer-term wholesale borrowing, and bank capital, now comprises well over 80 percent of banking system funding (up from around 65 percent during 2008). The minimum core funding ratio will rise from 70 percent to 75 percent on 1 January 2013, with the banking system already positioned to comfortably meet that requirement (figure 4.9).

Figure 4.9  
Core and retail funding ratios  
(percent of loans and advances)



To a large degree, the increase in core funding has been achieved through rising customer deposits, coupled with weak lending growth. Banks have also begun to issue covered bonds, a form of longer-term wholesale funding which reserves certain collateral for the bondholder in the event of the bank being unable to repay the bonds as they fall due.

As discussed in earlier *Reports*, New Zealand banks typically borrow foreign currency in offshore wholesale markets and 'swap' this funding with foreign issuers of NZD securities.<sup>5</sup> This is a cost-effective way to obtain NZD funding for the banks as the investors who are willing to

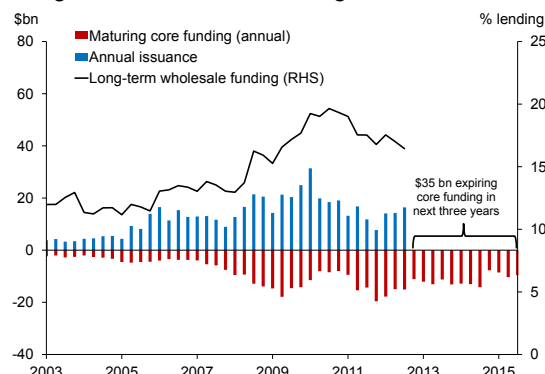
<sup>5</sup> See box B and box D of the May 2012 and November 2011 *Financial Stability Reports* respectively.

take NZD risk are not necessarily the same international investors who are willing to lend to the New Zealand banking system.

Over the past six months, the major New Zealand banks have been able to borrow in foreign markets (especially the euro area) at lower spreads than in recent years, partly as some central banks globally have provided abundant liquidity. In addition, the New Zealand banks are seen as safer than many overseas counterparts. However, the cost of transforming euro funding into NZD remains quite elevated (see chapter 2), so the overall costs of obtaining fixed-term NZD funding remains high. The high costs of longer-term wholesale funding encourages the banks to compete for retail funding (as retail funding also counts as core funding), and deposit interest rates have remained well in excess of benchmark rates like the official cash rate.

Banks have had little need to issue substantial amounts of long-term wholesale securities (including covered bonds) over the past six months, given rising customer deposits and subdued credit growth. As a consequence, the share of core funding provided by long-term wholesale borrowing has declined (figure 4.10). If domestic deposit growth slowed or loan growth accelerated, a larger amount of longer-term wholesale borrowing would be required to keep the core funding ratio at current levels. Depending on the state of global markets, this might be difficult to obtain, at least without spreads becoming more elevated. In turn, this would probably make banks unwilling to compete quite as actively for new business as they appear to be at present.

**Figure 4.10**  
Long-term wholesale funding

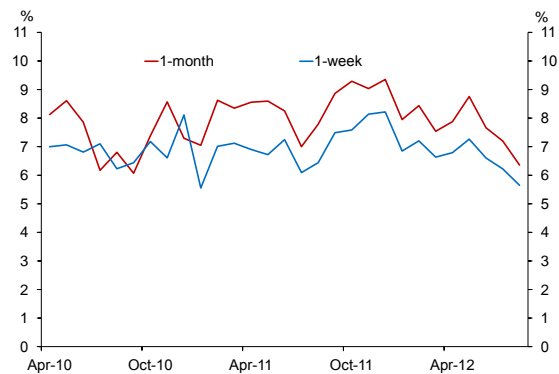


Source: RBNZ liquidity statistics, SSR, Bloomberg, RBNZ calculations.

**Bank liquid asset reserves are steady.**

As well as funding loans and advances with an increasing proportion of core funding, banks are holding substantial portfolios of liquid assets. Liquid assets are held by banks to allow them to weather unexpected net outflows of deposits and wholesale funding. The formal ‘mismatch’ ratios imposed under the Reserve Bank’s liquidity policy measure how much additional liquidity individual banks would have remaining after a scenario in which wholesale funding became unavailable for a short period and a proportion of retail funding was also lost.<sup>6</sup> As at the end of October, all reporting banks had 1-week and 1-month mismatch ratios above zero, as required by the policy, with the aggregate system mismatch ratios around 6 percent (figure 4.11). These statistics, as well as the system core funding ratio and some other background detail, are now published monthly on the Reserve Bank website.

**Figure 4.11**  
Mismatch ratios  
(share of funding)



Source: RBNZ liquidity statistics, RBNZ calculations.

<sup>6</sup> See Hoskin, K, I Nield and J Richardson (2009) “The Reserve Bank’s new liquidity policy for banks” Reserve Bank of New Zealand *Bulletin*, 72(4), pp. 5-18.

## Box D

### Recent stress tests of the major banks

Stress testing is a tool for assessing how individual financial institutions, and the financial system as a whole, would respond to an adverse macroeconomic scenario. Banks are required to perform regular stress tests as part of their internal capital adequacy assessment programmes. Banks also participate in stress testing exercises led by their supervisor. Box D in the May 2011 *Report* describes the last significant New Zealand stress testing exercise which was in 2010.

Earlier this year, the Reserve Bank and the Australian Prudential Regulation Authority (APRA) collaborated on stress tests which included the four subsidiaries of the major Australian banks. The scenario underpinning the test was for a period of three years from September 2011 and centred on a disorderly resolution of the European sovereign debt crisis. There were two main transmission channels to New Zealand. First, weaker global growth, and in particular a material slowing of the Chinese economy, was assumed to result in a 40 percent drop in the world price of New Zealand's commodity exports. Second, wholesale debt markets in which banks obtain funding were assumed to freeze for six months – similar to the experience after the collapse of Lehman Brothers in 2009. The net effect was a severe domestic recession in New Zealand, with a cumulative output loss of 4 percent and unemployment peaking at 11.4 percent. House, farm and commercial property prices were all assumed to fall by about 30 percent from their September 2011 levels.

Participating banks were first asked to analyse the effects of this scenario using their own internal models. Differences in modelling approaches led to material differences in results between banks. Following this, a degree of standardisation was applied, with banks asked to apply common credit risk estimates across their respective portfolios. In both cases, banks were asked to model the effects of the scenario without taking any

Figure D1

#### Impaired asset expenses

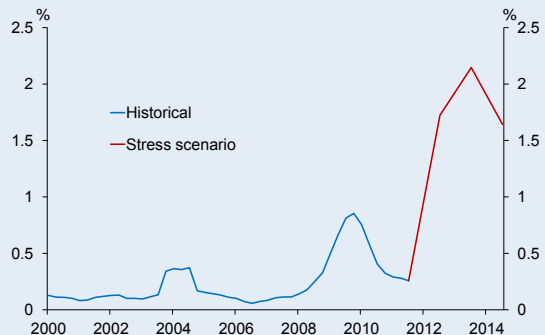


Figure D2

#### Return on assets

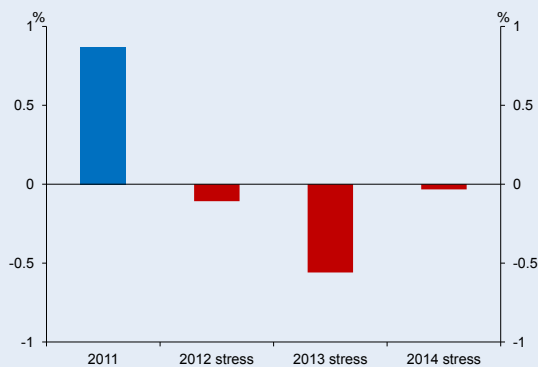
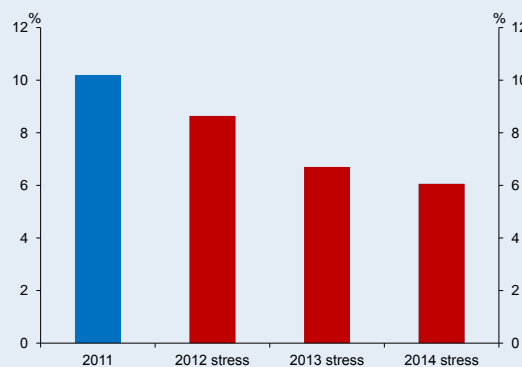


Figure D3

#### Tier 1 capital ratios



management actions to mitigate their impact. The key results of the second phase were:

- Impaired asset expenses peaked at over 2 percent of loans and advances in the second year of the scenario, with total impaired asset expenses over the course of the three-year scenario of 5.5 percent (figure D1).
- These credit losses, when combined with lower net

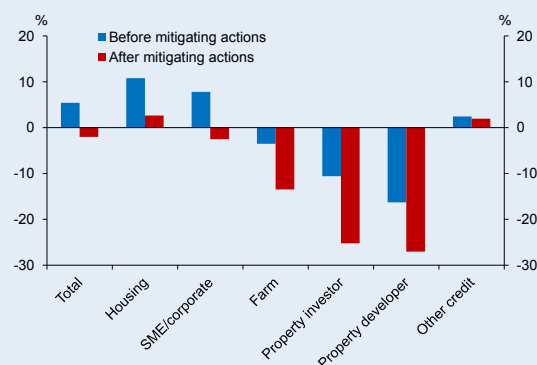
interest margins as a result of greater competition for deposit funding, were sufficient for banking system profitability to turn negative in all three years of the scenario (figure D2).

- A combination of negative profitability and an increase in risk weighted assets due to credit deterioration resulted in Tier 1 capital ratios falling from an average of just over 10 percent at the start of the scenario to around 6 percent at the conclusion (figure D3).

The estimated losses are relatively large, reflecting the severe macroeconomic scenario. However, faced with a downturn of this magnitude, banks would take a number of actions to shore up their balance sheet and to limit losses. The stress tests also required banks to report the management actions that they would take, and to quantify the effect of these actions. There were three key actions that a number of banks reported. First, all banks reported a re-pricing of loan and deposit products which resulted in an increase in average net interest margins of 50 basis points. Second, two banks reported an injection of new capital to boost capital ratios. Third, all banks reported a marked reduction in new lending.

The net effect of these actions was to return aggregate profitability into positive territory over the stress scenario, with Tier 1 capital ratios at just under 9.5 percent by the final year of the scenario – near their starting position in 2011. However, the proposed reduction in lending would be difficult to achieve, particularly for business lending categories. Farm lending was projected to fall by just under 15 percent in aggregate, and commercial property lending by over 25 percent (figure D4). If such a deleveraging was attempted, it could be self-defeating as the resulting weakness in asset markets and worse macroeconomic outcomes would likely result in further loan losses. Instead, banks would be expected to restore capital ratios either through capital injections if possible or organically through retained earnings over a longer period of time.

Figure D4  
Change in stock of credit by sector  
(3-year total)



The Reserve Bank considers stress testing to be an important risk management competency and expects banks to continue to develop capability in this regard. Work is continuing within the Reserve Bank to further develop a stress testing framework. A key point of emphasis is to extend future stress testing exercises to other New Zealand locally incorporated banks.

## 4.2 Other providers of intermediated credit

New Zealand households and firms who are seeking to borrow typically conduct that borrowing with a domestically registered bank, with Reserve Bank statistics showing that the banking system accounts for around 95 percent of intermediated credit.

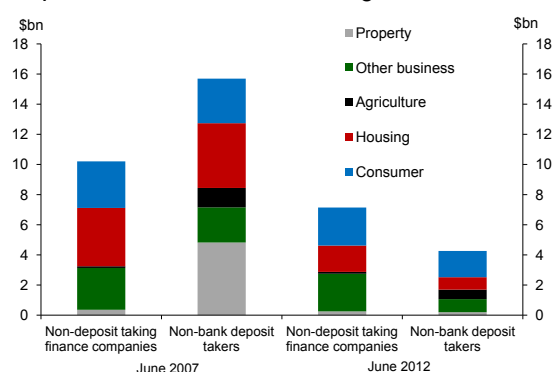
The other providers of intermediated credit operate mainly in certain niche markets such as lease finance and consumer credit. These providers include:

- non-bank deposit takers (NBDTs) – including finance companies, building societies and credit unions;
- non-deposit taking finance companies; and
- foreign bank lending not captured in domestic credit statistics.

NBDTs, which are regulated by the Reserve Bank, continue to operate as lenders, with their funding predominately coming from a domestic deposit base. These institutions appear to have managed the expiry of the extended deposit guarantee scheme fairly effectively, and the sector (much reduced in size relative to a few years ago) appears to have been fairly stable in the last six months.

Non-deposit taking finance companies are not regulated by the Reserve Bank. These entities typically have a mix of equity, bank loans and wholesale funding. Their market presence has declined after the crisis, although not by as much as that of the NBDTs (figure 4.12).

Figure 4.12  
Exposures of non-bank lending institutions



Source: RBNZ SSR.

Note: 2012 figures exclude companies in moratorium or receivership.

Foreign banks are able to lend directly to New Zealand entities. Where the lending is channelled through a locally registered branch or subsidiary it is captured in the Reserve Bank's credit statistics for the New Zealand banking system. However, some foreign bank lending will not be captured in the credit statistics. For example, foreign banks may participate in syndicated loans associated with the purchase of a New Zealand firm.

Some borrowers (often larger corporate entities) may choose to directly access capital markets in lieu of borrowing through the banking system. In the post-crisis financial system this may be a cheaper avenue for some borrowers given the elevated funding costs faced by banks.

At the same time there are also some banking systems where funding costs have not increased the same way as in New Zealand. For example, many Asian banks have abundant retail funding. This lower funding cost base may help these banks expand cross-border lending into New Zealand. Recently the balance sheets of some New Zealand branch operations with Asian parents have expanded. Additionally, some intermediated credit effectively funding New Zealand businesses will not be directly visible in New Zealand credit data. For example, a New Zealand firm may obtain funding directly from a foreign registered bank.

These foreign bank activities are relatively minor parts of the New Zealand credit market, as are domestic non-bank lending institutions, and this seems unlikely to change rapidly. However, having a variety of potential suppliers of credit – bank and non-bank, local and offshore, and direct capital funding – is healthy, as it helps to keep New Zealand lending markets contestable and improves the variety and pricing of services for individual customers.

## 4.3 Insurance

The Canterbury earthquakes have continued to provide a key focus for the New Zealand insurance sector. This has predominantly involved settling claims. Underwriting constraints imposed in the immediate aftermath of the earthquakes have also been relaxed, making new property insurance more available. On the regulatory side, the licensing process continues to receive significant industry (and Reserve Bank) attention.

### *Insurer licensing update*

The first phase of the transition to a new prudential regime for the insurance sector, introduced by the Insurance (Prudential Supervision) Act 2010 (the Act), was completed in March this year when most insurers were required to have a provisional licence. The second phase is well under way with less than a year until the September 2013 deadline when every continuing insurer must have a full licence.

Requirements under the Act and related regulations come into effect on various dates during the transition. From 30 September 2012, insurers had to comply with certain governance and risk management requirements and from 31 December 2012 most insurers will have minimum capital and solvency requirements in accordance with the Reserve Bank's solvency standards.<sup>7</sup>

Under the Act, most life insurers must establish a statutory fund to protect policyholder funds. This is because stronger safeguards are required for long-term financial promises such as life insurance. The date at which statutory funds are required to be established varies by insurer based on their balance date. Originally, some life insurers were due to have established statutory funds by 30 September 2012. However, the regulations pertaining to statutory fund requirements were issued significantly later than the Reserve Bank anticipated and consequently the due date for establishment of statutory funds has been deferred for some insurers following consultation.<sup>8</sup>

<sup>7</sup> <http://www.rbnz.govt.nz/finstab/insurance/4267910.html>

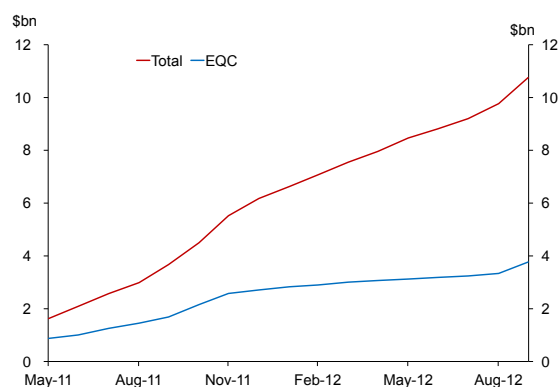
<sup>8</sup> <http://legislation.govt.nz/regulation/public/2012/0196/latest/DLM4611401.html>

To date very few insurers have been issued with a full licence. It is important to note that early or late receipt of a full licence does not indicate quality or financial strength. The Reserve Bank will prioritise assessment of licence applications to efficiently complete the process, and take into account any special circumstances that might require some insurers to be licensed at a particular date. Most full licences are expected to be issued by the end of the second quarter of 2013.

### *Canterbury earthquake claims progress*

Total insurance claim payments for the Canterbury earthquakes currently stand at \$10.8 billion (figure 4.13) – comprising \$3.8 billion by the Earthquake Commission (EQC) and \$7 billion by other insurers. This represents about one third of the ultimate total claims costs, which are estimated to be well in excess of \$30 billion. Claims cost estimates are still increasing and have risen by around \$1.5 billion since the previous *Report*.

Figure 4.13  
Canterbury earthquake cumulative insurance claim payments  
(as at end of September 2012)



Source: EQC and other insurers.

Many significant issues affecting insurance claims are yet to be resolved and uncertainty about the total insurance claim cost estimate remains high with an approximate \$10 billion difference between the upper and lower bound estimates used by the Reserve Bank. Some examples of significant remaining issues that would affect total claims costs, or costs borne by individual insurers, include:

- allocation of costs between EQC and private insurers and between specific earthquake events;



- litigation – which is beginning to occur;
- reinsurer disputes;
- changes in land condition where these are not covered by EQC, or where EQC cash settles instead of fixing land damage;
- response to various new and amended regulations (such as flood management rules and changes in building codes); and
- inflationary pressures due to resource constraints.

New property insurance in Christchurch and nearby is becoming more available. Some insurers have relaxed their underwriting constraints, and further improvements are anticipated in the absence of any major aftershocks. Berkshire Hathaway International Insurance Limited, a UK-based member of the global insurance group Berkshire Hathaway Inc, has obtained a New Zealand insurance licence and intends to provide earthquake cover for construction in Canterbury.

#### **Other insurance industry developments**

More generally, property insurance premiums are still increasing nationwide, and some terms are being tightened. Owners of some high-risk properties face difficulties in obtaining or changing their insurance cover. Tighter terms include increased excesses, lower limits, and changes from open-ended replacement cover to capped replacement cover or sum insured basis. Despite these changes, earthquake insurance is more freely available in New Zealand than in other high-risk locations such as Japan or California, and uptake is much higher.

Many insurers renewed their reinsurance at July

2012, and their desired reinsurance cover was generally available, albeit at higher premiums. The increases in property catastrophe reinsurance premiums were much more modest than for 2011 renewals. This reflects that reinsurers are currently well capitalised and operate in a competitive market, countered by the perceived risk for New Zealand being markedly higher than before the Canterbury earthquakes.

ACS (formerly Ansva) had earlier decided to exit New Zealand and entered run-off at 31 December 2011. In June 2012 ACS established a contingent scheme of arrangement, which required court approval under the Companies Act 1993. Schemes of arrangement are used in the United Kingdom and elsewhere, but to date do not appear to have been used by insurers in New Zealand. The scheme provides a mechanism to reduce claims in the event there is a shortfall of assets to meet liabilities. The Reserve Bank participated in the process by:

- commissioning an independent actuarial report to value claims and expenses of ACS;
- providing a report for claimants on the Reserve Bank's view of the scheme, detailing various concerns;<sup>9</sup>
- attending the creditors' meeting at which the scheme was voted upon; and
- being represented at the court hearings.

The Treasury has confirmed the terms of reference for a review of the Earthquake Commission (EQC). This review will investigate the structure and parameters for EQC cover, but will not include a review of EQC's operational performance in respect of the Canterbury earthquakes.

<sup>9</sup> <http://www.rbnz.govt.nz/finstab/insurance/4941101.html>



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## 5 Payment and settlement systems

New Zealand's payment and settlement systems have operated effectively over the past six months, including the new settlement before interchange (SBI) arrangements introduced in February 2012. A disruption to the retail payments system in April prompted a review by Payments NZ, participant banks and the Reserve Bank, resulting in agreement on further enhancements to SBI to mitigate the impact of future incidents. This includes improving contingency arrangements in the event of an outage to the Reserve Bank operated Exchange Settlement Account System (ESAS).

The Reserve Bank continues to monitor risks arising from innovation in the payments system. This includes recent moves from a number of banks to introduce contactless and mobile payments.

### *Payment and settlement systems have operated satisfactorily.*

The SBI arrangements for retail payments,<sup>1</sup> implemented early this year, help reduce the risk that one payment system participant (i.e. a bank) will not meet its obligations to another participant. SBI has operated effectively over the last six months. On average around \$4 billion of payments are now being processed through SBI each day.

The most significant disruption to retail payments since the introduction of the new arrangements was in April as described in the last *Report*. On that occasion there were significant delays to the exchange of payment instructions between banks and to the posting of transactions to customer accounts.

The Reserve Bank considers this to have been a serious incident and asked Payments NZ Limited (PNZ), as the body responsible for the rules governing SBI, to report on the causes of the disruption, steps that could be taken to improve the resiliency of the SBI arrangements, and the way that incidents like this are managed in the future.

### *Industry has reviewed April's disruption to the retail payment systems.*

PNZ has completed a comprehensive review of the incident with input from SBI participant banks, SWIFT (the international communications services provider) and the Reserve Bank's Financial Services Group (the operators of ESAS). As a result of that review, PNZ and SBI participant banks have agreed on a number of enhancements to SBI that will help to avoid or mitigate the impact of incidents like the one that occurred in April and have agreed an improved industry incident management plan. These enhancements include minimum standards for SBI participants' connectivity to SWIFT and new requirements for regular testing of contingency arrangements.

The April incident highlights that while SBI helps to reduce interbank settlement risk, operational risk remains important in relation to retail payments. In fact the switch to SBI appears to have made problems with the processing of retail payments more visible. If settlement cannot occur, transactions will not be posted to customer accounts. With some banks moving to posting transactions several times a day rather than just at the end of the day (i.e. overnight), disruptions become more obvious to bank customers.

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<sup>1</sup> Retail payments are payments made by individuals and businesses and are typically of smaller value than interbank (wholesale) payments.

Table 5.1  
New Zealand payment and settlement systems

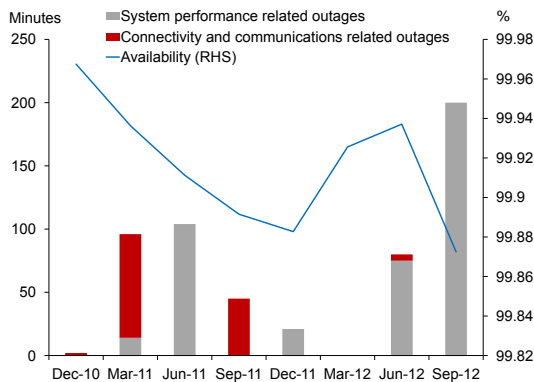
System	Description	Owner/operator
<b>High value</b>		
Exchange Settlement Account System (ESAS)*	Provides real time gross settlement of interbank transactions across the exchange settlement accounts held with the Reserve Bank.	Reserve Bank of New Zealand.
Continuous Linked Settlement (CLS)*	Provides payment versus payment settlement of foreign exchange transactions.	CLS Bank International.
<b>Retail</b> (Systems that primarily process payments made by individuals and small businesses)		
Settlement Before Interchange (SBI)	Arrangements for the progressive exchange during the day of retail payment instructions (cheques, direct debits and credits, automatic payments, ATM settlement transactions, internet banking and telephone banking). Payments are exchanged using SWIFT and settlement of net interbank positions occurs in ESAS.	Arrangements are governed by rules administered by Payments NZ Limited, a company owned by eight registered banks.
Paymark Limited	Provides a network for the interchange of point of sale debit, credit, charge and proprietary card transactions.	Paymark Limited, a company owned by the four major registered banks.
EFTPOS NZ Limited	Provides a network for the interchange of point of sale card transactions.	EFTPOS NZ Limited, a company owned by ANZ National Bank.
<b>Securities settlement</b>		
NZClear*	Allows members to settle fixed interest and equity transactions and make cash transfers. Interbank payments occur directly in ESAS.	Reserve Bank of New Zealand.
NZCDC Settlement System*	Used to clear and settle trades on NZX markets. The system includes a central counterparty and securities depository.	New Zealand Clearing and Depository Corporation Limited (a wholly owned subsidiary of NZX Limited).
<b>Critical Service Providers</b>		
SWIFT	Provides secure global financial messaging services.	Society for Worldwide Financial Telecommunication, a co-operative owned by more than 8300 financial institutions.

\* Denotes systems declared to be designated settlement systems under the Reserve Bank of New Zealand Act 1989.

**Reserve Bank looking to improve ESAS contingency arrangements...**

The Reserve Bank's own system, ESAS, used by banks to settle payments between themselves, is at the heart of the SBI arrangements. ESAS is a highly reliable system (see figure 5.1) with robust business continuity arrangements. Nevertheless, the structure of SBI means that, should ESAS be unavailable for any reason, no interbank retail payments would be able to be processed. The Reserve Bank is therefore looking at additional measures that could improve contingency arrangements. PNZ and SBI participants will examine how they should respond in the event of an ESAS outage.

**Figure 5.1**  
ESAS/NZClear<sup>2</sup> availability and outages



Source: RBNZ.  
Note: Availability is for the 12 months to the current period.

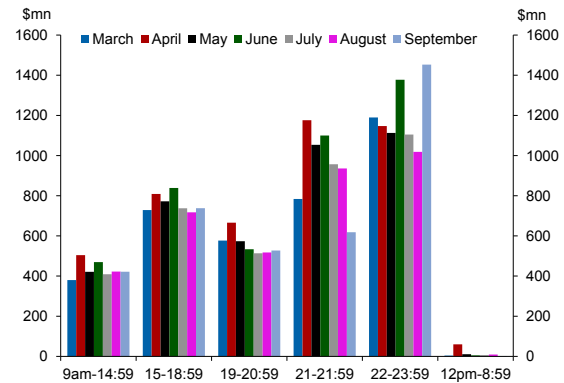
Over coming months the Reserve Bank will also be monitoring other aspects of SBI where elements of operational and settlement risk remain. If necessary, the Reserve Bank will encourage the industry to make changes to the way that retail payments are processed.

**...focusing on the timing of transactions.**

One particular area of focus is the time that transactions are processed during the day. The expectation before SBI was implemented was that transactions would occur reasonably evenly during the day. However, as shown by figure 5.2, the period after 9pm is when much of the value is settled.

<sup>2</sup> ESAS and NZClear availability are reported together because of the close links between the two systems and because this is the way the Reserve Bank reports. See table 5.1 for a description of NZClear.

**Figure 5.2**  
SBI activity by time of day  
(average daily value)



Source: RBNZ.

Having a lot of transactions interchanged and settled late in the day heightens operational risk to the New Zealand payment system. If something goes wrong, there is not much time to resolve the problem and those transactions may not be settled on the right day. It should be noted, however, that the time at which a transaction can be interchanged and settled depends on when the customer initiates the transaction. While some of the value shown in figure 5.2 as being settled after 9pm may relate to customer instructions received earlier in the day, a large proportion of that value is likely to relate to customer instructions received later in the day.

In addition, the SBI arrangements do not remove settlement risk for bank customers. Individuals and businesses may find that they are unable to meet their obligations to others even though they have issued payment instructions to their bank because, in an extreme circumstance, a bank might fail before the payment is settled. Protracted delays between when bank customers issue payment instructions and when banks exchange and settle those instructions can make this risk worse.

These operational and settlement risks can also be exacerbated by having high value transactions settled via the retail payment system rather than directly in ESAS. The extent to which this is happening has been a long standing concern<sup>3</sup> and the Reserve Bank is investigating whether there has recently been any change in this regard.

<sup>3</sup> See Chan, P and S Irvine (2008) "The Reserve Bank's payment system oversight role applied to settlement risk in the retail payments system", Reserve Bank of New Zealand Bulletin, 71(4), pp. 29-39.

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*Innovation continues in retail payments.*

The way that payment instructions are exchanged and settled between banks is not the only area of change for retail payments. Innovation is also leading to changes to the way that payments are initiated. Moves to introduce contactless and mobile payments seem to be gathering momentum. Many banks are now issuing cards enabled for contactless transactions and work is under way to develop infrastructure to support mobile payments. Several new players are also interested in becoming direct participants in the retail payment system.

The Reserve Bank will watch for signs of new or increased risks from these developments. The Reserve Bank is also engaging with relevant stakeholders to try to ensure that potential new participants do not encounter barriers to entry.

Apart from the SBI arrangements, the financial market infrastructures that are critically important for the New Zealand financial system are the interbank payment systems (ESAS and the CLS system) and the securities settlement systems (NZClear and the NZCDC settlement system). These four systems have maintained a high degree of availability and have settled transactions without incident.

*Global regulatory reform of financial market infrastructure is ongoing.*

It looks likely that other financial market infrastructures will also become important for New Zealand banks as the G20 countries move to implement requirements to have standardised over-the-counter (OTC) derivatives cleared through central counterparties (CCPs) by the end of this year and reported to trade repositories.

The shape of regulatory frameworks applicable to OTC derivatives in the European Union, US and Japan has become clearer and these jurisdictions seem well placed to meet the G20 commitments. New Zealand banks are considering how they can ensure that they have access to the appropriate clearing infrastructure. At least for the time being, the preferred option appears to be to participate indirectly in international CCPs by using the services of a direct participant to clear transactions on their behalf. The Reserve Bank welcomes these moves by the banks to avail themselves of the potential risk management benefits that come from centralised clearing and underpin the G20 framework. The Reserve Bank will continue to monitor developments in this area and assess the implications for the stability of the New Zealand financial system.

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## 6 Recent developments in financial sector regulation

In September 2012, the Reserve Bank issued a consultation package to put into effect the core Basel III capital adequacy policies. Work is progressing on additional Basel III requirements. As part of the Basel III changes, a counter-cyclical capital buffer framework has been developed. The framework aims to improve the resilience of the banking system to extremes in the credit cycle. The Reserve Bank is also considering other macro-prudential instruments to help achieve that objective.

Engagement with banks on their implementation plans for Open Bank Resolution (OBR) pre-positioning continues. Discussions are also being held with the payments industry on changes to rules dealing with the failure of a bank. In light of global regulatory developments, current industry experience and the changing payment landscape, the Reserve Bank is reviewing its payment systems oversight powers and expects to consult on this matter next year.

The Reserve Bank is also considering its policy position on reinsurance agreements that have a financing element. Consultation on this issue is expected to be undertaken soon. Other aspects of the Reserve Bank's regulatory work programme include the Reserve Bank of New Zealand (Covered Bonds) Amendment Bill and the Non-bank Deposit Takers Bill as they pass through the legislative process. Work with other supervisors to combat money laundering and terrorism financing continues.

### 6.1 Basel III

On 11 September 2012, the Reserve Bank issued a consultation package to put into effect the core Basel III capital adequacy policies.<sup>1</sup> The Reserve Bank also released a response to submissions on earlier Basel III policy consultations and a *Regulatory Impact Assessment* (RIA) of Basel III capital requirements in New Zealand.

The Reserve Bank's Basel III policies align with the Basel III global standard and with the Basel III requirements of the Australian Prudential Regulation Authority (APRA) in almost all areas. However, there are some departures that reflect particular New Zealand circumstances and where adoption of the Basel III standard would make New Zealand's requirements less conservative.

#### *Reserve Bank analysis supports higher Basel III standards.*

The key benefit of higher capital ratios is the reduced probability that there will be a financial crisis. Higher capital ratios also increase the taxable income of New Zealand banks and reduce the potential for government payments to creditors in a bank bailout scenario. On the cost side, consideration was given in the RIA to the possibility that bank lending rates may increase in the short term as banks seek to maintain their return on capital. This effect is assumed to be temporary, as shareholders gradually adjust their expectations downward (see box C in chapter 4).

The RIA finds that adjusting existing requirements to the Basel III standards can be easily justified. In particular it shows that the 'optimal' capital ratio is likely to be somewhat higher than the Basel III standard. However the marginal benefits of increasing capital decline as capital levels rise, and according to the Reserve Bank's

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<sup>1</sup> Further information about Basel III implementation in New Zealand is available on the Reserve Bank's website: <http://www.rbnz.govt.nz/finstab/banking/4572979.html>

modelling, increasing capital beyond the Basel III standards would deliver only modest benefits. It should also be emphasised that any cost-benefit analysis in this area is subject to considerable uncertainty (e.g. measuring the cost of banking crises), and so any 'optimal capital ratio' estimate should not be interpreted too literally.

**Work is progressing on Basel III enhanced risk coverage requirements.**

On 30 October 2012 the Reserve Bank issued consultation material on enhanced risk coverage. This material introduces a number of Basel III related changes to the capital requirements for counterparty credit risk, for exposures to large and unregulated financial institutions and exposures to central counterparties that meet certain international standards that qualify them for a lower risk weight. An example of where counterparty credit risk applies is for over-the-counter (OTC) derivative exposures. The main new requirement imposes a regulatory capital charge for the risk that a counterparty's creditworthiness deteriorates, which is in addition to the existing charge for default risk.

One of the lessons of the GFC was that exposures to large and unregulated financial institutions are more strongly correlated than previously thought. Exposures to those institutions are now assumed to be more correlated when calculating capital requirements. Basel III also introduces a risk weight of 2 percent for exposures to so-called qualifying central counterparties to reflect the lower risk associated with such exposures as compared with bilateral exposures.

Other requirements affect margining and collateral arrangements, the identification of 'wrong way' risk<sup>2</sup> and the calculation of the exposure at default of highly leveraged counterparties. The Reserve Bank has decided to adopt the relevant Basel III requirements in these areas. This decision is in line with its principles for implementing Basel III, and with APRA's proposals for implementing these requirements in Australia.

Submissions on the proposed changes to the *Banking Supervision Handbook* to put into effect the Reserve

<sup>2</sup> Wrong way risk occurs when the exposure to a counterparty is positively (adversely) correlated with the probability of default of that counterparty.

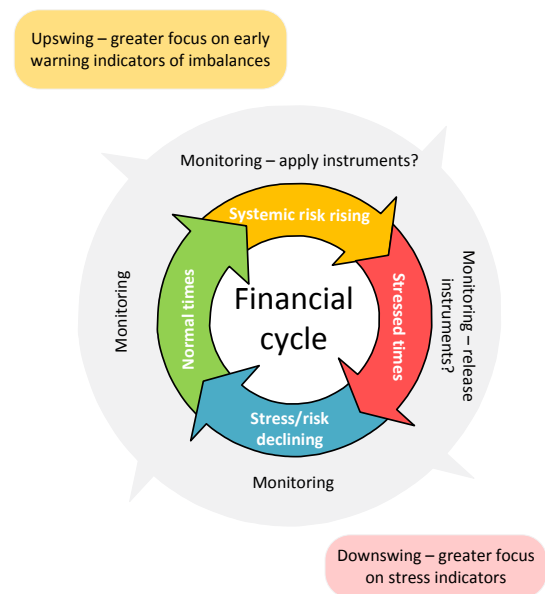
Bank's core Basel III policies closed on 9 October 2012 and submissions on proposed requirements for enhanced risk coverage will close on 26 November 2012. The Reserve Bank expects to finalise the Basel III related changes to the *Banking Supervision Handbook* shortly. The Basel III capital adequacy requirements will be implemented from 1 January 2013, although some aspects do not take effect until 1 January 2014 (i.e. the conservation buffer and the counter-cyclical buffer framework). The recognition of existing capital instruments that no longer qualify as regulatory capital under Basel III will be phased out over the period to 1 January 2018.

## 6.2 Macro-prudential policy

**Macro-prudential policy aims to smooth the credit cycle.**

Macro-prudential policy focuses on the use of prudential instruments to build additional resilience in the financial system at times when rapid credit growth is resulting in a build-up in risk for the financial system as a whole. The extra shock-absorbing capacity that is created may be drawn upon in times of stress, helping to limit a contraction in the supply of credit (see figure 6.1). Macro-prudential instruments may have the additional benefit of dampening excessive growth in credit and asset prices.

Figure 6.1  
Macro-prudential policy and the financial cycle



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*The Reserve Bank has been considering four instruments for the macro-prudential toolkit...*

The Reserve Bank has focused on four tools that might help to improve the resilience of the banking system over the financial cycle. A *counter-cyclical capital buffer* (CCB) and *adjustments to the core funding ratio* (CFR) could be used to address a generalised build up of risk in the financial system due to rapid growth in credit. *Overlays to sectoral capital risk weights* and *loan-to-value (LVR) restrictions for residential mortgages* are more targeted measures aimed at addressing credit imbalances in specific sectors of the economy.<sup>3</sup>

*...with a counter-cyclical capital buffer framework in place by 2014.*

A CCB framework will be implemented on 1 January 2014 alongside other aspects of the Basel III regime in New Zealand (see section 6.1).<sup>4</sup> In times of excessive private sector credit growth, the CCB framework will require banks to hold an extra buffer of high quality capital (common equity). The CCB aims to protect the banking system and reduce systemic risks in a number of ways.

First, the extra capital provides the banking system with an additional cushion against losses or sharp increases in risk-weighted assets that are associated with periods of financial distress. When the buffer is released, banks will be able to maintain lending to credit worthy borrowers with a reduced risk of a breach of regulatory capital limits. Second, the additional capital requirement may increase the cost of bank funding with a flow-on effect to the cost of lending, helping to dampen excessive credit growth during the upswing. Finally, the decision to impose a CCB will act as a signal to banks and is expected to prompt a more conservative approach to lending decisions, further helping to dampen credit growth.

In considering whether to apply the CCB, the Reserve Bank will be looking at a range of indicators of

emerging imbalances, and will engage in an ongoing dialogue with the banks and other relevant parties as part of the assessment process. While macro-prudential monitoring will be continuous, decisions to apply the CCB are expected to be infrequent. When imposed, the CCB is expected to range up to 2.5 percent of risk-weighted assets; however, there is always the possibility that it may need to be higher. To provide banks with time to raise the extra capital, 12 months notice will normally be given; however it could be shorter if financial conditions require it and the system could reasonably raise the extra capital within the notice period. Once imposed, the Reserve Bank will monitor developments in banks' capital positions, including the impact of loan losses. A priority will be to release the CCB in a timely fashion, so that regulatory capital concerns do not weigh on the flow of credit in the economy once the cycle turns down.

The Basel III global standard envisages reciprocity arrangements to help maintain a level playing field between banks that are regulated locally (including the subsidiaries of the Australian parent banks) and foreign banks that are not regulated by the local supervisor (such as the branches of foreign banks operating in New Zealand). Under reciprocity, the CCB that would apply to each bank at a consolidated level would reflect the geographic composition of its portfolio, i.e. a weighted average of buffers across the group's regional operations.

*Other potential macro-prudential tools are being evaluated...*

Research is continuing into the other three potential macro-prudential instruments. In normal times, the CFR acts to underpin use of stable funding sources by the banking system. However, adjustments to the core funding requirement may be appropriate in response to periods of rapid credit growth (e.g. an increase in the CFR) or in the face of extreme stresses in funding markets (e.g. a decrease in the CFR).

Adjustments to sectoral risk weights or temporary LVR restrictions could be used to address rising imbalances associated with rapid lending growth to specific sectors such as housing. While such instruments have the advantage of directly targeting sectors where systemic risk

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<sup>3</sup> For an overview of the four instruments see: Ha, Y and B Hodgetts (2011) "Macro-prudential instruments for New Zealand: a preliminary assessment", paper prepared for RBNZ workshop on Macro-prudential Policy, 21 March.

<sup>4</sup> See the Reserve Bank consultation paper released in March 2012 for details of the CCB framework for New Zealand (<http://www.rbnz.govt.nz/finstab/banking/4712102.pdf>) and the more recent response to submissions document released in September (<http://www.rbnz.govt.nz/finstab/banking/4932429.pdf>).



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is building, they may also pose risks in terms of financial system efficiency and disintermediation (shifting lending towards entities not captured by the regulation).

Internationally, macro-prudential policy is still in its infancy, and it remains to be seen which instruments become prevalent. The Reserve Bank is reasonably advanced in its macro-prudential policy development, and is drawing on the experiences of other countries as it refines its framework. As part of this process, consultation on the remaining aspects of the macro-prudential framework will be undertaken in due course.

#### *...and work continues on the decision-making framework.*

Work continues on developing a set of reliable indicators designed to capture both warning signs of rising imbalances and timely indicators of realised stress.<sup>5</sup> However, decisions on macro-prudential interventions will ultimately require a considerable degree of judgement. The Reserve Bank considers that current conditions in credit markets do not warrant any macro-prudential intervention. The discussion in chapters 3 and 4 underpins this view.

While the Reserve Bank is the organisation primarily responsible for macro-prudential decision making, consultation with other key stakeholders such as the Treasury is an important part of the broader decision-making framework. The Reserve Bank is currently working with Treasury and the Minister of Finance on specific aspects of macro-prudential governance and accountability.

### 6.3 Open Bank Resolution

The Reserve Bank published the *Regulatory Impact Assessment (RIA)* of pre-positioning for Open Bank Resolution (OBR) on 1 November 2012.<sup>6</sup> The OBR policy requires a bank to be able to open for full-scale or limited business at 9am the next business day after a failure event, and be able to provide depositors with full or partial

access to their accounts and other banking services. Thus, OBR is applied to an insolvent bank to keep it operating while authorities assess the severity of losses and work out the bank's final resolution. The bank is placed under statutory management and shareholders would no longer be in control of the bank.

The OBR policy represents one element of the broader prudential framework in New Zealand that includes conservative capital requirements and quantitative liquidity requirements. Together, these key policies provide complementary protections to the financial system by reducing the probability and cost of a bank failure. With the core payment system remaining functional despite the failure of a large bank, flow-on effects to depositors and other bank customers and the rest of the financial system would be minimised.

Without OBR, the government could face enormous pressure to bail out a failing systemic bank. As the experience in other countries illustrates, the possibility of bailout may prompt bank owners and management to take on more risk. In the event of actual recapitalisation a country's sovereign credit rating may decline if public debt significantly increases as a result.

The OBR policy will influence the impact of a banking crisis on GDP; transfers to foreign investors in the event of a bailout; the fiscal cost of recapitalising banks; and the cost of government debt funding from foreigners after a crisis. The net reduction in the cost of banking crises represents the primary benefit from having the OBR policy. On the other hand, introducing OBR will result in a number of costs, including those associated with pre-positioning the required functionality in banks' systems, the ongoing cost of maintaining OBR capacity, and potentially higher bank funding costs from foreigners reflecting the increased expected losses borne by investors as a result of the lower probability of a bailout. The net present value (NPV) of the net benefits of implementing OBR is estimated to be over \$1 billion.

The Reserve Bank continues to engage with banks on their implementation plans for OBR pre-positioning, and detailed discussions are under way with the payments industry on changes to payments rules dealing with the failure of a bank.

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<sup>5</sup> Refer to Box B "Assessing financial vulnerabilities – the role of macro-prudential indicators", November 2011 *Financial Stability Report*.

<sup>6</sup> Available at <http://www.rbnz.govt.nz/finstab/banking/4430900.html>



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## 6.4 Covered bonds

The Reserve Bank of New Zealand (Covered Bonds) Amendment Bill has been considered by the Finance and Expenditure Select Committee and reported back to Parliament. As discussed in the May 2012 *Report*, the main purpose of the legislation is to give investors certainty as to the ability to enforce their security interest over the cover pool assets, i.e. the assets that secure the issuing bank's obligations under the covered bond. The Select Committee recommended a number of technical changes to the Bill. However, the main elements of the Bill remain unchanged.

## 6.5 Statutory payment oversight powers

The Reserve Bank has commenced a review of its statutory powers to oversee payment systems and other financial market infrastructures. The review is driven by a combination of domestic and international developments, including the new *Principles for Financial Market Infrastructures* published by the Committee on Payment and Settlement Systems (CPSS) and the International Organisation of Securities Commissions (IOSCO),<sup>7</sup> and the overall changing payments landscape.

The review is focused on the policy framework to strengthen the oversight of systemically important financial market infrastructure, with the objective of promoting soundness and efficiency. The Reserve Bank expects to consult on detailed proposals around the middle of 2013.

## 6.6 Insurance

All provisionally licensed insurers are required to be fully licensed or in run-off by 7 September 2013, while all new insurers are required to be fully licensed before commencing business. As the requirements for a full licence are more extensive, further mergers and restructuring in the period before the full licensing requirement are expected.

The Reserve Bank released an *Insurance Industry Licensing Update* in September intended to provide

clarification for insurers in a number of areas, including financial reinsurance. The Reserve Bank is considering a policy position on reinsurance agreements that have, or could be considered to have, a financing element. The policy issue is that some financial reinsurance arrangements may lead to questionable solvency benefits that could potentially undermine the objectives of the Reserve Bank's solvency capital requirements. Public consultation on possible changes to the Reserve Bank's solvency standards on these matters is expected to be undertaken shortly.

The Insurance (Prudential Supervision) Amendment Regulations 2012 (the Regulations) came into force on 1 September 2012 and amend the Insurance Prudential Supervision Regulations 2010. The Regulations have approved 11 jurisdictions for the purposes of recognising certain aspects of home country regulation of a licensed insurer operating in New Zealand as a branch, although not every jurisdiction is recognised for all available exemptions under the Act. The Regulations also provide for the technical rules for statutory funds. A statutory fund is a fund that is established in the records of the life insurer and relates solely to the life insurance business of the company, or a particular part of that business. The assets of the statutory fund can only be used to meet the liabilities of that fund.

## 6.7 Updates on other policies

### *The Non-bank Deposit Takers Bill*

The progress of the Non-bank Deposit Takers Bill has been delayed, and commencement is now expected in 2013. As noted in the May 2012 *Report*, the Bill incorporates all the prudential requirements in place under Part 5D of the Reserve Bank of New Zealand Act 1989, and introduces licensing; fit and proper requirements for directors and senior officers; requirements to obtain the Reserve Bank's consent for significant changes of ownership or control; and new powers for the Reserve Bank in relation to issuing directions and gathering information.

The Reserve Bank intends to make regulations under the Bill, once it has passed, that will declare certain

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<sup>7</sup> <http://www.bis.org/publ/cpss101a.pdf>

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building society shares to be debt securities under the new legislation, and will also set out the matters for evaluating the suitability of NBDT directors and senior officers. There will be a 12 month transition period for existing NBDTs. The Reserve Bank will work with industry to communicate licensing expectations prior to commencement.

### *Anti-money laundering*

The Anti-Money Laundering and Countering Financing of Terrorism Act 2009 (the Act) comes into full effect on 30 June 2013. The Act seeks to implement recommendations of the Financial Action Task Force, the international body (of which New Zealand is a member) set up to promote and develop policies for combating money laundering and terrorism financing at an intergovernmental level. The anti-money laundering and countering financing of terrorism (AML) regime is intended to contribute to public

confidence in the financial system and places obligations on reporting entities to detect and deter money laundering and terrorism financing. The Reserve Bank is one of three AML supervisors of reporting entities and will supervise registered banks, NBDTs and life insurers. Information was published in June 2012 on the Reserve Bank's intended approach to AML supervision.<sup>8</sup>

In the lead-up to 30 June 2013, the Reserve Bank is engaging with financial institutions it will supervise to gauge progress towards implementation of the Act as well as to better understand the risks faced by them and how they intend to manage those risks.

The Reserve Bank has been working closely with the other AML supervisors – Financial Markets Authority and Department of Internal Affairs – drafting guidance to assist reporting entities to comply with the new obligations.<sup>9</sup>

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<sup>8</sup> [http://www.rbnz.govt.nz/research/bulletin/2012\\_2016/2012jun75\\_2armstrong.pdf](http://www.rbnz.govt.nz/research/bulletin/2012_2016/2012jun75_2armstrong.pdf)

<sup>9</sup> For further information, see <http://www.rbnz.govt.nz/aml>

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# Appendices

## Appendix 1

### Reserve Bank enforcement actions

The Reserve Bank has responsibility for enforcing the obligations of entities in a number of sectors, including banking, insurance, payments and settlements, and non-bank deposit taking. It constantly monitors entities' compliance with the obligations it oversees.

The Reserve Bank's supervisory approach is to harness and enhance market disciplines where possible. Where this is not sufficient, the Reserve Bank may take enforcement action to ensure compliance. In some situations this enforcement action will be public, such as a public warning or a prosecution. In other cases, private warnings may be issued to the entity concerned.

One of the Reserve Bank's objectives contained in the 2012-2015 *Statement of Intent* is to set a framework for undertaking enforcement action in the event of identified non-compliance. The Reserve Bank has recently reviewed its internal processes for ensuring that all entities it regulates and/or supervises are compliant.

As part of this review, the Reserve Bank has been considering what it should publish in relation to enforcement. The *Report* will now identify any public enforcement actions taken by the Reserve Bank over the previous 12 months.

During the previous 12 months, the Reserve Bank has completed the following public enforcement actions:

- February 2012 – the Reserve Bank issued an industry notice in respect of Covenant Trustee Company Limited's failure to promptly notify the Reserve Bank of a deposit taker's material non-compliance with the independent director requirements, as required under section 157ZF of the Reserve Bank of New Zealand Act 1989 (the Act).
- September 2012 – the Reserve Bank issued an industry notice in respect of Rabobank New Zealand Limited's failure to maintain a current rating of its creditworthiness, as required under section 80 of the Act.
- The Reserve Bank issued eight public notices regarding unauthorised use of the word 'bank' (or any derivation or translation thereof), in breach of section 64 of the Act, in relation to:
  - Swiss Financial Corp Limited (formerly known as 'Swiss Bancorp');
  - 'Bantec Financial Group Limited';
  - Rich Finance Limited (trading as 'Rich Bank');
  - 'First International Bancorp Limited';
  - 'Elite Bank Group';
  - Century Finance Limited (trading as 'Century Bancorp');
  - 'City Commercial Bank'; and
  - 'Sovereign Global Bank of Aotearoa'.

## Appendix 2

### Summary of the May 2012 *Financial Stability Report* readership survey

The *Financial Stability Report* is a key accountability document that reports on the Reserve Bank's statutory role of helping to maintain the soundness and efficiency of the New Zealand financial system. At the time of the May 2012 *Report*, an online survey of readers was undertaken to better understand who reads the *Report* and to solicit readers' views on the *Report's* contents. There were a total of 363 respondents over the month the survey was run.

#### Who reads the *Report* and why?

As expected, most of our readers reside in New Zealand. Of the 20 percent of non-resident respondents, most were from Australia, the UK and the US. Foreign interest in the *Report* came mainly from those whose occupations were finance sector-related, including other central banks and supervisory authorities.

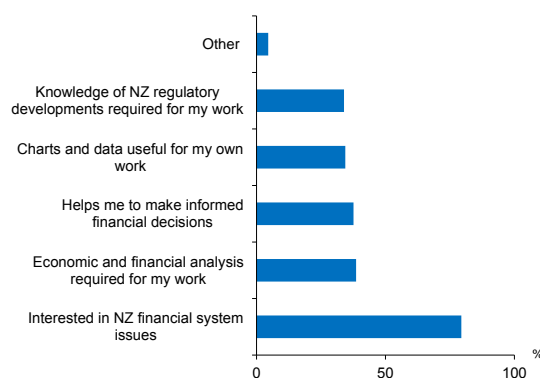
Overall, 40 percent of our readers are identified with the finance sector, including financial market analysts, those that work in entities regulated by the Reserve Bank, and other finance sector-related occupations. This latter category encompasses respondents that identified themselves as financial/investment advisors, company treasurers or financial controllers, and those working in the rural finance area.

However, the largest single category was 'general public' (25 percent). The remaining 35 percent of readers identified themselves as, among others, journalists, lawyers, teachers, students and academics.

The single most important reason for reading the *Report* was a 'general interest in New Zealand financial system issues', followed by a similar response rate for other reasons specified in the survey question (figure 1).

Figure 1

Reasons for reading the *Financial Stability Report*  
(percent of total responses)



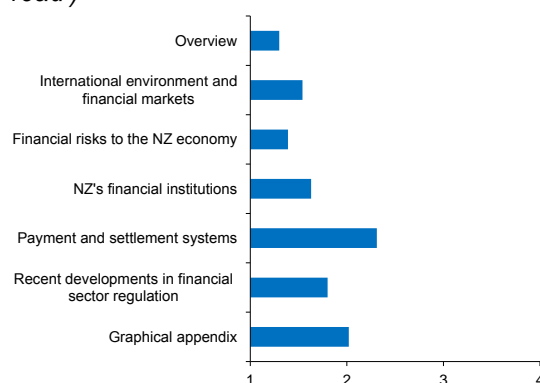
Note: Respondents were allowed to choose more than one category.

#### What do readers think of the quality and content of the *Report*?

The *Overview* chapter proved the most popular and informative, followed by chapter three's discussion of the *Financial risks to the New Zealand economy* (figure 2). Readers scored the *Report* highly on the objectives laid out in legislation to report on the soundness and efficiency of the New Zealand financial system. Readers considered, however, that the *Report* did a better job reporting on the

Figure 2

Respondent ratings by chapter  
(scale 1-4; 1 = 'very useful' and 4 = 'do not read')



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soundness of the financial system in contrast to financial system efficiency.

Another question asked readers to evaluate the *Report* based on whether it is informative, easy to read, sufficiently in-depth and relevant to their interests. Overall, readers scored the *Report* favourably across these criteria. However, one area that did not score as highly as others was the document's readability. Some comments suggested that the *Report* suffered from an over-use of jargon and technical language. This reflects the finding above that a significant portion of the *Report's* readers are general members of the public. In addition, a number of comments suggested the format of the document detracted somewhat from its readability, particularly for those who prefer to read the *Report* on electronic devices.

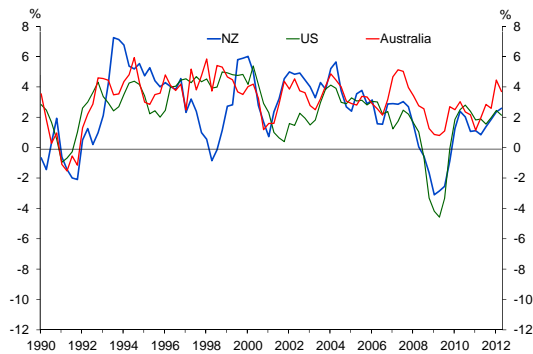
Overall, the results of the survey are encouraging. There is a general perception that the *Report* meets the Reserve Bank's statutory objectives in a way that is informative, sufficiently in-depth and relevant to readers' interests.

Looking ahead, the editors of the *Report* will consider the comments related to improving the document's readability. This will include improvements to make the *Report* more accessible for the majority of the readers who now view the *Report's* content electronically (making it more tablet-friendly for example). Attention will also be paid to balancing the needs of the lay audience for somewhat less jargon, with those readers familiar with the more technical content of the *Report*.

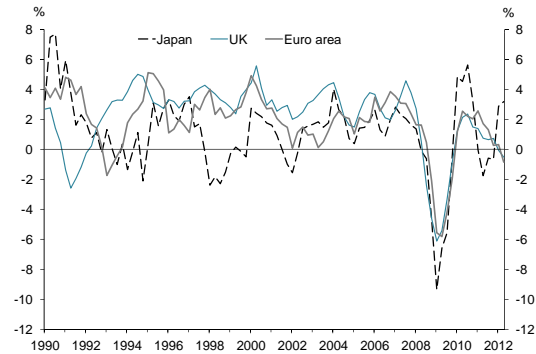
Appendix 3  
Graphical appendix<sup>1</sup>

*International*

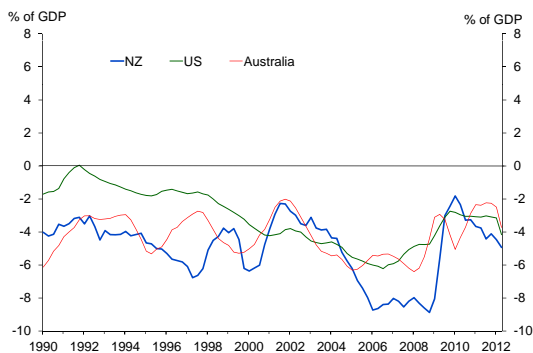
**Figure 1a**  
**Real GDP growth**  
(annual percent change)



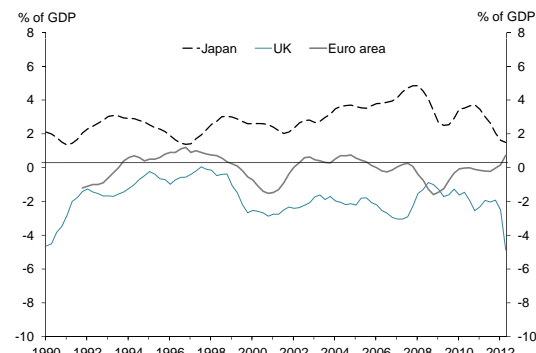
**Figure 1b**  
**Real GDP growth**  
(annual percent change)



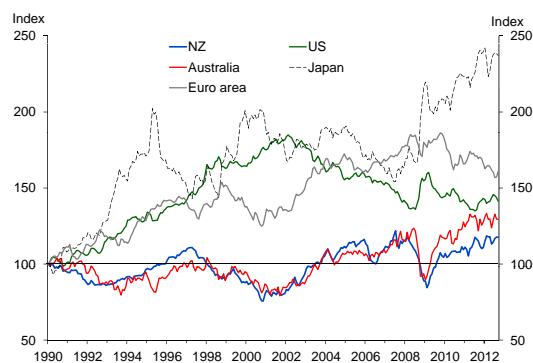
**Figure 2a**  
**Current account balance**



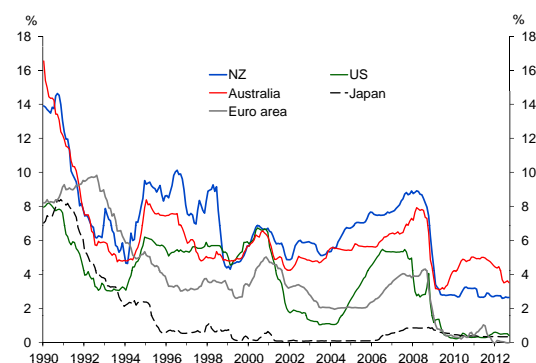
**Figure 2b**  
**Current account balance**



**Figure 3**  
**Trade-weighted exchange rate indices**



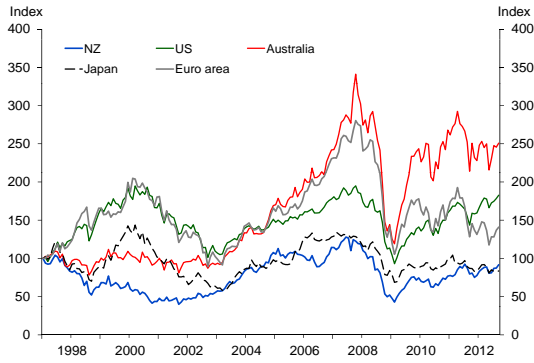
**Figure 4**  
**Short-term interest rates**



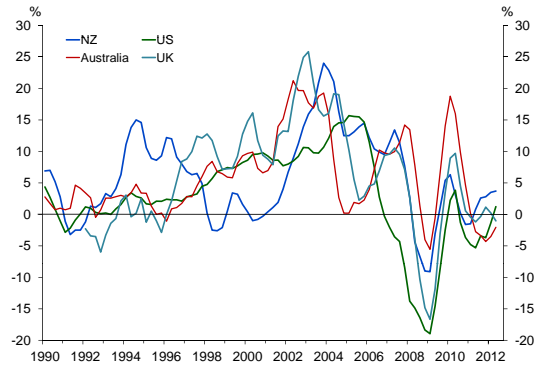
<sup>1</sup> The data contained in this appendix were finalised on 26 October 2012. Definitions and sources are listed on pages 51-52.

## Asset prices

**Figure 5**  
Equity market indices  
(1997 = 100)

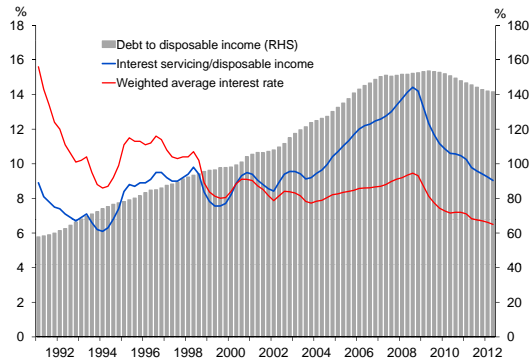


**Figure 6**  
House price inflation  
(annual percent change)

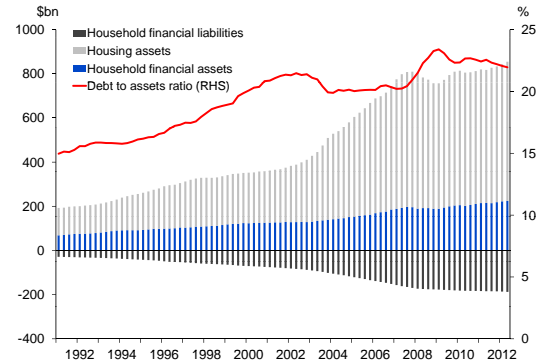


## New Zealand

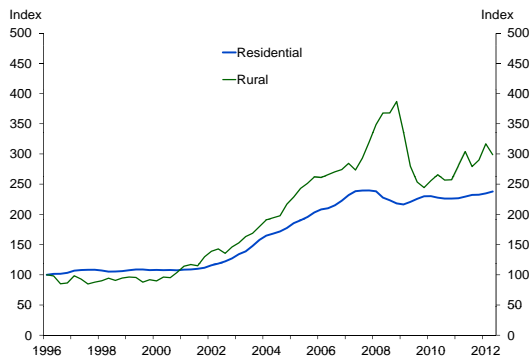
**Figure 7**  
Household debt and servicing costs



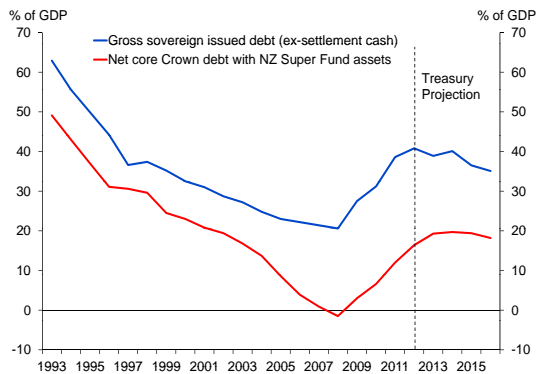
**Figure 8**  
Household assets and liabilities



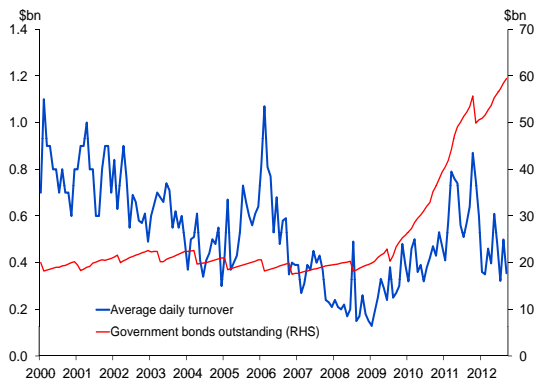
**Figure 9**  
Property prices  
(1996 = 100)



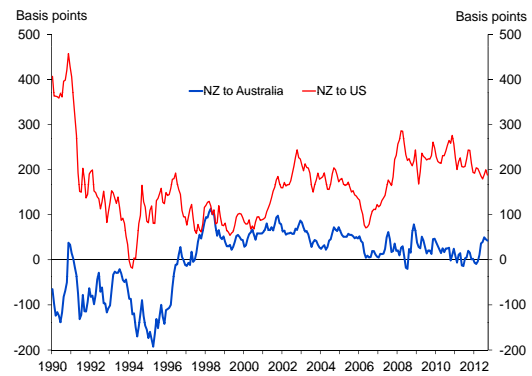
**Figure 10**  
Government debt



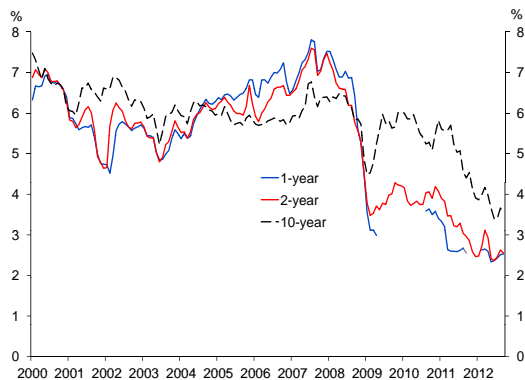
**Figure 11**  
Government bonds on issue and turnover



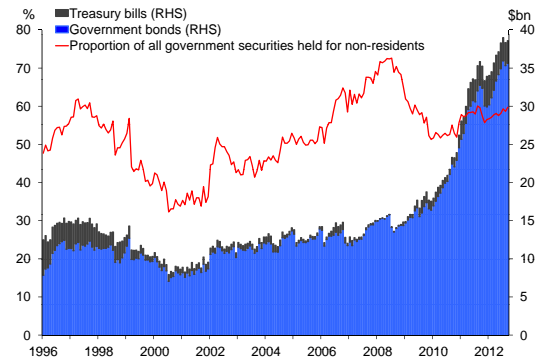
**Figure 12**  
Ten-year government bond spreads



**Figure 13**  
Yields on New Zealand government securities

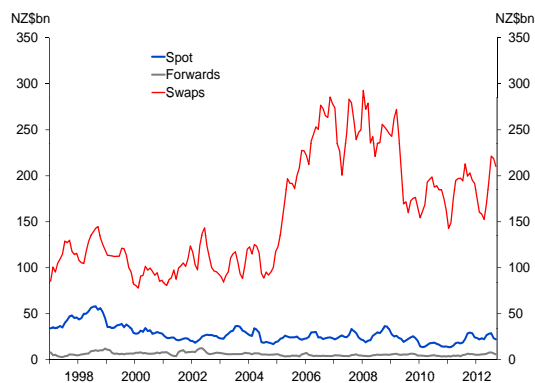


**Figure 14**  
Non-resident holdings of New Zealand government securities

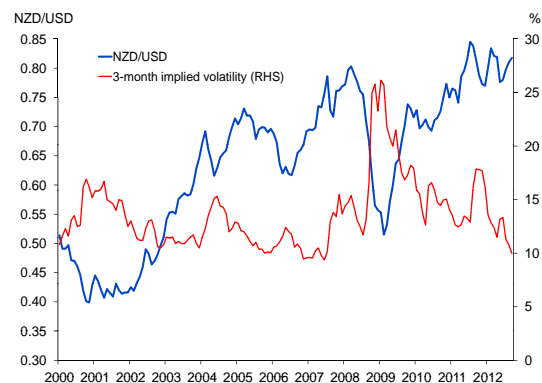


An error in this chart in the printed FSR has been corrected in this version

**Figure 15**  
NZD/USD turnover in domestic markets

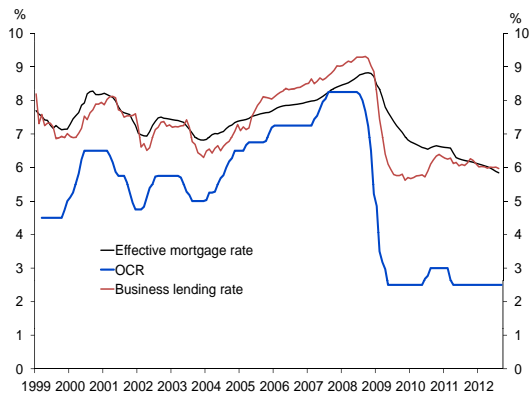


**Figure 16**  
NZD/USD and implied volatility



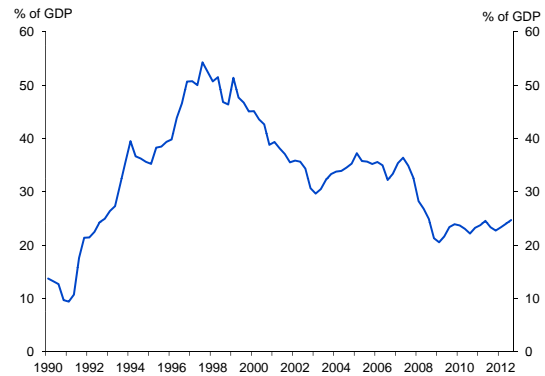


**Figure 17**  
**OCR, estimated business lending rate and effective mortgage rate**



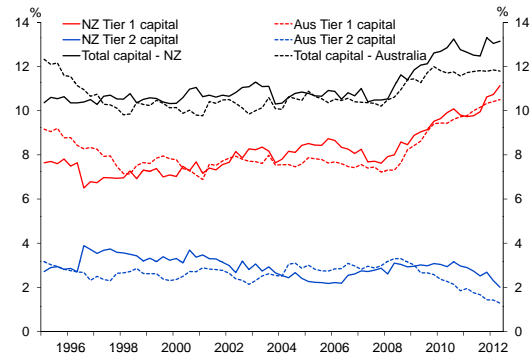
An error in this chart in the printed FSR has been corrected in this version

**Figure 18**  
**Equity market capitalisation**

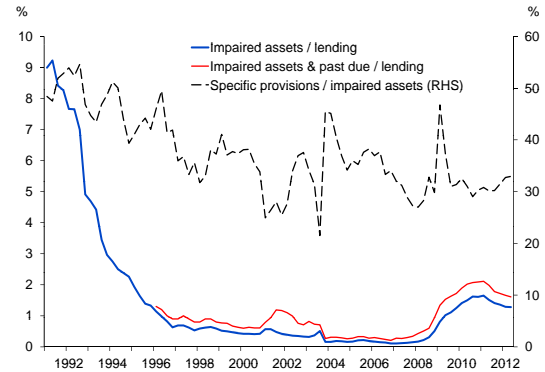


*Banking sector indicators*

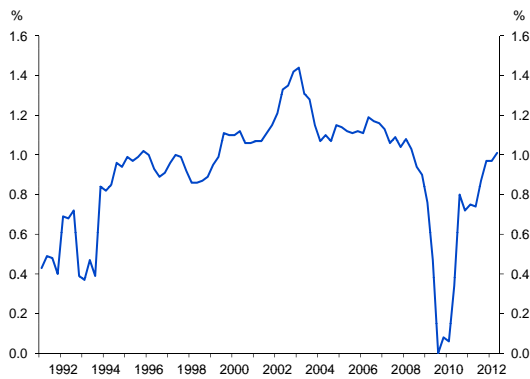
**Figure 19**  
**System-wide capital adequacy ratios**



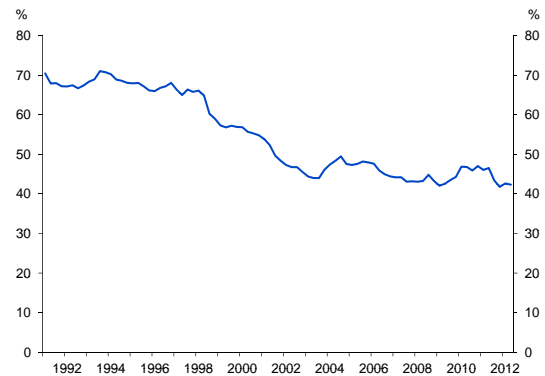
**Figure 20**  
**Asset quality**



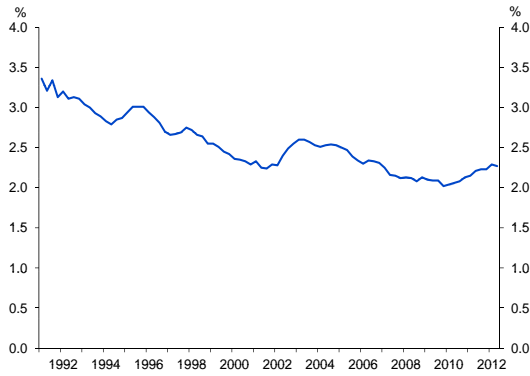
**Figure 21**  
**Return on assets**



**Figure 22**  
**Operating costs to income**



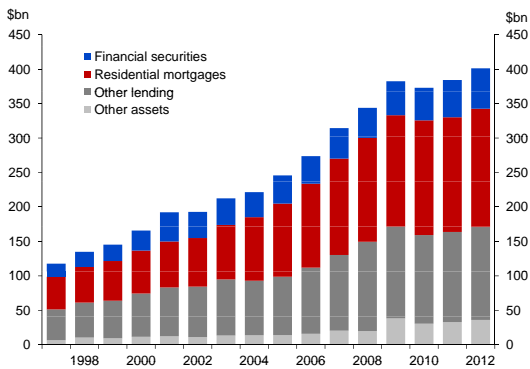
**Figure 23**  
Interest margin



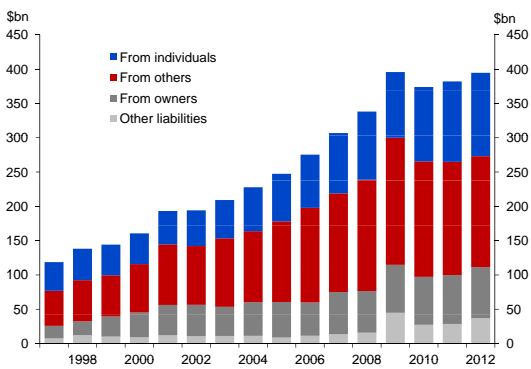
**Figure 24**  
Registered bank offshore funding



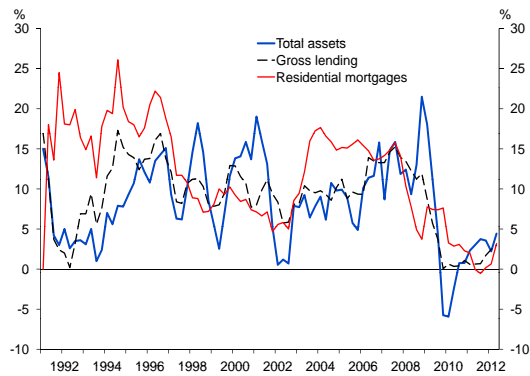
**Figure 25**  
Bank asset composition



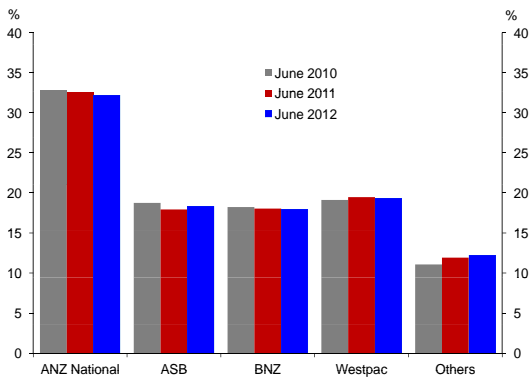
**Figure 26**  
Bank funding composition



**Figure 27**  
Bank asset growth  
(annual percent change)



**Figure 28**  
Bank market share



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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.

<b>1</b>	<b>Real GDP growth</b>	Annual percentage change in real GDP. <i>Haver Analytics</i> .
<b>2</b>	<b>Current account balance</b>	Current account balance as a percentage of GDP, four-quarter total. <i>Haver Analytics</i> .
<b>3</b>	<b>Trade-weighted exchange rate indices</b>	Nominal trade-weighted indices, 'broad' composition. January 1990=100. <i>Haver Analytics (JP Morgan for Japan, Euro; RBA for Australia; Federal Reserve Board for US)</i> .
<b>4</b>	<b>Short-term interest rates</b>	Yields on 90-day bank bills. <i>Reuters</i> .
<b>5</b>	<b>Equity market indices</b>	Morgan Stanley Capital Indices, January 1997 = 100. <i>Haver Analytics</i> .
<b>6</b>	<b>House price inflation</b>	Annual percentage change in national house price indices. <i>Haver Analytics, Property IQ</i> .
<b>7</b>	<b>Household debt and servicing costs</b>	Household debt excludes student loans. Household disposable income is gross before deduction of interest paid and consumption of fixed capital, and is interpolated from March-year data from Statistics New Zealand, with RBNZ forecasts. The weighted average interest rate is obtained from published RBNZ mortgage data (SSR, part E5.10) for residential mortgages and RBNZ calculations for consumer interest rates.
<b>8</b>	<b>Household assets and liabilities</b>	Housing assets are the aggregate private sector residential dwelling value. Data is from Property IQ from 1995, with RBNZ estimates based on the house price index for prior years. Household financial assets are as published annually by RBNZ, with aggregate quarterly figures interpolated prior to 1995. From 1995, quarterly figures are survey-based with minor estimation. Household liabilities are from RBNZ series as for figure A7.
<b>9</b>	<b>Property prices</b>	June 1996=100. Property IQ residential house price index, REINZ farm price index.
<b>10</b>	<b>Government debt</b>	Net core Crown Debt is debt attributable to core Crown activities and excludes Crown entities and state-owned enterprises. Forecasts are from 2013 onwards and are taken from the Budget Economic and Fiscal Update. <i>The Treasury</i> .
<b>11</b>	<b>Government bonds on issue and turnover</b>	Total government securities on issue and New Zealand government bond turnover survey. <i>NZ Debt Management Office, RBNZ</i> .
<b>12</b>	<b>Ten-year government bond spreads</b>	Yield on 10-year benchmark New Zealand government bonds, less yield on US and Australian equivalents. <i>Reuters, RBNZ</i> .
<b>13</b>	<b>Yields on New Zealand government securities</b>	One-year series unavailable between May 2009 and July 2010, and between October 2011 and January 2012 due to there being no suitable bond for the one-year benchmark over these dates. <i>Reuters, RBNZ</i> .
<b>14</b>	<b>Non-resident holdings of New Zealand government securities</b>	<i>RBNZ</i> .
<b>15</b>	<b>NZD/USD turnover in domestic markets</b>	Plotted as three-month moving average. <i>RBNZ survey</i> .
<b>16</b>	<b>NZD/USD and implied volatility</b>	Standard deviation implied by rolling three-month NZD/USD options. <i>Bloomberg</i> .

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<b>17</b>	<b>OCR, estimated business lending rate, and effective mortgage rate</b>	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> .
<b>18</b>	<b>Equity market capitalisation</b>	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> .
<b>19</b>	<b>System-wide capital adequacy ratios</b>	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> .
<b>20</b>	<b>Asset quality</b>	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> .
<b>21</b>	<b>Return on assets</b>	Net profits after tax and extraordinary items, as a percentage of average total assets, four-quarter average, for all registered banks. <i>GDS</i> .
<b>22</b>	<b>Operating costs to income</b>	Operating expenses as a percentage of total income, four-quarter average, for all registered banks. <i>GDS</i> .
<b>23</b>	<b>Interest margin</b>	Net interest income as a percentage of average interest-earning assets, four-quarter average, for all registered banks. <i>GDS</i> .
<b>24</b>	<b>Registered bank offshore funding</b>	<i>RBNZ</i> .
<b>25</b>	<b>Bank asset composition</b>	As at 30 June 2012. <i>GDS</i> .
<b>26</b>	<b>Bank funding composition</b>	As at 31 March and 30 June. <i>GDS</i> .
<b>27</b>	<b>Bank asset growth</b>	Year-on-year change in total assets of all registered banks. Gross lending before provisions. <i>GDS</i> .
<b>28</b>	<b>Bank market share</b>	Bank assets as a percentage of total assets of registered banks. <i>GDS</i> .

## Appendix 4

### New Zealand financial system liabilities and assets

#### Financial system liabilities

As at 31 December \$bn	2000	2005	2007	2008	2009	2010	2011	2012*
<b>Banks</b>								
Households	41	61	79	90	92	98	106	109
Other residents	55	84	98	114	103	104	107	113
Non-residents	56	79	111	127	132	127	122	119
Other liabilities and equity	26	28	43	72	53	53	60	61
Total	178	253	332	403	380	382	395	403
<b>Non-bank lending institutions</b>								
Households	5	12	12	9	9	7	5	5
Other residents	4	7	8	7	6	7	7	6
Other liabilities and equity	2	8	12	11	9	7	5	6
Total	10	26	31	27	24	21	17	17
<b>Funds under management</b>								
Household assets	56	56	64	54	61	64	66	68
Other sector assets	5	7	9	8	8	8	8	8
Total	61	63	72	62	68	72	74	77
Total financial system liabilities	249	342	435	492	472	474	486	496

#### Financial system assets

As at 31 December \$bn	2000	2005	2007	2008	2009	2010	2011	2012*
<b>Banks</b>								
Households	66	119	152	162	169	173	177	180
Other residents	71	102	128	150	137	137	142	145
General government	7	6	4	5	13	17	19	22
Non-residents	17	12	15	16	16	13	10	11
Other assets	17	14	33	70	44	41	46	45
Total	178	253	332	403	380	382	395	403
<b>Non-bank lending institutions</b>								
Households	5	12	15	12	10	9	7	7
Other residents	4	11	13	12	11	9	7	7
Other assets	1	3	4	4	3	3	3	3
Total	10	26	31	27	24	21	17	17
<b>Funds under management</b>								
Domestic fixed interest	27	25	27	28	27	28	30	31
Domestic equities	7	8	9	6	7	8	8	8
Domestic other	5	4	5	4	4	4	4	4
Overseas investments	21	26	31	24	30	32	32	34
Total	61	63	72	62	68	72	74	77
Total financial system assets	249	342	435	492	472	474	486	496

\* As at 30 June

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.

## Appendix 5

### New Zealand registered banks

Registered bank's name	Market share <sup>1</sup>	Credit ratings			Ultimate parent	Country of parent
		S&P	Moody's	Fitch		
Australia and New Zealand Banking Group Limited (B) <sup>2</sup>	2.5	AA-	Aa2	AA-	Australia and New Zealand Banking Group Limited	Australia
ANZ National Bank Limited	29.7	AA-	Aa3	AA-	Australia and New Zealand Banking Group Limited	Australia
Commonwealth Bank of Australia (B)	1.5	AA-	Aa2	AA-	Commonwealth Bank of Australia	Australia
ASB Bank Limited	15.8	AA-	Aa3	AA-	Commonwealth Bank of Australia	Australia
Bank of New Zealand	18.2	AA-	Aa3	-	National Australia Bank	Australia
Bank of Baroda (New Zealand) Limited	0.0	-	-	BBB-	Bank of Baroda	India
Bank of India (New Zealand) Limited	0.0	BBB-	-	-	Bank of India	India
Citibank N A (B)	0.6	A	A3	A	Citigroup Inc.	USA
Deutsche Bank Aktiengesellschaft (B)	0.7	A+	Aa3	A+	Deutsche Bank Aktiengesellschaft	Germany
JPMorgan Chase Bank, N.A. (B)	0.4	A+	Aa3	A+	JPMorgan Chase & Co	USA
Kiwibank Limited	3.7	A+	Aa3	AA	New Zealand Post Limited	New Zealand
Kookmin Bank (B)	0.1	A	A1	-	Kookmin Bank	South Korea
Rabobank Nederland (B)	0.6	AA	Aa2	AA	Rabobank Nederland	Netherlands
Rabobank New Zealand Limited	2.2	AA	-	-	Rabobank Nederland	Netherlands
Southland Building Society	0.7	-	-	BBB	Southland Building Society	New Zealand
The Bank of Tokyo-Mitsubishi, Limited (B)	0.7	A+	Aa3	A-	Mitsubishi UFJ Financial Group Inc.	Japan
The Co-operative Bank Limited	0.4	BBB-	-	-		
The Hongkong and Shanghai Banking Corporation Limited (B)	1.3	AA-	Aa2	AA	HSBC Holdings PLC	UK
TSB Bank Limited	1.3	BBB+	-	-	TSB Community Trust	New Zealand
Westpac Banking Corporation (B)	2.3	AA-	Aa2	AA-	Westpac Banking Corporation	Australia
Westpac New Zealand Limited	17.3	AA-	Aa3	AA-	Westpac Banking Corporation	Australia

<sup>1</sup> Registered banks' assets as a proportion of the total assets of the banking system, as at 30 June 2012.

<sup>2</sup> Banks marked (B) operate in New Zealand as branches of overseas incorporated banks. All other banks are incorporated in New Zealand.



