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Erratum

Line reading 'Residential mortgage backed securities', column 1, p14 under 'Secondary Liquid Assets', moved to 'Primary Liquid Assets' section of table.

Editor's note

In this final edition of the Reserve Bank *Bulletin* for 2009, we present a range of articles about the New Zealand economy, spanning a number of the Reserve Bank's functions.

In our lead article, Kevin Hoskin, Ian Nield and Jeremy Richardson outline the Reserve Bank's new prudential liquidity policy for banks. Part of the Reserve Bank's remit is the maintenance of a sound and efficient financial system. The article discusses new prudential requirements that focus on ensuring liquidity profiles for New Zealand banks are in keeping with a sound and efficient financial system. This discussion is placed within the context of recent international experience and the specific features of the New Zealand banking system.

The second article by Felipe Labbé and Hamish Pepper compares the recent forecasting performance of the Reserve Bank against a range of external forecasters. Recent turmoil associated with the global financial crisis has provided a difficult environment for professional forecasts and modellers alike. However, external forecasts continue to provide valuable information that feeds into the Reserve Bank's advice and decision making process. Reviewing the information content of these forecasts is thus important. The article suggests that although the Reserve Bank forecasts are more accurate than most, a number of forecasters perform well on particular variables and across different horizons.

In our third article, Chris Hunt provides an historical perspective on banking crises in New Zealand. The article uses the Kindleberger/Minsky framework to examine two episodes of 'systemic' banking crises in New Zealand history. The first episode is associated with a credit-fuelled rural land boom in the 1870s that resulted in a severe dislocation to the banking sector in the late 1880s and early 1890s. The second episode occurred in the late 1980s as a credit-fuelled asset price boom that ended with the October 1987 stock market crash and culminated in a government rescue of New Zealand's largest bank. One conclusion from the article is when a large shock hits the economy, the condition of the financial system is critical for understanding any subsequent damage. Current international policy efforts to mitigate the increase in risk-seeking behaviour over the cycle and increase the resilience of financial systems to shocks are appropriate and relevant in this regard.

Our final article in this edition, written by Victoria Yili Zhang, details the evolution of New Zealand's trade flows. The article documents just how much export and import patterns have changed over recent years and the approach the Reserve Bank takes to measuring these movements and indeed, changes in global activity.

I hope you find all the articles in this edition of the *Bulletin* both interesting and useful. We wish our readers an enjoyable Christmas holiday period and look forward to 2010.

Kirdan Lees
Editor



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ARTICLES

The Reserve Bank's new liquidity policy for banks

Kevin Hoskin, Ian Nield and Jeremy Richardson¹

A strong liquidity profile is important for all companies.² This is particularly true for banks, given the maturity transformation role that is inherent to much of their business. The maintenance of a sound and efficient financial system requires banks to hold a liquidity profile that is robust to funding shocks. The New Zealand banking system is very concentrated, and unusually reliant on short-term offshore funding by comparison with other developed countries. This makes its institutions, and the system as a whole, particularly vulnerable to liquidity shocks. The Reserve Bank has been working to develop new prudential requirements designed to strengthen the liquidity of the New Zealand financial system. In this article, we explore the nature of liquidity risks inherent within the system and explain in detail the new requirements for registered banks. In doing so, we note that the new requirements come at a time when global regulators are looking to strengthen liquidity requirements in light of the recent financial crisis. The Reserve Bank considers that its new framework provides a solid foundation for enhancing liquidity in the New Zealand financial system, which can be further developed as necessary in the coming years.

1 Introduction

The Reserve Bank registers and supervises banks in New Zealand for the purposes of promoting the maintenance of a sound and efficient financial system, and avoiding significant damage to the financial system that could result from the failure of a registered bank. Bank liquidity is essential to the smooth functioning of the economy: businesses and individuals depend on bank credit, and liquidity problems can quickly spread through the financial system.

This article provides an outline of the Reserve Bank's new liquidity requirements for registered banks. The article proceeds as follows. Section 2 provides a brief description of liquidity risk and the rationale for regulating liquidity in the light of international experience. Section 3 provides an overview of the New Zealand banking sector and the current regulatory structure, and identifies specific liquidity concerns in the New Zealand context. Section 4 outlines the Reserve Bank's new requirements and section 5 details the implementation of the policy. Section 6 concludes.

2 Liquidity risk and international experience

Liquidity risk can arise in a number of forms. From a funding perspective, it represents the risk that an entity cannot meet its obligations as they fall due, and as a secondary matter, the risk to an entity's profitability of being able to meet its obligations only at an elevated cost.

Banks are particularly vulnerable to liquidity risk as a result of the maturity transformation role that they play in the financial system. Retail banks take short-term or on-call deposits, while a major part of their lending is in long-term residential mortgages. It is therefore imperative that banks retain a sufficient portion of their total assets in the form of liquid assets, to be able to meet the potential calls from savers to withdraw their money.

Retail banks take short-term or on-call deposits, while a major part of their lending is in long-term residential mortgages.

¹ This article has benefited from comments from many Reserve Bank colleagues, including Bernard Hodgetts, David Hargreaves, Alistair Henry and Chris Hunt.

² Liquidity is the ability of a firm to meet its financial obligations as they fall due and to finance growth in its business.

Conditions in securities markets can also be a source of liquidity risk for banks. In managing its liquidity position, a

bank will not hold all of its liquid assets in the form of cash,³ as the opportunity cost of doing so would be too high. Rather, it will also hold a variety of marketable securities such as government securities, and highly rated corporate bonds, that it can sell or repo to generate cash.⁴ But while the bank may in principle be holding sufficient liquid assets to meet its obligations as they fall due, its ability to meet those obligations will depend on how liquid the market is for those assets. This can be particularly relevant for companies operating in a country like New Zealand, with relatively shallow capital markets.

While liquid assets are a vital backstop, the normal first line of defence to meet any unexpected outflows is the ability to raise regular new funding from as wide a range of sources as possible – this is especially the case for larger banks. The importance of maintaining a diversified funding profile has been demonstrated by past banking failures, such as Continental Illinois in the US in the 1980s. Continental had experienced a prolonged period of rapid growth through aggressive lending practices. However, mounting losses led to rumours that Continental was close to bankruptcy, setting off a flight of wholesale funding. Continental was highly exposed to this type of run due to its heavy reliance on short-term funding in the Eurodollar market. The crisis was only resolved when US authorities stepped in with a rescue package. An over-reliance on short-term, and relatively expensive funding instruments was also a contributing factor more recently in the failure of Northern Rock in the UK in 2007 (see box 1).

Liquidity and solvency problems have affected numerous financial institutions around the world following the onset of the global financial crisis, and have in fact exacerbated the crisis. This has triggered a wide-ranging debate about the effectiveness of prudential supervision regimes across countries. There have been a number of significant

publications from international bodies, both about the future of prudential supervision in general,⁵ and specifically about liquidity risk.⁶ All of these statements highlight the importance of adequate liquidity and the strengthening of prudential requirements related to it. For example, in its September 2009 report to the G20 leaders, the FSB stated that it was “substantially raising the bar for global liquidity risk regulation”, advocating in particular:

- a new minimum global liquidity standard, introducing a liquidity coverage ratio that can be applied in a cross-border setting; and
- a structural liquidity ratio to address liquidity mismatches⁷ and promote a strong funding profile over longer-term horizons.

The various forms of liquidity risk raise a number of issues for the Reserve Bank in its role as the prudential supervisor of the New Zealand banking sector. Although all companies have a strong incentive to manage liquidity risk effectively to minimise the risk to the profitability and even the survival of their business, the Reserve Bank needs to consider whether there are external factors that might lead individual institutions to adopt business models that result in the financial system as a whole being overexposed to liquidity risk.

A number of factors may be relevant here. The management of each bank can be expected to assess the bank’s liquidity risk only with reference to the costs that the bank itself would incur in the event of a liquidity shock. A liquidity problem at an individual bank can be disruptive for the wider financial system but, in the absence of any external pressure, there may be limited incentive on management to take account of the costs of such disruption. As a result, management may adopt a less robust liquidity position than is desirable for society as a whole.

³ ‘Cash’ in this context means not just physical bank notes and coins but also bank balances that can be used to make same-day payments. This includes demand balances held at other banks (commercial banks or central banks) and settlement balances held in payment systems.

⁴ A ‘repo’ is a repurchase agreement where the seller of a security agrees to buy back that security at a later date for a higher price, effectively resulting in a short-term loan from the investor to the seller.

⁵ For example, the 25 September statement from the Financial Stability Board (FSB) (available at <http://www.financialstabilityboard.org/>).

⁶ “Principles for sound liquidity risk management and supervision” (see <http://www.bis.org/publ/bcbs144.htm>).

⁷ A bank’s liquidity mismatch is the difference between its expected inflows and outflows of cash over a given time period. The expected cash flows can be based on a range of possible scenarios, including business-as-usual or an own-name funding crisis.

Box 1

Bank liquidity failures: the case of Northern Rock

Northern Rock was formed as a building society in the north of England in 1965. It expanded gradually by acquiring smaller building societies before converting to a listed bank in 1997. By 2007, it had become the fifth-largest provider of residential mortgages in the UK, based on highly competitive pricing, which required a narrow margin between what it paid for funds and what its borrowers paid in interest.

To support this growth, Northern Rock became heavily reliant on wholesale funding, which made up more than 70 percent of its total funding, compared with an industry average for UK banks of around 50 percent. For this model to succeed, Northern Rock relied on:

- its ability to raise money in the inter-bank and securitisation markets to repay existing short-term borrowing and fund new lending; and
- its ability to pay a lower rate of interest on these borrowings than it charged to mortgage customers.

The onset of the financial crisis in 2007 created a shortage of liquidity in wholesale markets as financial institutions reduced purchases of mortgage-backed assets and

retained cash to meet their own liquidity requirements. These factors severely undermined the Northern Rock business model, to the extent that it was likely to have to draw on its stock of high-quality liquid assets and sell other assets at distressed sale values.

On 11 September, the company's auditors were sufficiently concerned to inform the Financial Services Authority that they had reasonable grounds to believe Northern Rock may cease to be a going concern. Days later, the company sought assurance of support from the Bank of England as the lender of last resort. Following the public announcement that this facility had been put in place, the bank suffered a run on retail deposits, with 20 percent withdrawn in the space of four days.

On 17 September, the UK Treasury announced that it would guarantee all retail deposits to halt the run. This support was extended on 20 September to provide guarantees on all existing and renewed wholesale deposits and borrowings. Further facilities were announced during October 2007, before Northern Rock was placed into temporary public ownership on 17 February 2008.

Source: Based on National Audit Office (2009) report on the Nationalisation of Northern Rock (http://www.nao.org.uk/publications/0809/northern_rock.aspx).

Furthermore, a degree of moral hazard may arise if banks have incentives to rely excessively on central bank liquidity facilities and other government assistance in lieu of managing their own liquidity portfolios more prudently. Such an outcome can shift the burden of risk from shareholders to taxpayers. The important role played by banks in the wider economy has meant that implicit government support has always been assumed to an extent. Because of the actions required around the world during the recent financial crisis, this assumption has become significantly more explicit. As a result, banks might reasonably, but undesirably, adopt a business model that is overly reliant on this support remaining in place. Prudential minimum standards for liquidity risk should reduce the likelihood that an individual bank needs to call on the central bank as the lender of last resort, and

also reduce the risks to the taxpayer when such support is nevertheless judged essential.

Finally, the nature of the banking sector will also be relevant to the supervisor in assessing liquidity risk across the system. A highly concentrated and inter-dependent banking sector can expect to face a greater degree of systemic liquidity risk. As a result, the scale of any externalities within the system will be multiplied.

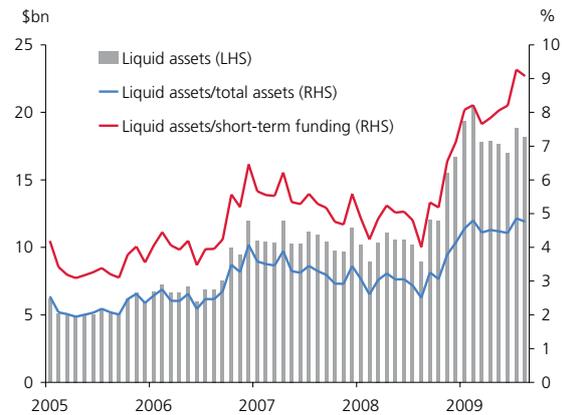
3 Liquidity within the New Zealand banking system

In 1996, the Reserve Bank put in place comprehensive disclosure requirements for New Zealand banks. The Reserve Bank sees market discipline as an important complement to regulatory discipline, and the disclosure regime aims to ensure that the market has the information it needs to exercise that discipline. New Zealand banks' liquidity risk has until now been addressed purely as part of this market discipline approach. Current disclosure rules require each bank to publish information about its approach to managing liquidity risk, and the bank's directors must attest that the bank has had systems in place to monitor and control adequately its liquidity risk, and that those systems have been properly applied. However, the detail of the reporting is largely left to the banks' own discretion.

The Reserve Bank has had concerns for some time that these requirements were proving to be insufficient. These concerns prompted studies by the Reserve Bank on the sources of liquidity and funding.⁸ Earlier in this decade, the low levels of liquid assets held by the banks resulted in a review of the Reserve Bank's domestic market activities and how the payment system was liquefied.⁹ The onset of the global financial crisis in August-September 2007 further underlined the importance of liquidity, and the Reserve Bank announced that it would be commencing work on a revised liquidity policy in its November 2007 *Financial Stability Report*.

As shown in figure 1, New Zealand banks had increased their holdings of traditional liquid assets¹⁰ prior to the Reserve Bank's announcement of its intention to introduce broader liquidity requirements. There has also been a further significant increase since mid-2008, which primarily reflects the banks' response to global market conditions, and the extension of the Reserve Bank's liquidity facilities as discussed below.

Figure 1
New Zealand banks' liquid assets



Source: Reserve Bank of New Zealand Standard Statistical Return.

Note: Short-term funding is approximated by funding with less than 90 days to rate reset (this will overstate funding maturing within 90 days somewhat).

This observed increase can be expected to decrease the banking system's exposure to short-term liquidity risk. However, the Reserve Bank is also concerned with the overall funding profile of New Zealand banks, which is a key driver of longer-term exposure to liquidity risk.

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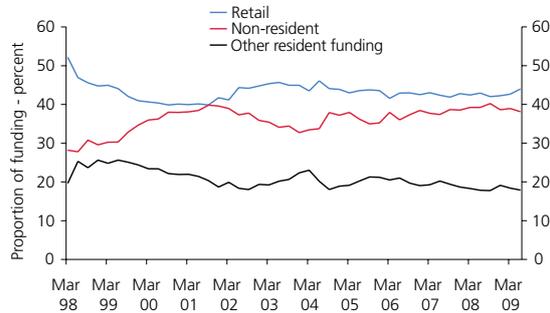
New Zealand runs a persistent and relatively large current account deficit, which is mainly funded through the banking system. In practice, New Zealand banks have raised a large proportion of this funding short-term, with the result that they have been heavily reliant on short-term, overseas funding, as demonstrated by figures 2 and 3 below. Figure 2 shows a breakdown of funding by category, and figure 3 shows the maturity of the banks' non-resident funding.

⁸ For example, see Box 2 'Bank funding', Reserve Bank *Financial Stability Report*, May 2005, p. 13.

⁹ See Nield (2006) and Nield (2008).

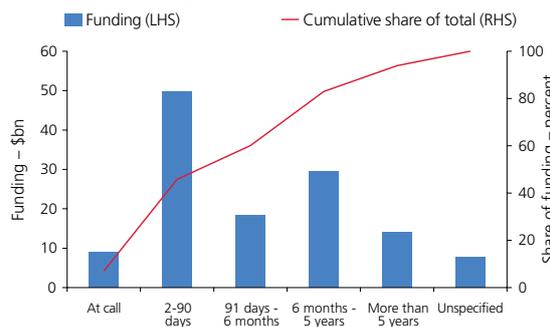
¹⁰ For these purposes, traditional liquid assets are defined as currency, government securities and claims on the Reserve Bank. Other, broader, definitions are possible.

Figure 2
Shares of domestic and non-resident funding by New Zealand banks



Source: Reserve Bank of New Zealand Standard Statistical Return and RBNZ calculations.
Note: Other resident funding includes interbank funding.

Figure 3
Residual maturity of New Zealand banks' non-resident funding

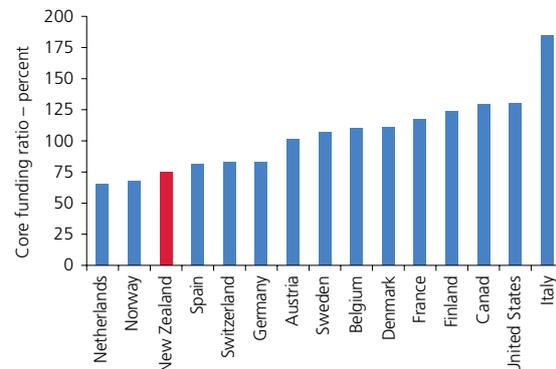


Source: Statistics New Zealand and RBNZ calculations.
Note: Based on data from December 2007.

These funding characteristics contribute towards the overall level of core funding observed in the New Zealand banking system. Figure 4 shows an estimate of core funding as a percentage of bank loans for a number of developed countries.¹¹ While this data should be regarded as indicative rather than definitive, New Zealand's core funding ratio appears to be lower than in most other countries, and by a significant margin in many cases.

¹¹ To allow cross-country comparison, core funding is defined for this chart as domestic and offshore securities with maturity of greater than one year plus household deposits. This is different from the definition of one-year core funding included in the minimum ratio requirements of the new policy (discussed below).

Figure 4
Core funding as a percentage of bank loans



Source: Organisation of Economic Co-operation and Development (OECD) and Bank for International Settlements (BIS) statistics and RBNZ calculations.

The risk associated with a high level of exposure to short-term overseas funding has for some time been identified as a particular concern. This risk was palpably demonstrated by the tightening of international markets experienced by New Zealand banks during the financial crisis, which saw offshore commercial paper issuance¹² fall by around a third in New Zealand dollar terms between September 2008 and March 2009.¹³

In light of the concerns outlined above, the Reserve Bank initiated a consultation process with banks to develop a new liquidity policy framework early in 2008. This led to the publication of a consultation paper in October 2008, which set out proposed new liquidity requirements, including reporting and disclosure requirements, qualitative requirements regarding banks' internal processes for managing liquidity risk, and quantitative requirements. The quantitative requirements (explained in detail below) consisted of:

- a minimum one-week mismatch ratio;
- a minimum one-month mismatch ratio; and
- a minimum core-funding ratio.

As part of its 2009 Article IV consultation with New Zealand, the IMF supported the proposal to adopt such measures, noting in particular that the new rules should help to reduce

¹² Offshore commercial paper issuance is short-term debt issued overseas by New Zealand banks.

¹³ Reserve Bank of New Zealand *Financial Stability Report*, May 2009, p. 31.

The Reserve Bank conducted an extensive formal and informal consultation process with banks on the proposed new liquidity requirements.

the banks' dependence on short-term offshore funding.¹⁴

The Reserve Bank conducted an extensive formal and informal consultation process with banks on the proposed new liquidity requirements. In particular, this process sought to refine the proposed minimum ratios to ensure that the definitions were consistent with the high-level aims of the proposals. The final policy was published on 22 October 2009,¹⁵ and is described in detail in the following section. It is designed to ensure that individual institutions are incentivised to adopt funding models that will strengthen the New Zealand financial system. In addition, the Reserve Bank has made a number of developments in recent years to help ensure adequate liquidity for New Zealand financial institutions in the event that global market disruptions affect the system. These changes were described in detail in Nield (2008).

4 The Reserve Bank's new liquidity requirements

There are four main components of the policy:

- minimum ratio requirements calculated from banks' financial data, including both on- and off-balance sheet business;
- rules and guidance on the risk management processes that banks should have in place to manage liquidity risk;
- requirements for regular reporting to the Reserve Bank of data on their liquidity positions; and
- requirements for banks to disclose publicly certain information on their liquidity risk and how they manage it.

The first two components are now in place for most locally incorporated banks, and discussions are under way to bring them into effect for the other registered banks, including branches of overseas banks. Reporting and disclosure requirements will be introduced in due course, as discussed further below.

Minimum ratio requirements

The policy defines three ratios (see box 2). The one-week and one-month mismatch ratios set off the value of expected cash inflows (including from the sale of liquid assets) against the value of expected outflows over the respective period. The ratios are defined as the net cash inflow or outflow as a percentage of total funding. The one-year core funding ratio measures the extent to which loans and advances are funded by funding that is stable, either because it has at least a year to maturity or because it is from sources that are less likely to pull out their money at any sign of problems.

Locally incorporated banks are subject to a condition of registration that requires them to maintain the level of each ratio above a specified minimum. A bank's short-term liquidity position can change significantly each day.

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Banks must therefore calculate the ratios on the basis of closing balances at the close of business of each working day. In fact, a bank processing large payments for customers typically has to manage its liquidity position not just at the end of each day, but within each day. It is not practicable for the policy to set quantitative requirements on this intra-day liquidity risk, but it is addressed in the policy's guidelines on liquidity risk management.

Locally incorporated banks are normally required to calculate the ratios consolidated downwards; that is, including the business of all subsidiaries of the bank. This is based on the assumption that cash can flow between different parts of the group as needed. Banks commonly raise funding through dedicated fund-raising subsidiaries. For the bank's

¹⁴ See <http://www.imf.org/external/pubs/cat/longres.cfm?sk=22933.0>

¹⁵ Available from <http://www.rbnz.govt.nz/finstab/banking/>

Box 2

The Reserve Bank's quantitative liquidity requirements

One-week mismatch dollar amount =

- discounted value of primary liquid assets
- plus cash inflows contractually due within one week
- plus 75% of undrawn committed lines granted to the registered bank available within one week (subject to limits)
- minus 100% of "market funding" that can be withdrawn at sight or has residual contractual term within one week
- minus "non-market funding" that can be withdrawn at sight or with residual contractual term within one week, where the percentage assumed to be withdrawn varies by size band (see Figure 5)
- minus other outflows contractually due within one week
- minus 15 % of the undrawn balance of committed lines granted by the bank, other than revolving retail facilities, that can be drawn within one week

One-week mismatch ratio = $100 \times (\text{One-week mismatch dollar amount} / \text{total funding})$

One-month mismatch dollar amount =

- discounted value of primary liquid assets
- plus discounted value of secondary liquid assets
- plus cash inflows contractually due within one month
- plus 75% of undrawn committed lines granted to the registered bank available within one month (subject to limits)
- minus 100% of "market funding" that can be withdrawn at sight or has residual contractual term within one month
- minus "non-market funding" that can be withdrawn at sight or has residual contractual term within one month, where the percentage assumed to be withdrawn varies by size band (see Figure 5)
- minus other outflows contractually due within one month
- minus 15 % of the undrawn balance of committed lines granted by the bank, other than revolving retail facilities, that can be drawn within one month

One-month mismatch ratio = $100 \times (\text{One-month mismatch dollar amount} / \text{total funding})$

One-year core funding dollar amount =

- all funding with residual maturity longer than one year, including subordinated debt and related party funding
- plus 50 per cent of any tradable debt securities issued by the bank with original maturity of at least two years, and residual maturity (at the reporting date) between six months and one year
- plus “non-market funding” that can be withdrawn at sight or with residual maturity up to one year, where the percentage to be included decreases with size band (see Figure 6)
- plus Tier 1 capital

One-year core funding ratio = 100 x (One-year core funding dollar amount / total loans and advances)

liquidity risk, it is the nature of the external funding coming into such a vehicle that is important. Certain subsidiaries could be excluded from the consolidation if the nature of their business meant that this measurement approach did not capture their liquidity risk appropriately. An example would be insurance business. Also, no New Zealand bank at present owns an overseas bank, but that case would need to be considered separately if it ever arose.

A key distinction that all three ratios rely on is between ‘market’ and ‘non-market’ funding. ‘Market funding’ is intended to capture the idea of professional wholesale market funding that would all be withdrawn from the bank on maturity at the first sign of problems. It is defined as all funding provided to the bank by other financial institutions (including any related parties of the bank), and all funding raised by means of tradable debt securities issued into professional markets.

Non-market funding is the rest of the bank’s funding. It can, for instance, include a \$100 million deposit from a large corporate, which is why the policy does not use the terms ‘retail’ and ‘wholesale’ commonly used in liquidity management. For all three ratios, it is assumed that providers of non-market funding will be less reliable, the larger the total amount of deposits that they provide. For instance, for depositors with over \$50 million held at the bank, 80 percent of their funding is assumed to be withdrawn in a short-term liquidity stress. The larger the deposit, the more financially sophisticated the depositor is likely to be, and the more alert to the safety of their funds. But the reason that the policy does not treat (for instance) large deposits from

corporates as purely wholesale is that a reasonable amount of these deposits tend to be of the nature of working capital balances, rather than professional money market placements.

Mismatch ratios

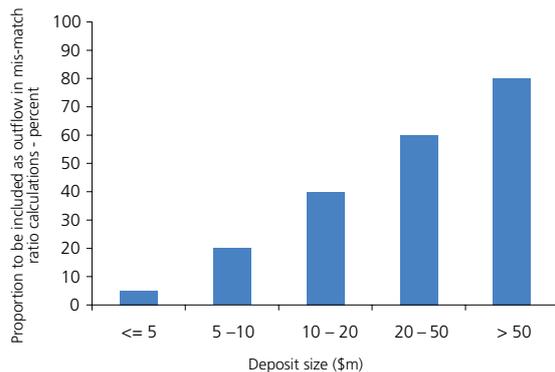
The one-week and one-month mismatch ratios are based on the idea of projecting what a bank’s cash inflows and outflows would be over the next week or month, in the event that the bank is subject to a serious loss of confidence. The ratio definitions then offset the net cash flow position (which will invariably be a net outflow) against available cash and liquid assets that the bank would be able to use to raise cash at short notice. The cash flow projections underlying the ratio calculation should not be seen as describing a precise scenario: it is very unlikely that any future liquidity stress at a bank will play out in exactly the same way as any historical examples. Rather, these are a generic set of assumptions that provide a standard metric for the amount of liquid assets required.

The assumptions about the percentages of funding provided to the bank that will be withdrawn are based broadly on the financial sophistication of the provider and the average size of deposit that they have with the bank. It is assumed that all market funding is withdrawn at the earliest possible date.

On the other hand, non-market funding ranges from small deposits placed by individual retail depositors to working capital balances held by large companies. For this range

of depositors, the cash withdrawal assumptions are based on the size of their deposit with the bank. Figure 5 shows the cash withdrawal assumptions for each size band of depositor.

Figure 5
Percentages of non-market funding in each size band to be included as outflows (negative sign) in the mismatch ratio calculations



When a bank has provided committed lending facilities to commercial borrowers, those borrowers can in principle draw down additional amounts up to the limit of their facility at any time. However, the assumption in the policy is that the rate of such drawing will not be affected by a loss of confidence in the bank, and will continue at their normal rate. Based on historical figures for draw-down rates across a range of products, the assumption is that cash provided to borrowers over the period is 15 percent of the total amount that they could draw down.

However, retail revolving credit facilities such as credit cards and overdrafts are excluded from the calculation. Across a bank's whole portfolio of such business, the net amount of cash flows in and out is relatively small, and there is no expectation that customers would rush to draw down credit on rumours of a problem affecting their bank.

For other assumed outflows and inflows, it makes best sense to base them on fixed contractual terms, so behavioural assumptions are not needed. These include amounts contractually due on derivative contracts, loans due to be drawn down where the amount and timing are certain, and interest payments and receipts due within the period, where cash actually changes hands rather than just being debited or credited to a customer's account.

For a bank with a conventional balance sheet profile, the sum of assumed stress cash inflows and outflows will invariably be negative; that is, a net outflow.

For a bank with a conventional balance sheet profile, the sum of assumed stress cash inflows and outflows will invariably be negative; that is, a net outflow.

The policy recognises two options that a bank would have to meet that cash shortfall.

The first is to draw on committed borrowing lines that it has received from other banks. The policy puts tight conditions on the nature of such commitments before they can be included in the calculation. It also only allows 75 percent of the amount of available credit to be included in the calculation. In addition, a commitment from an individual provider can only contribute a maximum of +3 percent to the overall ratio, and commitments in total can only contribute +9 percent. This does not rule out one of the providers being a related party of the bank, such as an overseas parent bank. This treatment recognises that committed lines are a less reliable source of emergency cash than holding a stock of liquid assets, but that they are still a desirable addition to a bank's liquidity armoury.

The second option is to draw on cash balances, or to sell or repo liquid assets; that is, assets the bank holds that can quickly be converted to cash. The policy specifies which types of marketable security (in addition to cash itself) can be treated as liquid assets in the one-week and one-month mismatch calculations. The following is a broad summary of the two classes of liquid asset defined in the policy, primary and secondary:¹⁶

Primary Liquid Assets

- Securities issued by the following –
- New Zealand government
- Reserve Bank of New Zealand
- New Zealand local authorities

¹⁶ The securities listed must all be denominated in New Zealand dollars except where otherwise noted.

New Zealand state owned enterprises
NZ\$ securities issued by overseas sovereign, supranational and quasi-sovereign entities
Residential mortgage backed securities

Secondary Liquid Assets

Securities guaranteed by the New Zealand government (NZ\$ and foreign currency)
Securities guaranteed by AAA-rated sovereign entities (NZ\$ and foreign currency)
Foreign currency denominated securities issued by AAA-rated sovereign entities
Lower-rated and un-rated local authority securities
New Zealand corporate securities
Asset-backed securities
Registered bank securities

Only primary liquid assets qualify for the one-week mismatch calculation, and this ensures that a substantial proportion of banks' total liquid assets will be primary. With one exception, primary liquidity securities are those of such high quality and/or market liquidity that they should be realisable for cash with most financial market participants at any time. The exception is residential mortgage-backed securities, which are not tradable but can be used as collateral for short-term borrowing from the Reserve Bank.

Secondary liquid assets are generally those that are of lesser quality, or less liquid in the New Zealand market, than New Zealand government securities. Registered certificates of deposit issued by banks are also treated as secondary, and with a cap on the amount that can be included, even though the market for them is normally liquid. This is because they are likely to become illiquid as soon as one bank in the system faces liquidity problems.

To adjust for various types of risk (such as market risk, liquidity risk, exchange rate risk and credit risk), the market value of each eligible liquidity asset is reduced by a risk margin (also known as a 'haircut') appropriate to that type of security before that security's market value is included in the mismatch calculation.

The one-week and one-month mismatch ratios are calculated by dividing the net dollar mismatch amounts by total funding. Although minimum requirements could just as well be set

on the dollar amount as on the ratio, the ratio definition is preferred as it allows easier comparison of banks' actual ratios, initially by the Reserve Bank, and potentially by the market, assuming these numbers are included in eventual disclosure requirements.

The standard minimum requirement for both ratios is 0 percent. Notionally, a bank meeting these minima will just survive, without official support, over both the first week and the first month of a liquidity squeeze. However, this depends entirely on the specific set of cash flow assumptions in the calculation, and as noted above, each liquidity problem tends to play out in its own idiosyncratic way. It is likely that banks will maintain their own internal minima for each ratio a few percentage points above the regulatory minimum to reduce the chance of breaches, as the values of both ratios are likely to be quite volatile from day to day.

As a final point, it is worth noting that a bank that sells or repos its liquid assets, or draws down its committed lines, will normally breach its minimum mismatch ratios as a result. However, this is what a bank may need to do to help it survive a temporary liquidity problem. The Reserve Bank expects that a bank would inform it at an early stage of any emerging liquidity problem, and any actual or expected breach of the minimum requirements. The Reserve Bank would then discuss with the bank the options, depending on the circumstances, for it to return to compliance with the standard minima.

One-year core funding ratio

The basic notion underlying the one-year core funding ratio is a comparison between an estimate of the funding of the bank that is stable and which can be assumed to stay in place for at least one year ('core funding'), and the core lending business of the bank that needs to be funded on a continuing basis.

Requiring banks to maintain a minimum one-year core funding ratio reduces the vulnerability of the banking sector as a whole to a period of general market disruption.

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If offshore markets were closed to New Zealand-incorporated borrowers for an extended period, having existing funding at longer maturities would allow a longer breathing space to address the problem.

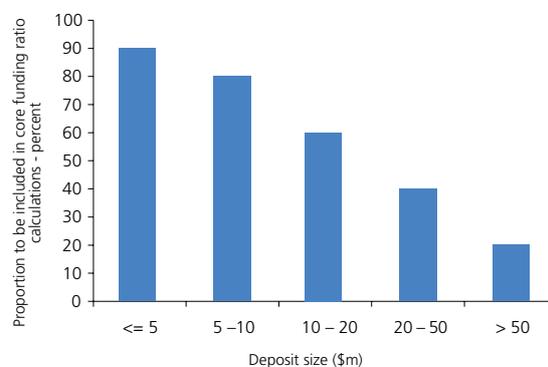
Core funding includes all funding with residual maturity over one year. This includes all deposits with a remaining term of more than one year, whether retail or wholesale in nature, all tradable securities issued with more than one year remaining until redemption, including for instance subordinated debt, and any funding from related parties that the bank is under no contractual obligation to repay for at least a year. Tier one capital as defined in the Reserve Bank's capital adequacy framework is also included.

To avoid excessive volatility of the ratio, tradable debt issued with an original maturity of two years or more remains in core funding for a further six months after it has passed the one year residual maturity mark, but with only 50 percent recognised. Banks would otherwise be under strong pressure not to make individual debt issues in large amounts, which would be inefficient.

Non-market funding with less than one year to maturity is also included in core funding, but the percentage included from each funding provider reduces as the total funding from that provider increases. As with the mismatch ratios, this reflects the fact that deposit size is assumed to be a rough proxy for how stable funding from each depositor is. For instance, a depositor with total deposits at the bank of less than \$5million is assumed to be a less financially sophisticated personal depositor or small business, and accordingly 90 percent of such funding is allowed within the core funding total. The percentages included in each depositor size band are set out in figure 6.

The one-year core funding ratio is the total of one-year core funding as a percentage of the bank's total loans and

Figure 6
Percentages of non-market funding up to one year in each size band to be included in core funding



advances. The idea behind including all loans and advances rather than, say, loans with more than one year residual maturity is that the total represents a key part of a bank's core franchise. A bank that cannot obtain funding to keep rolling over its shorter-term lending when borrowers request it, as well as to fund its longer-term lending, is likely to be in a weak and unsustainable position.

For the initial implementation of the policy, locally incorporated banks are being required to maintain a one-year core funding of at least 65 percent. Under current estimates, the banks all have a ratio above this minimum, but only slightly above in most cases.¹⁷ However, prior to deregulation in the 1980s, the Reserve Bank estimates that the ratio would have been significantly higher, around 90 percent.

In addition to strengthening banks' liquidity positions, the core funding ratio might also be expected to provide a degree of automatic stabilisation to the economy during periods of strong credit expansion. In recent years, banks have been able to fund cheaply in the offshore money markets and use derivatives to synthesise fixed-rate term funding at a cost cheaper than actually borrowing in term markets. The core funding ratio in the new prudential liquidity policy drives banks to either compete for more stable funding from non-financial customers, or borrow in wholesale markets for terms longer than one year. During periods of rapid credit

¹⁷ See "Regulatory impact assessment: RBNZ liquidity requirements for locally incorporated banks" for more detail (available at <http://www.rbnz.govt.nz/finstab/banking/>).

expansion, banks will not have the same ability to borrow at short terms in the offshore money markets to supply domestic demand. To satisfy growing credit demand, banks will need to borrow from a variety of sources, with increased emphasis on customer deposits and longer-term markets. As a result, lending rates should automatically move higher without the Reserve Bank necessarily needing to move the official cash rate to the same extent. With short-term wholesale market rates not likely to rise as much, the attractiveness of the New Zealand dollar as a destination for 'carry trade' investors could be reduced.¹⁸ Through these channels, the policy has the potential to have a role in assisting monetary policy.

Rules and guidance on liquidity risk management

While the three minimum ratio requirements put a ceiling on the amount of liquidity risk that a bank can take on, that in no way guarantees that a bank meeting those requirements is immune to liquidity problems. It is vital that a bank also has its own comprehensive measurement and control framework in place that allows it to manage liquidity risk within its chosen risk appetite, and allows it to spot any emerging liquidity problems early and respond to them promptly.

Under the liquidity policy, registered banks must meet the following condition of registration:

That the registered bank has an internal framework for liquidity-risk management that is adequate in the registered bank's view for managing the bank's liquidity risk at a prudent level, and that, in particular:

- (a) is clearly documented and communicated to all those in the organisation with responsibility for managing liquidity and liquidity risk;
- (b) identifies responsibility for approval, oversight and implementation of the framework and policies for liquidity-risk management;
- (c) identifies the principal methods that the bank will use

for measuring, monitoring and controlling liquidity risk; and

- (d) considers the material sources of stress that the bank might face, and prepares the bank to manage stress through a contingency funding plan.

The policy also includes fuller guidelines that banks should apply to their arrangements for managing liquidity risk. These guidelines are issued under section 78(3) of the Reserve Bank Act, which means that the Reserve Bank could take them into account (without ruling out other factors that might be relevant) in determining that a registered bank has not carried on its business in a prudent manner, or in considering the ability of an applicant for registration as a registered bank to carry on its business in a prudent manner.¹⁹ The applicability of any aspects of the guidelines to a given bank depends on their being relevant to the nature of the bank's business and risks.

Reporting requirements

The October 2008 consultation paper included proposals for banks to report financial data on liquidity risk monthly to the Reserve Bank. No significant concerns were raised in the consultation, so the Reserve Bank intends to put in place reporting requirements broadly in line with those consulted on. Some updates to the proposals will be needed to reflect changes in the policy's minimum ratio requirements since the consultation.

Reporting will cover the following main areas:–

- the values of the bank's one-week and one-month mismatch ratios, and the one-year core funding ratio, as defined in the policy, including the main components of the calculations;
- the maturity profile of the bank's market funding on a contractual basis on a fairly detailed basis, starting with maturities of overnight, 1-7 days, 8-14 days, and so on;
- if the bank makes its own behavioural assumptions in its internal liquidity risk management, the maturity

¹⁸ The 'carry trade' is a currency investment trade where a speculative investor borrows in a currency with low interest rates and invests in a currency with high interest rates.

¹⁹ The Reserve Bank's guidelines broadly cover the same ground as the guidance for banks in the Basel Committee's document "Principles for sound liquidity risk management and supervision" (September 2008).

breakdown of its wholesale funding on that basis, and its daily mismatch position for the first week ahead;

- the breakdown of the bank's market and non-market funding into over and under one-year residual maturity, offshore and domestic, and New Zealand dollar-denominated and other; and
- details of liquid assets held, as defined in the policy.

The aim of the reporting is to allow the Reserve Bank to monitor liquidity risk across the banking sector as a whole, and to compare the liquidity positions of individual banks and spot potential outliers. Banks will need to be able to increase the frequency of reporting from monthly to weekly if required, so that the Reserve Bank can monitor more closely the liquidity position of an individual bank, or the banking system in general, should market concerns require it.

Disclosure requirements

The Reserve Bank's disclosure regime is an important part of its overall regulatory approach. It is intended to enhance market discipline, as noted above. In keeping with this approach, the Reserve Bank is keen to ensure that banks disclose adequate information about their actual liquidity position, and about the way they manage liquidity risk.

The Reserve Bank's disclosure regime is an important part of its overall regulatory approach.

The October 2008 consultation paper proposed that additional disclosure on liquidity would be added to banks' existing quarterly disclosure requirements. This would include the same data that will be reported monthly to the Reserve Bank, but would add some additional items.

More broadly, the Reserve Bank has recently launched a fundamental review of its disclosure regime, which is likely to take several months. One of the issues that this review will consider is whether the overall volume or frequency of disclosure is excessive, in terms of the burden on the

banks producing the data, compared to how much of the information is useful and comprehensible to its intended audience. Further work on the liquidity disclosure proposals has therefore been postponed until that review has been completed.

5 Implementation

The quantitative and qualitative requirements were put in place for most locally incorporated banks through additions to their conditions of registration in October 2009. These new conditions are that the banks meet the requirements of the policy with effect from 1 April 2010. This builds in a period of transition to allow the banks sufficient time to align their internal systems with the new requirements.

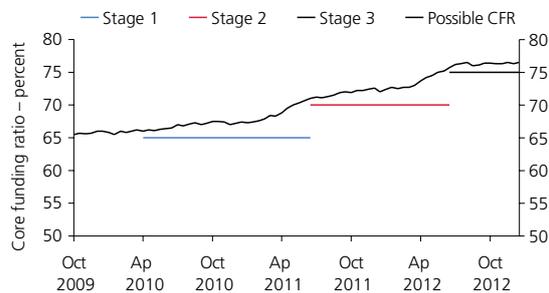
Thereafter, the mismatch requirements are designed to act as a floor to banks' existing management of short-term liquidity risk, and as such, are expected to remain at the initial calibration.

With the one-year core funding ratio, however, the Reserve Bank is seeking to lengthen banks' maturity profiles to provide greater protection against liquidity risk in the medium-to longer term. With this in mind, the Reserve Bank intends to raise the required minimum in the future from the initial 65 percent minimum requirement. It expects to do this in two further stages, with the minimum raised to 70 percent at the second stage, and then finally increased to the expected long-term minimum of 75 percent (as displayed in stylised form in figure 7 below). Most banks will need to adjust their funding profiles to meet the requirements in Stages 2 and 3. The precise timing of these increases will be determined once all parties have had an opportunity to observe the operation of the framework in practice.

The Reserve Bank is currently finalising the treatment of branches of overseas banks under the policy. On the one hand, a local branch needs to ensure that it maintains adequate liquidity in its own right; but on the other hand, this may already be achieved within the global bank's liquidity management framework, or because of liquidity requirements imposed on the whole bank by the home country supervisor. The policy builds in more flexibility in the treatment of branches by allowing such factors to be taken

Figure 7

Illustrative implementation of the core funding ratio



into account. The standard quantitative requirements may be suitably adapted or waived for branches, provided that the Reserve Bank is satisfied that the broad objectives of the policy are still met.

The next step will be the introduction of standard reports to the Reserve Bank covering liquidity data. Requirements for public disclosure will be subject to the forthcoming review as noted above.

6 Conclusion

The introduction of this new liquidity policy marks a significant change in the way the Reserve Bank supervises New Zealand-registered banks. It has arisen from concerns aired by the Reserve Bank over a number of years, which were brought into sharp relief by the global financial crisis. While the initial thinking behind this policy occurred prior to the current period of financial stress, the crisis has had an important influence on the form of the policy. The Reserve Bank has been the first central bank to announce a new prudential liquidity policy, but it has not been developed without discussion or awareness of what overseas regulatory agencies are thinking, in particular the Basel Committee on Banking Supervision, the FSA in the UK,²⁰ and APRA in Australia.²¹ Although there are some differences in approach emerging across the globe, the Reserve Bank considers that its new requirements represent a sound basis upon which to proceed. It will be keeping the operation and calibration of the policy under review, and will make any adjustments

²⁰ See http://www.fsa.gov.uk/pages/Library/Policy/Policy/2009/09_16.shtml

²¹ See <http://www.apra.gov.au/Policy/Enhancing-prudential-framework-for-ADI-liquidity-risk-management.cfm>

as appropriate in light of both international developments and the operational impact of the policy itself. The Bank is confident that the policy will make an important contribution to the objective of a sound and efficient financial system in New Zealand.

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Erratum

Line reading 'Residential mortgage backed securities', column 1, p14 under 'Secondary Liquid Assets', moved to 'Primary Liquid Assets' section of table.

Assessing recent external forecasts

Felipe Labbé and Hamish Pepper

This article compares the performance between external forecasts and Reserve Bank of New Zealand published projections for real GDP growth, CPI inflation, the 90-day interest rate and the trade weighed index (TWI) to examine the accuracy of different forecasts.

Since 2003, the Reserve Bank has collected and analysed forecasts from as many as 13 external forecasting agencies as part of the process of monetary policy formulation. The forecasts help to identify risks around the Reserve Bank forecasts.

Reserve Bank forecasts are more accurate than most, significantly outperforming the external average for one-year ahead GDP growth, two-year ahead CPI inflation and two-year ahead TWI forecasts. However, our analysis shows that a number of external forecasting agencies perform reasonably well, suggesting that these forecasts are likely to be useful when formulating monetary policy.

1 Introduction

Due to the lags with which monetary policy affects inflation, macroeconomic forecasting is a critical component of monetary policy (for further discussion, see Drew and Frith 1998). The current Reserve Bank published forecasts are constructed with the assistance of our new dynamic stochastic general equilibrium (DSGE) model 'KITT' (see Lees 2009). However, as part of the decision-making process, the Reserve Bank also considers information from a variety of sources, including forecasts from external agencies. Consequently, the Reserve Bank dedicates significant resource to gathering and assessing external forecasts each quarter. This article seeks to enhance the value of this exercise by establishing the recent forecasting accuracy of the relevant agencies.

Over the past 5-10 years, several pieces of work have analysed the accuracy of Reserve Bank forecasts and compared them to those from external agencies. McCaw and Ranchhod (2002) assessed the Reserve Bank's forecasts between 1997 and 2002 and found that the Reserve Bank consistently under-predicted CPI inflation over that period. While the work concentrated on explaining this bias, it also included a comparison with several external forecasters and found those forecasts were about as biased and accurate as the Reserve Bank. Turner (2006) updated this work by assessing the Reserve Bank's forecasting performance over 2003 to 2005 against New Zealand Consensus forecasts for

several macroeconomic variables produced by Consensus Economics Inc.¹ Turner found that Reserve Bank forecasts were at least comparable to this average. In the case of the 90-day interest rate and CPI inflation, Reserve Bank forecasts were more accurate and less biased.²

This article updates these assessments of forecast accuracy. However, in contrast to previous work in this area, the majority of our data has been collected two-to-three weeks prior to the Reserve Bank projections being finalised. Consequently, the comparisons are more meaningful, as each forecaster has a similar information set – placing each contender on a level playing field.

The article proceeds as follows. Section 2 describes the forecast data. Section 3 discusses the large changes in economic conditions over our sample period to illustrate the difficulties faced by forecasting agencies during this time. Section 4 details the methodology used to determine forecasting accuracy. Section 5 contains the results of our analysis and notes the limitations of this work. Section 6 concludes.

¹ Consensus Economics Inc compiles simple forecast averages for a range of economic and financial variables using survey responses from 16 reputable forecasters within the New Zealand and Asia Pacific Region.

² Goh and Lawrence (2006) evaluated the GDP and CPI forecasting performance of the Treasury over 1995 to 2004 against a range of external forecasters that included the Reserve Bank. However, individual forecasters were not identified.

2 The forecasts

The data for this work comes from Reserve Bank published forecasts and external forecasts collected over the period 2003q1 to 2008q4. In contrast to previous work assessing the accuracy of Reserve Bank and external forecasts, the majority of our forecast data has been collected two-to-three weeks prior to the Reserve Bank projections being finalised. Consequently, the forecast comparisons are more meaningful as most forecasters have had access to a similar information set. The exceptions are New Zealand Institute of Economic Research (NZIER) and NZIER Consensus:³ their forecasts can be up to three months out of date. However, we include these forecasts in our average measure due to their comparable forecasting performance over our sample period.

As in a horse race, where contenders perform better in some conditions than others, forecasters have their stronger areas of performance. While recent economic conditions have proved difficult for forecasters, comparisons between external and RBNZ forecasts still play an important role in monetary policy formulation.

The data includes one-year and two-year ahead forecasts for real GDP growth (March year annual average percentage change), CPI inflation (March year annual percentage change), the 90-day interest rate (March year annual average) and the TWI (March year annual average) from eight external forecasting agencies as well as the Reserve Bank. An equally weighted external average forecast is also assessed.

We also examine an external forecast median and a weighted average where external forecasts are combined based on their historical inverse mean squared forecast errors. The motivation for this type of forecast combination comes from Bates and Granger (1969), who argue that it often leads to more accurate forecasts than a simple average. However, neither of these alternative measures outperformed the simple average in terms of out-of-sample forecasting performance and consequently they are not reported. In the case of the weighted forecast combination, this poor performance is perhaps due to the small sample size and low frequency of re-weighting.

Table 1 provides a list of forecasters and the number of one-year and two-year ahead forecasts evaluated.⁴ We



Race Images Palmerston North

“While recent economic conditions have proved difficult for forecasters, comparisons between external and RBNZ forecasts still play an important role in monetary policy formulation.”

³ NZIER Consensus is an average of forecasts collected by the NZIER.

⁴ We exclude six forecasters that have provided external forecasts to the Reserve Bank over the sample period – ASB, Infometrics, Treasury, Goldman Sachs JB Were and BERL due to insufficient observations; and ANZ due to their merger with National Bank.

Table 1**External forecasters**

Forecaster	Number of one-year ahead forecast observations (out of 24)	Number of two-year ahead forecast observations (out of 20)
ANZ National	24	20
BNZ	24	20
Deutsche Bank	24	20
FNZC	23	19
NZIER	24	20
NZIER Consensus	24	20
UBS Warburg	24	20
Westpac	24	20

Table 2**Forecast definitions**

Date forecast made	One-year ahead outturn	Actual forecast horizon	Two-year ahead outturn	Actual forecast horizon
2003Q1	2004q1 annual	4 quarters	2005q1 annual	8 quarters
2003Q2	2004q1 annual	3 quarters	2005q1 annual	7 quarters
2003Q3	2004q1 annual	2 quarters	2005q1 annual	6 quarters
2003Q4	2004q1 annual	1 quarter	2005q1 annual	5 quarters
2004Q1	2005q1 annual	4 quarters	2006q1 annual	8 quarters

define one-year ahead forecasts as those pertaining to the following March year annual outturn. Similarly, we define two-year ahead forecasts as those pertaining to the March year annual outturn in two years' time. Consequently, these forecasts are often not strictly one- or two-year ahead forecasts. Table 2 gives an example of how we define one-year and two-year ahead forecasts.

3 Recent economic conditions

The past five to six years have been particularly difficult for forecasters in New Zealand. Key macroeconomic variables have moved significantly over this time as is illustrated in figures 1 to 4.

The year 2003 was a particularly uncertain time for the New Zealand economy. After reasonably strong growth in 2002, driven by favourable export conditions, many analysts believed the appreciating New Zealand dollar (as measured

by the TWI) and global uncertainty due to severe acute respiratory syndrome (SARS) would see New Zealand growth abate over 2003 and 2004. However, this slowdown did not eventuate. Growth in the non-tradable sector continued strongly through 2004-2006, supported by significant population growth and large house price-driven increases in household wealth.

Through this period, the appreciating TWI placed downward pressure on CPI inflation. However, over 2007 and early 2008 significant increases in world commodity prices, coupled with a stubbornly strong non-tradable sector, saw annual CPI inflation, the 90-day interest rate and the TWI reach levels not seen in the previous 15 years. Nevertheless, tight policy settings and the global financial crisis saw this situation reverse over 2008 – much more rapidly than any forecaster predicted. GDP growth turned negative in the first quarter of 2008, and stayed negative throughout the year; the 90-day interest rate moved from 8.8 percent to

Figure 1
GDP growth

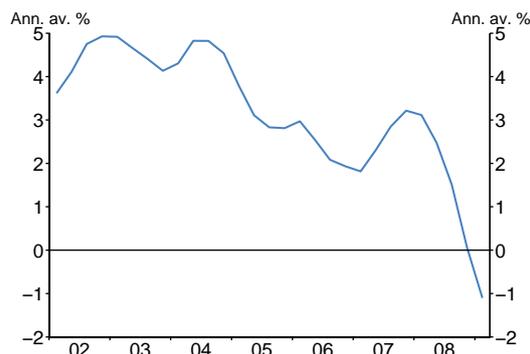


Figure 2
Annual CPI inflation

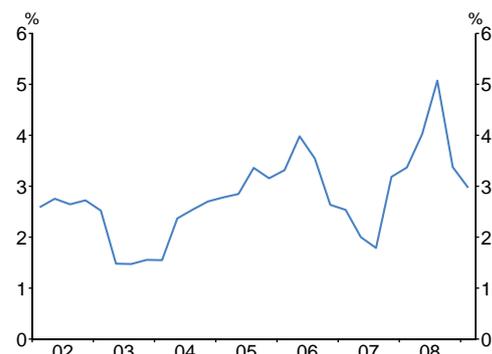


Figure 3
90-day interest rate

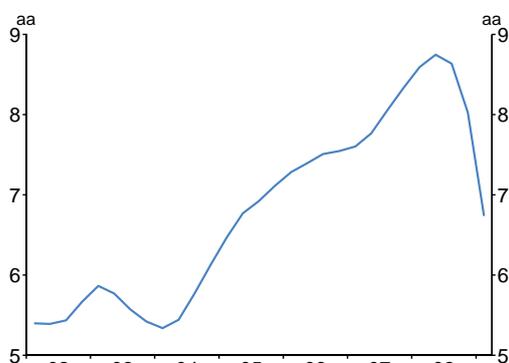
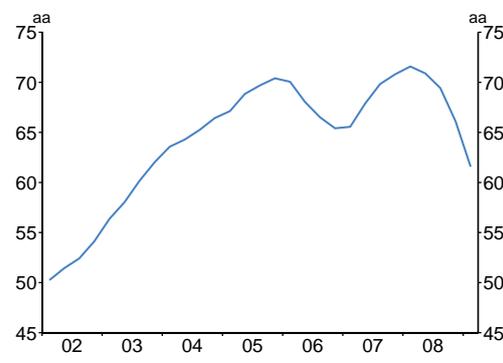


Figure 4
TWI



Source: Statistics New Zealand, Reuters.

3.7 percent; and the TWI dropped from 71.9 in 2008q1 to 53.9 in 2009q1.

4 Methodology

Forecast accuracy can be measured in a variety of different ways. We measure forecast accuracy with two commonly used statistics: Root Mean Squared Forecast Error (RMSFE) and Mean Forecast Error (MFE).

$$\text{RMSFE} = \sqrt{\text{variance}(\text{errors}) + \text{MFE}^2}$$

$$\text{MFE} = \text{mean}(\text{errors})$$

RMSFE measures the size of the forecast errors, while MFE measures whether the forecast errors are biased on average. We assess all forecasts against 'final' vintage data (ie, the data released at 2009q1).

In our results, a negative MFE indicates a tendency for a particular forecaster to under-predict the variable of interest. For example, a forecaster who, on average, under-predicts one-year ahead GDP growth by 0.1 percent will have a

one-year ahead GDP growth MFE of -0.1. A relatively good forecaster will be one who has a low RMSFE and a MFE that is close to zero.

However, it is important to remember that good forecasting performance in the past does not guarantee good performance in the future. For example, staff turnover may contribute to a lack of forecasting consistency over time. As a result, we caution against drawing any firm conclusions from the results presented in the next section – they should be viewed as descriptive only.

5 Results

Tables 3 to 6 report one-year and two-year ahead RMSFE and MFE for each forecaster. In addition, we report whether a particular forecast is significantly better or worse than the Reserve Bank published forecasts and whether a particular forecaster's bias is significantly different from zero. This is established using the Diebold-Mariano test for comparing predictive accuracy (Diebold and Mariano 1995).

Table 3

GDP growth

Rank*	Forecaster	RMSFE		MFE	
		1 Year	2 Years	1 Year	2 Years
1	RBNZ	1.15	1.85	-0.05	0.23
2	A	1.25	1.83	-0.40	0.23
3	B	1.28 [†]	1.63	-0.30	0.21
4	C	1.29	1.99	-0.28	0.41
5	D	1.30	1.59	-0.61	0.13
6	Average	1.34 [†]	1.77	-0.42	0.18
7	E	1.39 [†]	1.82	-0.60	-0.22
8	F	1.42 [†]	1.94	-0.32	0.24
9	G	1.46 [†]	1.80	-0.32	0.40
10	H	1.72 [†]	1.95	-0.47	0.12

Table 4

Annual CPI inflation

Rank*	Forecaster	RMSFE		MFE	
		1 Year	2 Years	1 Year	2 Years
1	A	0.55	0.76	0.05	-0.40 ^{††}
2	Average	0.61	0.84 [†]	-0.18	-0.71 ^{††}
3	C	0.61	0.90 [†]	-0.25 ^{††}	-0.79 ^{††}
4	G	0.64	0.85 [†]	-0.15	-0.73 ^{††}
5	RBNZ	0.66	0.64	0.04	-0.42 ^{††}
6	D	0.66	0.83 [†]	-0.08	-0.75 ^{††}
7	B	0.72	0.89	-0.12	-0.68 ^{††}
8	F	0.78	0.96 [†]	-0.20	-0.86 ^{††}
9	E	0.87 [*]	1.00 [†]	-0.24	-0.63 ^{††}
10	H	0.90 [*]	0.97 [†]	-0.49 ^{††}	-0.85 ^{††}

Table 5

90-day interest rate

Rank*	Forecaster	RMSFE		MFE	
		1 Year	2 Years	1 Year	2 Years
1	A	0.65	1.30	0.04	-0.79 ^{††}
2	RBNZ	0.70	1.10	0.14	-0.32
3	D	0.71	1.45	-0.08	-0.90 ^{††}
4	C	0.71	1.30	0.06	-0.60
5	Average	0.72	1.45	-0.12	-0.99 ^{††}
6	B	0.75	1.60 [†]	-0.20	-1.08 ^{††}
7	E	0.76	1.51	-0.28	-1.11 ^{††}
8	F	0.80	1.72 [†]	-0.06	-1.07 ^{††}
9	G	0.83	1.40	-0.17	-0.99 ^{††}
10	H	1.02	1.52	-0.26	-1.23 ^{††}

Table 6

TWI

Rank*	Forecaster	RMSFE		MFE	
		1 Year	2 Years	1 Year	2 Years
1	RBNZ	3.24	7.39	-0.29	-3.48 ^{††}
2	B	3.57	9.42	-1.69 ^{††}	-7.30 ^{††}
3	E	3.65	7.38	-1.60	-4.96 ^{††}
4	Average	4.05	8.72 [†]	-1.95 ^{††}	-6.58 ^{††}
5	C	4.11	8.00	-1.35	-5.04 ^{††}
6	A	4.21	9.28 [†]	-1.95 ^{††}	-7.41 ^{††}
7	G	4.58	8.57 [†]	-2.26 ^{††}	-6.30 ^{††}
8	D	4.83	9.80 [†]	-2.52 ^{††}	-7.83 ^{††}
9	H	5.00	7.50	-1.31	-4.74 ^{††}
10	F	6.17 [†]	11.19 [†]	-2.81 ^{††}	-7.95 ^{††}

* As determined by 1-year ahead RMSFE

[†] Indicates a forecaster that is significantly worse than the RBNZ at a 5% level

^{††} Indicates a forecaster whose bias is significantly different to zero at a 5% level

The identities of individual forecasters are not disclosed as some forecasts were not publicly available at the time of collection and permission to publish was not requested; instead they are simply labelled forecaster A through H.

At the one-year horizon, Reserve Bank-published forecasts for GDP are significantly better than several external forecasters, including the external forecast average. Figure 5 shows that at the 2-year horizon, most forecasters, including the Reserve Bank, underestimated the strength in GDP growth over the first half of our sample and failed to predict the significant declines in growth towards the end of our sample.

In the case of CPI inflation, table 4 shows that the majority of forecasters under-predicted inflation on average over our sample period despite some particularly large positive forecast errors over 2006 – a time where CPI inflation

reached almost 4 percent. At the two-year ahead horizon, perhaps the most important time frame for monetary policy, Reserve Bank CPI inflation forecasts are significantly better than six of the eight external forecasters.

Figure 7 shows that after under-predicting the 1-year ahead 90-day interest rate over 2003 to 2007, most of the forecasters in our sample made large positive forecast errors over 2008 when asked to predict the future 90-day interest rate. It appears that all forecasters, including the Reserve Bank, did not anticipate the extent to which monetary policy would loosen in response to the financial crisis and the subsequent global recession. If one excludes this period, the Reserve Bank provided the most accurate forecasts of the 90-day interest rate. Perhaps unsurprisingly, the Reserve Bank outperforms all the external forecasters at the two-year ahead horizon for the 90-day interest rate.

Figure 5
GDP forecast errors

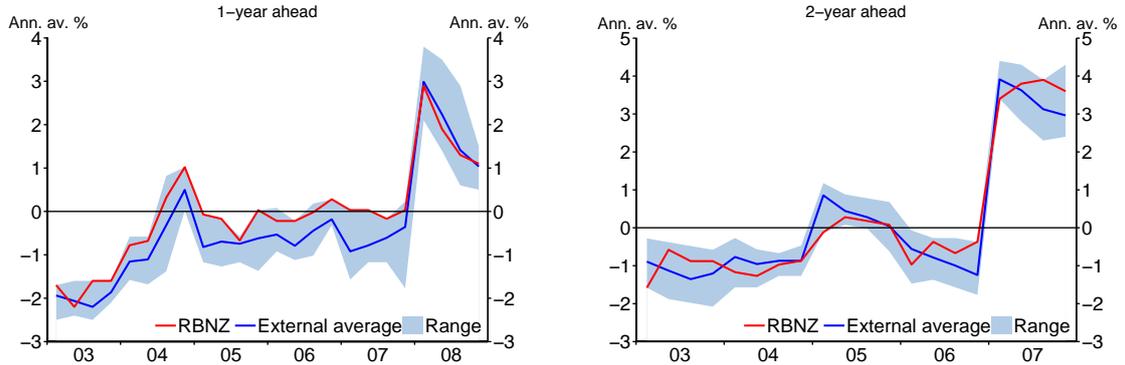


Figure 6
CPI inflation forecast errors

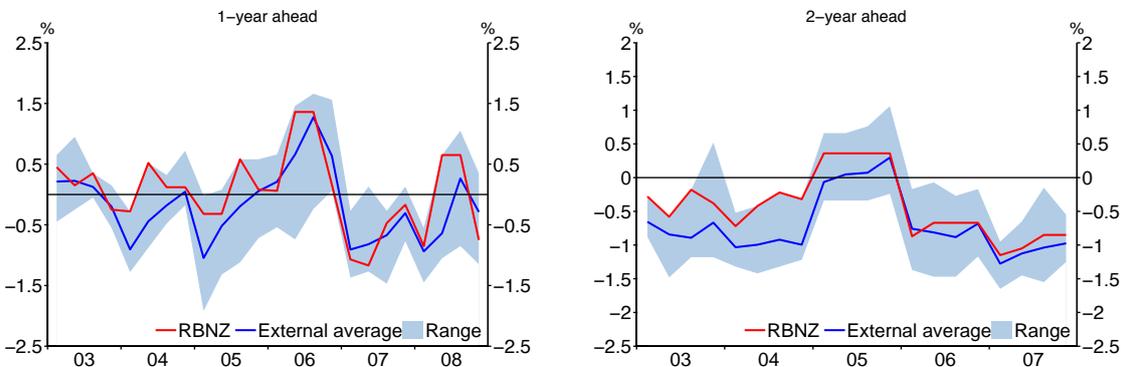


Figure 7
90-day interest rate forecast errors

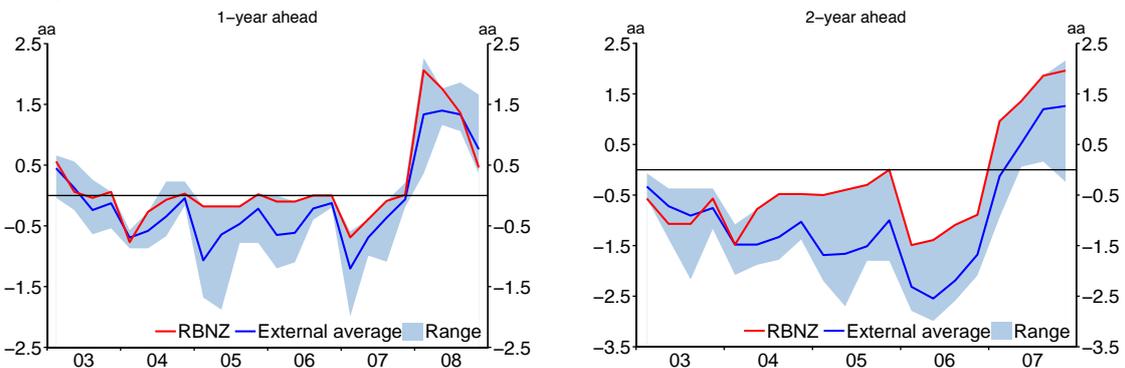
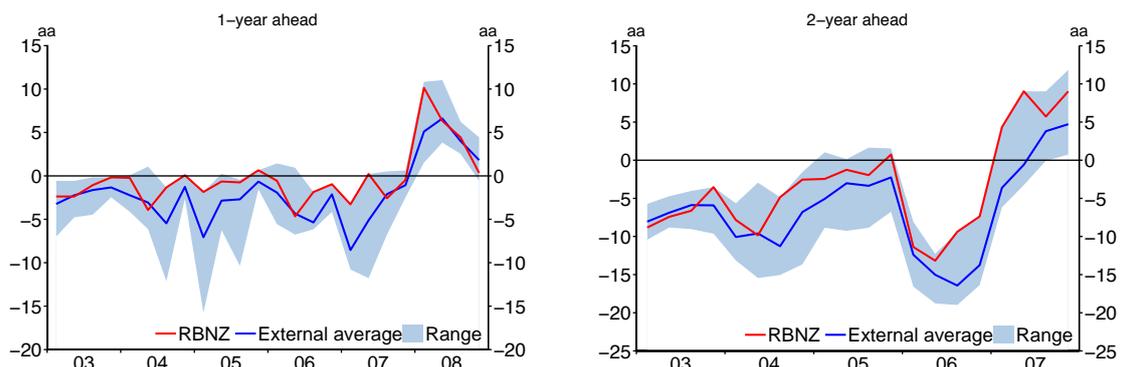


Figure 8
TWI forecast errors



All forecasters under-predicted the level of the TWI over most of our sample period. In addition, forecast errors at the two-year ahead horizon are particularly large, suggesting that no forecaster in our sample can predict the exchange rate with much accuracy. However, Reserve Bank two-year ahead forecasts for the TWI are significantly better than those of most external forecasters.

6 Conclusions

This work has evaluated the accuracy of Reserve Bank and external forecasts for real GDP growth, CPI inflation, the 90-day interest rate and the TWI over the period 2003q1 to 2008q4.

Our analysis has shown that a number of external forecasting agencies perform reasonably well when assessed against Reserve Bank-published forecasts – suggesting that these forecasts are likely to be useful when formulating monetary policy. However, Reserve Bank forecasts have been more accurate than most, significantly outperforming the external average for one-year ahead GDP, two-year ahead CPI inflation and two-year ahead TWI forecasts over the sample period.

Most forecasters, including the Reserve Bank, underestimated the strength of GDP over 2003-04 and failed to predict the recent declines in growth. On average, the majority of forecasters underestimated CPI inflation over our sample and consequently, up until 2008, also underestimated the 90-day interest rate. However, over 2008, nobody in the sample predicted the extent to which monetary policy would be loosened in response to the financial crisis. Unsurprisingly, no forecaster in our sample predicted the TWI with much accuracy – all failing to forecast its strength over 2004 to 2008.

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Banking crises in New Zealand – an historical perspective¹

Chris Hunt

This article examines 'systemic' banking crises in New Zealand. While there are examples of individual institutional failures in New Zealand's early colonial development for example, there are only two episodes that have involved a significant erosion of banking system capital – our definition of a systemic banking crisis. The first episode occurred in the late 1880s and early 1890s after a credit-fuelled rural land boom in the 1870s, while the second occurred in the late 1980s as a result of another credit-driven asset price boom and bust cycle following financial deregulation earlier in the decade. Both episodes can be understood within a framework that places at centre stage the propensity for economic agents to under-price risk, thereby creating balance sheet vulnerabilities for financial intermediaries, which can occasionally erupt into financial panic and crisis.

1 Introduction

Triggered by rising credit losses on US residential mortgages over the period 2007–09, the global economy experienced its most significant financial shock since the Great Depression. The crisis first involved a 'run' by counterparties centred on the 'shadow banking system' (Geithner 2008; Gorton 2009; McCulley 2009).² Traditional banks could not absorb the subsequent withdrawal of liquidity from the financial system, in part because they had sponsored many of the off-balance sheet vehicles containing complex financial instruments that were part of the shadow banking system. In hindsight, the default risk inherent in these new financial products was not priced appropriately, nor was the correlation of default risk fully understood across the financial system. Banks therefore were ultimately exposed to the decline in the prices of these complex and opaque financial instruments that were backed by residential mortgages, and sustained heavy credit losses

as a feedback loop emerged between disruptions to the financial system and the real economy.³

Ongoing balance sheet distress of major global financial institutions has resulted in unprecedented government intervention, firstly to stabilise illiquid institutions and markets, and ultimately to prevent failures of institutions at the centre of the financial intermediation process. Specific government intervention in the financial sector, together with fiscal and monetary policy support, appears to have stabilised current financial market conditions. The global economy has begun a tentative recovery as confidence returns and the worst of the asset price deflation is over.

Notwithstanding specific problems in the non-bank finance company sector, the New Zealand financial system has weathered this global shock remarkably well. While asset quality and profitability have declined – driven by the deterioration in broader economic conditions – New Zealand banks have not suffered the same erosion of capital buffers witnessed elsewhere. Banks in New Zealand were not generally exposed to the complex financial assets directly at the heart of the global crisis. Moreover, funding and liquidity risks – which were significant given the banking system's reliance on short-term wholesale funding – have been attenuated by: (i) the provision of crisis liquidity facilities by the Reserve Bank; (ii) the government guarantee

¹ This article is based on an earlier (and longer) paper presented at the RBNZ/Victoria University Professorial Fellowship Workshop, *The global financial crisis: historical perspectives and implications for New Zealand*, June 17, 2009, available at www.rbnz.govt.nz/research/workshops.

² The shadow banking system comprises a complex array of institutions which, like the conventional banking system, perform the crucial role of intermediating borrowers and lenders. Examples include investment banks, hedge funds, special investment vehicles (SIVs), conduits, money funds and monolines. In early 2007 the assets of the shadow banking system exceeded the US\$10 trillion of total US banking system assets (Geithner 2009). Many of these institutions were very highly leveraged, a result of not being subject to the same regulatory and prudential supervision of traditional deposit-taking banks.

³ The IMF estimates that total writedowns of credit originated in mature economies over 2007 to 2010 will total US\$3.4 trillion, of which US\$2.8 trillion will be borne by global banks (IMF *GFSR*, October 2009).

of wholesale funding to enable banks to continue to issue debt; and (iii) ongoing support by the Australian parents of the big-four banks in New Zealand. Thus, while there have been important pressures and vulnerabilities exerted on the banks in New Zealand, the banking system avoided the deep systemic crises seen in other banking systems, which ultimately necessitated recapitalisation, or even nationalisation, of financial institutions in Europe and the US.

By 'systemic crisis' we refer to a major disruption in the process of financial intermediation that can result from both depositors and other creditors seeking to withdraw their funds from banks – the classic notion of a banking panic – or threats to insolvency from large declines in the loan portfolio. Both imply an erosion of a large proportion of banking sector capital (Bordo 2008, p. 11).⁴ This definition distinguishes between failures of individual banks and a crisis that undermines the ability of the financial or banking system as a whole to function properly. However, in highly concentrated banking systems, problems that might be specific to any individual institution can take on systemic importance, if that institution constitutes a large enough weight in the financial system and there is the risk of contagion or spillover effects to other parts of the system.

With this definition in mind, this article examines systemic banking crises in New Zealand's past and identifies two such episodes. The first banking crisis occurred in the late 1880s to the mid-1890s and culminated in a bailout of the Bank of New Zealand (BNZ) in 1895 following a credit-fuelled rural land price boom in the 1870s and its subsequent collapse in the 1880s.⁵ The second such episode, which also involved

the BNZ, followed a similar asset price boom and bust cycle associated with financial deregulation in the mid-1980s. The primarily government-owned BNZ was recapitalised twice, the first time in 1989 and again one year later.

Although this paper is organised around a case study analysis of the two episodes, the next section elaborates a framework of financial booms and busts based on the work of Charles Kindleberger and Hyman Minsky, which allows us to identify some of the commonalities associated with both episodes. This framework is used to present the detailed case studies in sections 3 and 4. Section 5 compares the two cases and also makes reference, very briefly, to two 'counter-factual' examples where New Zealand has not experienced a systemic banking crisis – the Great Depression of the early 1930s and today's global financial crisis. New Zealand suffered a large exogenous shock following the Wall Street collapse of 1929 and a sharp fall in export prices, but the financial system proved remarkably resilient in the face of this shock. Financial instability and crises are the result of a complex interaction between various shocks (be they of a global or domestic nature), pre-existing vulnerabilities often associated with credit-fuelled booms and government policy.

2 The Kindleberger/Minsky framework of financial manias and panics

Charles Kindleberger, in his classic work *Manias, panics and crashes: a history of financial crises* (1996), draws from financial theorist Hyman Minsky to provide a simple framework for understanding financial cycles and crises. At its core, the framework focuses on the build-up in risk-taking over time, and the self-reinforcing feedback mechanisms that can operate both within the financial system, as well as between the financial system and the real economy. The framework is set out schematically in figure 1.

⁴ Definitions of banking crises vary from the fairly general to the specific and can influence the identification of specific banking crises episodes. This is particularly important for cross-country research which uses large datasets spanning, in many cases, several centuries (see for example Laeven and Valencia (2008) and Reinhart and Rogoff (2008 a&b)). For a discussion on some of the issues associated with banking crisis definition and measurement see Boyds *et al* (2009).

⁵ The precise dating of banking crises in general, and of the late nineteenth century New Zealand episode in particular is somewhat problematic. As Boyds *et al* (2009) argue, what is typically measured as a banking crisis is "effectively a government response to a perceived crisis – not the onset or duration of an adverse shock to the banking industry" (p. 4). While the government of the day intervened in 1894-95, the

banking system was essentially in crisis from the late 1880s onwards, with a significant erosion of banking system capital clearly evident, at least in hindsight.

A boom is initially triggered by an exogenous shock to the macroeconomic environment that changes economic agents' expectations about future profits. This displacement could be something specific to the real economy (eg, a positive terms of trade shock), the financial system (financial innovation), or something related to the political sphere (the end of a political conflict or a reunification of a country). In the current context, one example of this displacement might be the integration of China into the world economy and the emergence of a global financial architecture that funnelled emerging market savings to the advanced economies, effectively subsidising credit for Western households and firms.

This 'displacement' is then followed by a boom fed by credit creation (often via foreign capital inflow) as economic agents respond to new actual or perceived profit opportunities. This credit creation might take place within the existing banking system or through new financial institutions and products – such as the shadow banking system and securitised assets. At some point, what initially might be a rational response by economic agents is followed by euphoria or 'overtrading'. Something then occurs to change expectations at the height of the ensuing mania, be it a decline in the price of the primary object of speculation (such as US house prices), the revelation of financial fraud, or an external shock.⁶ This change in expectations sets in train a 'revulsion' against the objects of speculation and a period of 'discredit', with financial institutions reducing lending and deleveraging to repair balance sheets and possibly 'crash' and 'panic' if solvency is threatened.

However, the Kindleberger/Minsky framework does not provide a formal micro-founded model to explain how risk becomes under-priced during an upswing and how this amplifies the business cycle, but does assume some degree of irrational myopia on the part of economic agents. Indeed, no such model currently exists to adequately capture the endogenous cycle view of instability (Borio and Drehmann 2009). Nevertheless, one can point to models that link credit and assets prices arising from the use of collateral (eg, the

⁶ The external shock might be completely unrelated to domestic developments, or it could reflect a change in international perceptions related to domestic developments.

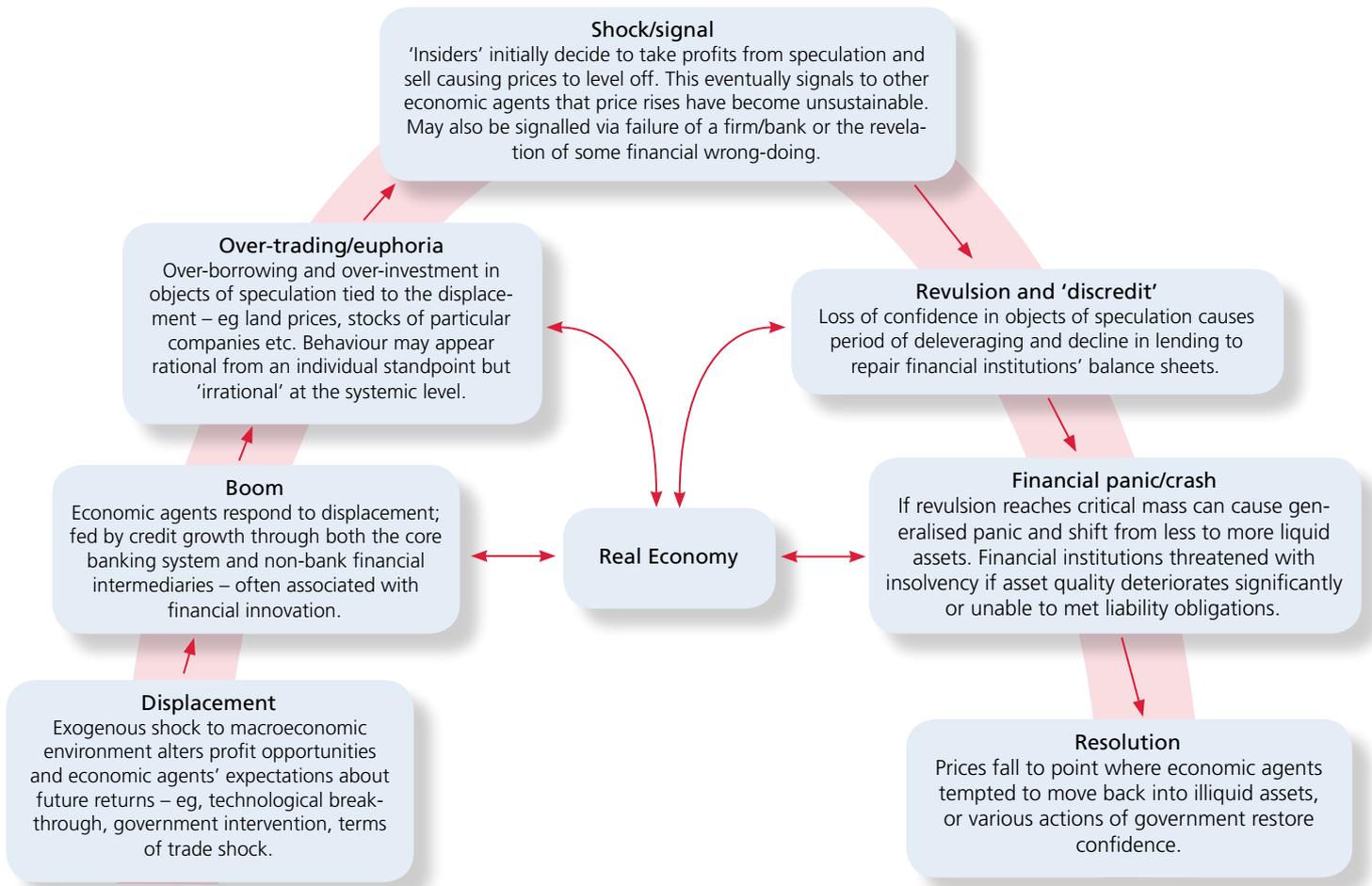
'financial accelerator' hypothesis) to explain financial system pro-cyclicality (Bernanke, Gertler and Gilchrist 1996); and models that explain banking crises as self-fulfilling panics (Diamond and Dybyig 1983). More recent work from the Bank of International Settlements (BIS) in particular has also been important in articulating an endogenous view of the financial cycle in the spirit of Kindleberger/Minsky (Borio, Furfine and Lowe 2001; BIS 2008; Borio and Drehmann 2009). The emphasis of this work is on the way in which certain cognitive biases can explain the way economic agents can come to mismeasure risk (particularly changes in risk over time). Even if risk is measured correctly, agents can respond to risk in socially sub-optimal ways.⁷

While the framework outlined above suggests that boom and bust cycles are endemic to the economic system, financial crises are not an inevitable end product of financial cycles. First, not every financial cycle has the same degree of overtrading/speculation or amplification of the real economy. This might be explained by the absence of significant displacement factors that initially give rise to an upswing. Or it may be that the market is able to discipline banks and other financial intermediaries effectively in certain circumstances. In some instances, government policies (eg, prudential regulation) may be effective in attenuating a build up in risk and associated vulnerabilities.

Second, every banking crisis is the product of a certain set of unique conjunctural factors – the institutional and macroeconomic environment. Calomiris, for example, offers an alternative view that "banking crises are not an historical constant, and therefore the propensity for banking crises

⁷ Cognitive biases include the tendency to underestimate the likelihood of high-loss low probability events (disaster myopia) and the way agents tend to interpret information in a biased way that reinforces any prevailing belief (cognitive dissonance). The failure to internalise other's actions and the difficulty in coordinating responses suggest actions that appear reasonable at an individual level might not collectively equate to desirable social outcomes. In a downturn it might be rational for an individual bank to tighten lending, but in aggregate this could protract the downturn and further harm the balance sheets of financial institutions. Conversely, in an upswing it might appear rational for any individual bank to keep extending credit and possibly reduce underwriting standards for fear of losing market share. But in aggregate this results in an over-extension of credit, creating systemic vulnerabilities.

Figure 1
The Kindelberger/Minsky framework



cannot possibly be said to be the result of factors that have been constant over time and across countries for hundreds of years, including business cycles, human nature, or the transformation inherent in bank balance sheets" (2009, p. 3). Calomiris explains banking crises as essentially stemming from government failure, or the current 'microeconomic rules of the banking game', rather than endogenously from the actions of economic agents and their inherent tendency for risk-taking.⁸ Economic agents continue to behave rationally while government actions can distort the environment in which these rational decisions are made.⁹

⁸ Although poor government intervention can certainly exacerbate the build-up in financial vulnerabilities by distorting the incentives of agents.

⁹ Calomiris (2009) explains the current crisis as the outcome of an expanded government safety net (deposit insurance in the context of the US) and government involvement in directing credit (eg, subsidising housing ownership via Fannie Mae and Freddie Mac).

Nevertheless, the argument that 'this time is not different' (Reinhart and Rogoff 2008a, p.1) is fairly compelling. Financial crises are common, if not actually inevitable – "[t]echnology has changed, the height of humans has changed, and fashions have changed. Yet the ability of governments and investors to delude themselves, giving rise to periodic bouts of euphoria that usually end in tears, seems to have remained a constant" (Reinhart 2008). Moreover, a behavioural perspective which suggests that economic agents are not constantly optimising or perfectly rational seems to square better with observed outcomes than one which places emphasis on government as opposed to market failure. Indeed, the two systemic New Zealand banking crises do suggest that credit-fuelled asset price booms can contain a degree of myopia on the part of economic agents, where over-exuberance can eventually turn to retrenchment and ultimately financial panic and crisis.

3 The banking crisis of the late 1880s and early 1890s

The first systemic banking crisis in New Zealand's history occurred in the late nineteenth century and culminated in the recapitalisation of the BNZ by the government in 1895. The crisis was ostensibly the result of a long drawn out period of subdued growth beginning in the late 1870s – a period termed the 'Long Depression' by a number of economic historians. The crisis centred on the BNZ as the largest and most systemically important bank. Other banks suffered serious losses and some, such as the National Bank,

required substantial recapitalisation from shareholders.

This crisis was not the first instance of difficulties New Zealand financial institutions had experienced – individual banks had failed before.¹⁰ Despite such failures, and notwithstanding the problems later in the century, the New Zealand banking system had exhibited a high level of stability, certainly relative to the US for example, where banking panics were frequent.

A timeline of the crisis is provided in figure 2 and further details can be found in Hunt (2009).

Figure 2

The banking crisis of the late 1880s and early 1890s – chronology

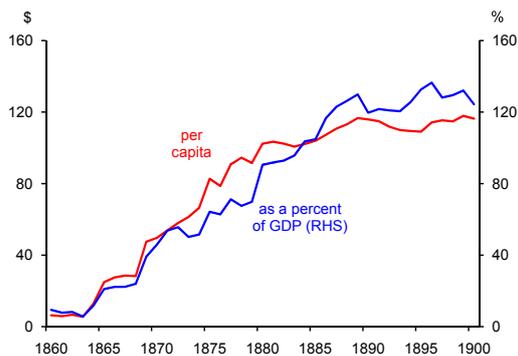
1870s	Vogel boom: government borrowing to fund infrastructure development, growth averages 8% pa. Land prices increase.
1875	Export prices peak.
1878	Failure of City of Glasgow bank: initial tightening in supply of credit from London.
1880-mid 1890s	'Long Depression': real GDP growth averages 2% pa.
1885	National Bank writes off 30% of paid-up capital.
1888	Problems revealed to BNZ shareholders. Losses of £800,000 recognised including from Australian operations. 30% of paid-up capital written off, fresh capital issued. Bad assets of £3.5m administered by separate department of the BNZ.
1890	Further £300,000 of BNZ losses identified, capital written off and fresh capital issued. Headquarters shifted to London. Estates Company established to manage bad assets of BNZ. Barings Crisis: general stop in capital flows to emerging markets.
1891	National Bank writes off more capital.
1891-93	Australian financial crisis – 54 non-bank financial institutions fail 1891-93. In 1893 13 of the 23 trading banks suspended deposit payments in 1st 5 months of the year.
1893	Minor bank run on Auckland Savings Bank.
1894	Government passes Bank Note Issue Act making bank notes legal tender - designed to stem bank runs. Government guarantee of portion of BNZ's liabilities (£2m preference shares issued in London). Headquarters shifted to Wellington.
1895	Recapitalisation of BNZ from existing shareholders (double liability) and government (£500,000). Asset Realisation Board (ARB) formed to dispose of bad assets. Takeover of Colonial Bank by the BNZ to expand depositor and asset base.
1902	First dividend paid on ordinary shares of the BNZ.
1906	ARB wound up – total of £1.5m of bad assets disposed of over 11 years.

¹⁰ For a useful overview of the early development of New Zealand's banking system, see Hawke and Sheppard (1984). For specific institutional banking histories, see Chappell (1961) for the BNZ; Holmes (1999 and 2003) and Hawke (1997) for the National Bank; and Merrett (1985) for the ANZ.

Displacement and the Vogel boom

The 1870s witnessed an explosion of government borrowing to fund infrastructure development and promote migration (figure 3). New Zealand's implicit credit rating had improved following the conclusion of the New Zealand wars in the late 1860s-early 1870s, and assumption of provincial government debt by the central government, followed by the end of the provincial system of government in 1876. Government debt increased four-fold from 1870 to 1880. In addition, the increase in export prices in the early part of the decade (figure 4), coupled with the positive externalities associated with this infrastructure development, resulted in future returns to farming being capitalised in the market price of land.

Figure 3
Total central government debt 1860-1900

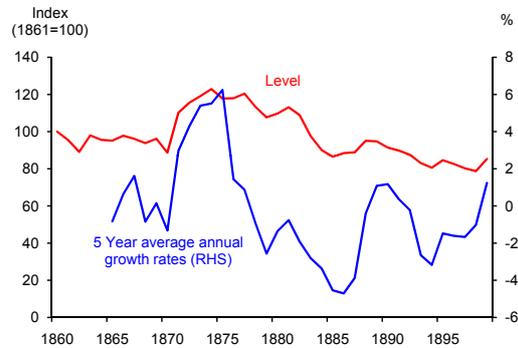


Source: Statistics New Zealand Long-term Data Series; author's calculations.¹¹

Thus, in the Kindleberger/Minsky framework, government borrowing to fund development constituted the 'displacement' – the exogenous shock to the macroeconomy that changed expectations about future profit opportunities. To take advantage of such opportunities, economic agents increased their level of gearing, and were able to do so by the extension of credit by trading banks and other financial institutions. As Bedford summarises, "[a]n extravagant State borrowing policy encouraged the dependence upon credit. Before long everybody was pledging his assets to the utmost to extend his credit and thereby take the fullest advantage

of the prosperity which seemed to mark every enterprise" (1915, p. 174).

Figure 4
New Zealand export prices 1861-1900



Source: Briggs (2003).

Financial innovation and the Vogel boom

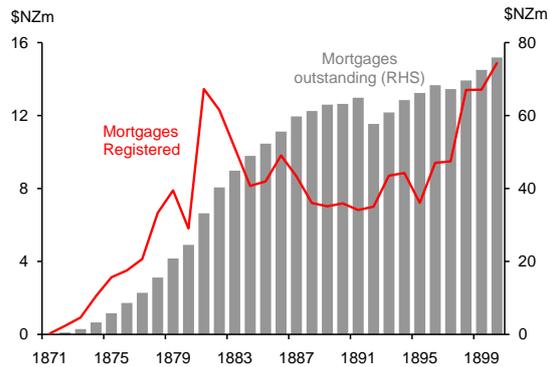
The demand for credit was willingly met by increased supply from non-bank institutions (pastoral finance companies) as well as by trading banks. Pastoral finance companies dominated institutional lending to the mortgage market, and with institutional lending to the mortgage market accounting for 50-60 percent of overall mortgage lending, these institutions were the main players in the mortgage market (Arnold 1981). These companies raised funding by the issue of debentures, mainly in Scotland. These debentures were yielding 5-6 percent, while mortgage rates in New Zealand were 8-9 percent. By contrast, the yield on British assets ranged from 2-3 percent, so the relative return on investing in New Zealand assets attracted the British investor.

British capital also flowed through the retail deposits accounts at the London branches of New Zealand banks. This allowed trading banks to extend credit in New Zealand, although the share of total mortgages outstanding accounted for by the trading banks was relatively small. That said, trading banks, over time, developed a close relationship with, and even sponsored, the pastoral finance companies, so the effective exposure to the sector was much higher.

The other key part of the mortgage market was direct lending between individuals, both from Britain and within New Zealand. This financial disintermediation was facilitated by a network of land agents, solicitors and merchants.

¹¹ Statistics New Zealand and the Treasury have collected a number of long-term socio-economic data series from a variety of sources. The coverage varies depending on the series in question. For the original source of the data underlying each series, see www.stats.govt.nz

Figure 5
Value of mortgages 1871-1900



Source: Statistics New Zealand Long-term Data Series; author's calculations.

Overtrading/speculation

Before long, what seemed like a rational response to a change in circumstances turned into 'land gambling' (Condliffe 1930). As Chappell describes in his history of the BNZ, "[e]very class of the community was bitten by the prevailing mania, and the price of every description of land was forced far in excess of real values. From the seeds sown in this era sprang many of the troubles which beset the bank [BNZ], no less than other lending concerns, in after years" (Chappell 1961, p. 90). Contemporary accounts of the period abound with this imagery of 'land grabbing' and speculation in rural land prices.

Bedford, writing in 1915, also makes much of the shift away from the traditional function of trading banks (or the London orthodoxy), which enabled the speculation of the era, either directly, or via their proxies, the pastoral finance companies. The London orthodoxy was premised on matching short-term liabilities (ie, deposits) with short-term assets, with these assets being mainly bills of exchange to facilitate the sale of goods in transit over the period. The provision of longer-term finance for agricultural development constitutes what we would now view as the core function of banks – transforming short-term liabilities into long-term assets. But at the time commentators such as Bedford considered this 'illegitimate business' and, indeed, almost immoral (1915, p. 174). Nevertheless, as Bedford implicitly highlights, this new business model required different risk management techniques, and it appears that trading banks may have had very lax lending standards through this period.

The 'Long Depression' and the change in expectations

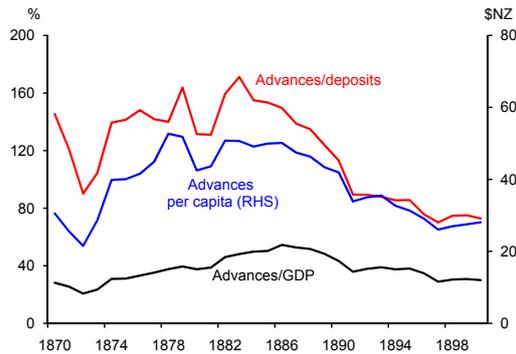
It is difficult to point to any single event that signalled an end to the euphoria and overtrading characteristic of the Vogel boom. Export prices peaked in 1875 for example, while land prices continued to increase until the early 1880s, as did the strong credit growth which underpinned the mortgage market. Eventually, lower-realised farm returns placed severe pressure on farmers' ability to service their debt over the course of the 1880s, a situation compounded by rising ex-post real interest rates in the face of a global deflationary environment. There was also a tightening in the supply of foreign capital following the failure of the City of Glasgow bank in 1878, which is important in some narratives of the period (Easton 2009).

The fall in export prices signalled the limits of the existing structure of the economy, one based on extensive wool-based production (Hawke 1985; Preston 1978). This decline in the economy's growth potential was eventually reflected in rural land prices, which declined over the course of the 1880s. Thus the decline in the value of the collateral backing a vast majority of the loans in the economy, coupled with farmers' difficulties in servicing debt, left banks with depreciated and non-performing assets on their books.

Discredit

The subdued economic conditions of the era revealed the balance sheet weakness of the trading banks. As credit losses mounted, the trading banks were forced to take over the assets of the pastoral companies they had sponsored as these entities found themselves unable to meet their debenture obligations. As a result, banks were forced to delever their balance sheets and pare back lending to the economy. The supply of credit to the economy was further depressed as banks sought opportunities across the Tasman, given the relatively buoyant conditions there.

Figure 6
New Zealand trading bank lending 1870-1900



Source: Statistics New Zealand Long-term Data Series; author's calculations.

The supply of credit from offshore also dried up as British investors came to reassess the risk-return trade-off in the late-1880s as problems with illiquid assets became more apparent in New Zealand. This reduced the level of London retail deposits, the volume of debenture financing for pastoral finance companies and direct lending from individuals. By contrast, direct lending from individuals within New Zealand increased over the course of the Long Depression and helped to mitigate the contraction in credit supply from financial institutions (Arnold 1981).

Financial panic and the BNZ bailout

The BNZ was the single largest financial institution in New Zealand, accounting for around 50 percent of domestic retail deposits and a similar level of lending by the early 1880s (Hawke and Sheppard 1984, p. 29). In addition, by 1888, the BNZ had become the single largest land owner by virtue of the assumption and subsequent management of the non-performing loans secured by rural land. Balance sheet issues had gradually accumulated over the course of the 1880s but were, according to Bedford, hidden for many years “under roseate balance sheets...with grossly over-valued assets and grossly under-valued bad debts, until 1888, when the accumulated difficulties of the Bank made disclosure unavoidable” (1915, p. 144).

This disclosure to shareholders resulted in 30 percent of paid-up capital being written off and fresh capital issued. In addition, the bad assets were partitioned off in a special liquidation account on the bank's balance sheet. Further

losses were identified in 1890 and a special-purpose vehicle (the Estates Company) was set up to administer the bad assets funded by a debenture issue in London. However, the Estates Company was unable to sustain a profit from the management and disposal of the bad assets and therefore was unable to meet its debenture obligations, effectively forcing the BNZ to underwrite its liabilities.

Problems came to a head in 1894 as the spectre of a depositor run on the bank increased, given problems with the Estates Company and the charade associated with separation of the good and bad parts of the bank into separate entities. In addition, there was a general nervousness directed across the Tasman at the banking crisis that was unfolding in the Australian colonies and possible contagion effects, given the presence of a number of Australian banks operating in New Zealand. In June 1894, the government of the day stepped in and guaranteed £2 million worth of new liabilities issued by the bank.

This action did restore a degree of confidence to depositors and prevented a classic depositor run on the BNZ. However, it did little to address the pressing issue of the non-performing loans of the Estates Company, where the BNZ still had a very large item on the asset side of its own balance sheet associated with its shareholding in the company. One year later, and with a full picture of the balance sheet position of the BNZ including that of the Estates Company, the government injected £500,000 into the BNZ in the form of preference shares. This injection amounted to 11 percent of government expenditure at the time. Double liability – a condition whereby existing shareholders were liable, up to the value of paid-up capital, if the bank faced liquidity or solvency pressures – was also evoked to write off losses and to raise fresh capital.

Resolution

The resolution of the crisis was a drawn-out affair. As part of the bailout, in 1895 the government orchestrated the takeover by the BNZ of another distress bank, the Colonial Bank, in order to widen the asset and depositor base. In addition, the bad assets were finally severed completely from the bank with the setting up of the Asset Realisation

Board (ARB), which was tasked with disposing of the assets. This process took eleven years and was facilitated by the return to prosperity in the late 1890s and the rebound in rural land prices. By 1902, the bank was able to pay its first dividend on ordinary shares.

The government intervention in the mid-1890s prevented the demise of a systemically important financial institution, and with it, helped mitigate any further impact on the economy from a major disruption to the process of financial intermediation. Over time, the government was fully compensated for the risk it took in the 1890s, with total dividends received by the government from 1895-1933 of £3.5 million, for an average return on capital of 10.75 percent (Moore and Barton 1935, p. 58).

The recovery in export prices in the late 1890s and the technological advances in the agricultural sector associated with refrigeration meant that economic agents were once again tempted to move back into illiquid assets and take on long-term debt. However, in the aftermath of the crisis, there were structural changes in the provision of credit in the economy, which facilitated this renewed accumulation of debt. In the mortgage market, for example, the share of credit provided by direct lending from New Zealand individuals increased from 32 percent in 1886 to 54 percent in 1901 (Arnold 1981, p. 61). Financial institutions lost ground, driven by the collapse of the pastoral finance companies, and the share of direct foreign lending also fell considerably. The composition of financial institutional lending changed. The creation of the Government Advances for Settlers department in 1894 meant that by 1901 the State was providing one quarter of New Zealand's mortgage financing. The role of this government funding, coupled with other policies, helped the economy benefit from the technological changes linked to refrigeration.¹² In addition to this government source of mortgage finance, insurance companies became relatively more important in this segment of the market and together largely filled the void left by the pastoral finance companies. The share of trading bank credit in the mortgage market remained relatively constant.

¹² These other policies included the power of compulsory purchase to break up large land holdings into smaller more efficient farming units, graduated land taxes on farm size, alternative tenure arrangements and the creation of the Department of Agriculture in 1892.

4 The banking crisis of the late 1980s

The Kindleberger/Minsky framework also illuminates the second case study of a systemic banking crisis. This second case primarily concerned one major institution of systemic importance – again the BNZ, but this time as a predominately State-owned entity. In addition New Zealand's seventh largest financial institution, the Development Finance Corporation (DFC) failed, while other smaller institutions faced a variety of financial pressures, including a run by depositors on the United Building Society in 1988 and the recapitalisation of a small bank (NZI Bank) by its owners in 1989. A chronology of the crisis is provided in figure 7, opposite.

Displacement

The reforms that accompanied financial sector deregulation and the broader economic restructuring of the period constituted the 'displacement' in the Kindleberger/Minsky framework. In 1984, a whole raft of controls on the economy were lifted. In the space of two years, the quantity restrictions and interest rate controls that had previously applied to financial institutions were abandoned, the exchange rate was floated and, for the first time since the 1930s, there were no material restrictions on capital portfolio flows.

The financial reforms radically altered the operating environment for financial institutions and their ability to affect the intermediation process. Prior to the reforms trading banks were bounded by controls implemented mainly for monetary policy purposes. These included reserve requirements, mandated low interest rates and the regulation of asset portfolios. In this constrained environment, trading banks found themselves at a competitive disadvantage, and disintermediation occurred as a result.¹³ The growth of the non-bank sector in the post-war period, which embodied such disintermediation outside the banking sector, required

¹³ There were concessions given to trading banks in this period, including the ability to open their own savings banks as subsidiary companies in order to compete with the trustee savings banks and other deposit-taking institutions in 1964. With the reforms of the 1980s, the rationale for a separate retail savings bank subsidiary focused on retail banking disappeared.

Figure 7

The banking crisis of the late 1980s – chronology

Mid-1980s	Financial sector deregulation and economic restructuring. Stock prices triple between 1984 and 1987. Commercial property prices increase 120% between 1984 and the peak in 1988.
1987	BNZ fully nationalised since 1945 became 87% government owned following public share offering. Stock market crash: NZ index lost nearly 15% on 'Black Tuesday' 20th October.
1988	Government puts BNZ up for sale.
1989	Following profit warning from BNZ early in year, government takes BNZ off the market. June: BNZ announces \$648m loss. Government orchestrates private sector dominated recapitalisation of BNZ worth \$610m, dilutes government shareholding to 52%; Capital Markets Equity Ltd has 30% shareholding. Collapse of Development Finance Corporation (DFC) in October: NZ's 7th largest financial institution. Resolution of DFC ultimately costs government \$112m.
1990	BNZ announces profit of \$124m: but overstated by creative accounting. November: new National Government recapitalises BNZ (\$200m), while Capital Markets Equity Ltd injects \$50m. Asset management company (Adbro) set up to dispose of bad assets (\$2.8b).
1991	BNZ records \$71m loss.
1992	BNZ sold to National Australia Bank (NAB) for 80c per share. Assets of Adbro brought back onto BNZ's balance sheet.

layers of controls to be progressively applied to finance companies and other such institutions.

Credit creation and euphoria

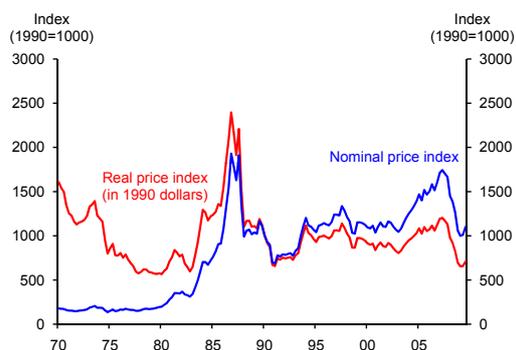
Financial institutions suddenly found themselves in an environment with little formal restrictions on their ability to create credit, but with little actual experience in extending unfettered credit in a prudent manner. As Singleton describes “[u]ntil the share market collapsed in 1987, a spirit of optimism – in some cases amounting to hubris – pervaded the financial industry” (Singleton 2006, p. 105). Such confidence was tied to the displacement in economic agents' expectations related to benefits of financial deregulation and the ability of the economic reforms to improve the economy's long-run growth potential.¹⁴ This change in expectations manifested

itself in rising asset prices, particularly for equities and commercial property. Stock market prices tripled between September 1984 and their peak in September 1987 (figure 8), while commercial property prices increased 120 percent between 1984 and mid-1988 (figure 9). Speculation in commercial property was enabled by the extension of credit by banks to a raft of new investment corporations and large property developers. An influx of foreign capital enabled banks and other financial institutions to take advantage of the deregulated environment and meet the demand for credit by the new corporate high-fliers such as Equiticorp, Judgecorp and others.

In hindsight, internal controls and market discipline proved inadequate to prevent widespread imprudent lending on the part of some institutions. In addition, New Zealand's prudential regime was only in the early stages of development following the passage of the Reserve Bank Amendment Act in 1986. The new regime, which created the concept of the registered bank, may have initially accentuated the decline

¹⁴ Note, while the New Zealand household was not centre stage in the accumulation of financial imbalances, household liabilities did grow reasonably strongly during the mid-1980s (at around 15 percent), a result of the relaxation of credit controls imparted by financial liberalisation. Residential house prices did increase over the period, but not to anywhere near the same extent as commercial property prices (figure 9).

Figure 8
New Zealand equity prices 1970-2009



Source: Datastream, author's calculations.

Note: The price index has been constructed from the Barclays, NZSE 40 and NZX 50 price series. The nominal price series has been deflated using the CPI index.

in credit standards as the BNZ and others may have felt compelled to compete more aggressively with new banks that came into existence at the time.

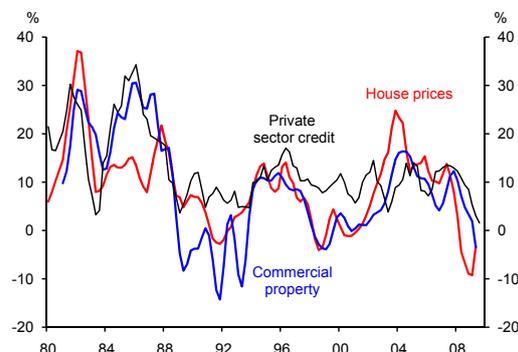
Shock, revulsion and discredit

The trigger event that seemed to expose much of the fictitious prosperity of the era, based on overvalued equity prices and an over-build in commercial property, was the October 1987 stock market crash. The New Zealand stock market fell nearly 15 percent in a single day following a crash on Wall Street overnight. By the trough in stock prices in February 1988, the share market had lost 60 percent of its value (figure 8). To this day, the stock market has not recovered to a level comparable to that prevailing before the crash – either in nominal or real terms (figure 8).

The fall in the listed share price of the investment companies and property developers subsequently caused the price of the assets that these companies had invested in to fall precipitously (figure 9). The decline in property prices was driven by the fire sales of property as these companies delevered, coupled with a fundamental excess supply of property from overbuilding. In turn, the balance sheets of financial institutions that had lent to these corporates were exposed to the falling value of collateral that backed lending – collateral that not only included real assets such as property, but shares and debentures as well.

The stock market crash set in train a deleveraging process

Figure 9
New Zealand property prices and credit growth 1980-2009
(annual percent change)



Source: Quotable value (QV) Ltd; RBNZ.

that wiped out huge amounts of wealth, bringing down many of the corporate high-fliers of the mid-1980s. It also impaired the health of financial systems in both New Zealand and Australia. This in turn contributed to the decline in economic activity over the late 1980s and early 1990s. The reduced access to credit implied by the deleveraging process was, however, one of a number of factors that affected GDP growth, or the “long recession”, as Easton (2009) terms the period from 1987–1993. Other factors included disinflationary monetary policy, with concomitant high real interest rates, the high real exchange rate and the global recession of 1991 induced by monetary policy tightening across a number of countries, together with an oil price shock following the first Gulf War.

The BNZ bailout

At the beginning of the 1980s, the BNZ was fully government owned and was the largest trading bank by share of assets. However, at the start of the reforms, its relative share of corporate lending was much lower than its share of the retail market. Financial deregulation emboldened the bank to aggressively increase its lending to the corporate sector, and it subsequently developed a close relationship with the likes of Rada, Equiticorp and others. Large loans were often negotiated with little more than a handshake, according to contemporary media accounts, and such loans were directed primarily to the investment and property sectors.

In June 1989 the BNZ announced a large loss of \$648

million, which immediately prompted the first of two recapitalisations. The first recapitalisation involved a government underwritten rights issue of new shares worth \$405 million, where the government, as the 87 percent owner of the BNZ, gave up its rights to the new shares to Capital Markets Equity Ltd – a Fay Richwhite entity. The other element to the recapitalisation involved the issue of preference shares worth \$205 million – these were USD capital securities placed with Japanese investors. These were placed later in the year, and in the interim, the government also provided ‘bridging finance’ in the form of \$200 million in redeemable preference shares.

The second recapitalisation occurred over a year later following further pressures on the BNZ’s balance sheet from exposures in Australia, whose own banking system was coming under significant pressure following the fallout of the stock market crash and the unwinding of the credit-fuelled asset price boom. The BNZ’s two major shareholders – the government and Capital Market Equities Ltd – injected \$250 million directly into the BNZ.

Resolution

In addition to the direct infusion of capital, an asset management company (Adbro) was set up to manage \$2.8 billion of non-performing loans, 81 percent owned by the Crown and 19 percent by Fay Richwhite & Co Ltd. It was thought that \$1.1 billion of these bad assets would ultimately be recoverable.

The BNZ recorded another loss over the 1990-91 financial year and the government decided to sell the BNZ. The National Australia Bank (NAB) bought the bank for \$1.48 billion.¹⁵ The re-privatisation of the bank caused much public alarm, but the National government resisted mounting pressure to proceed with a Parliamentary inquiry concerning the circumstances of the sale.

As in the 1890s, the systemic importance of a single institution was judged to necessitate government intervention to prevent what may have resulted in a much larger disruption

¹⁵ The sale netted the government \$850 million and Capital Markets Equity Ltd \$400 million. The sale price of 80 cents per share was 10 cents higher than Capital Markets Equity Ltd had paid in 1989.

to the financial system, and ultimately to economic activity. The gross fiscal cost of the recapitalisation amounted to around 2.7 percent of government expenditure and 1 percent of GDP.¹⁶ This cost is a lot lower than the direct cost of the 1890s bailout. It is also lower than the direct recapitalisation costs incurred by the Nordic countries during their banking crises of the late 1980s and early 1990s. The gross cost of the recapitalisation of the banking systems for Finland, Norway and Sweden was 8.6, 2.6 and 1.9 percent of GDP respectively (Laeven and Valencia 2008).

5 Crisis episodes compared

The Kindleberger/Minsky framework provides a useful way of situating our two case studies within a broader understanding of financial development and crisis. Some of the salient features are summarised in table 1.

In both instances, one can identify plausible events that served to displace economic agents’ expectations about the future path of the economy. The resulting boom was centred on particular objects of speculation related to property and was fed by the extension of credit by financial institutions, who acted as conduits for foreign capital.

Balance sheet vulnerabilities increased as boom turned into bubble, and in both cases market discipline proved insufficient to prevent an under-pricing of risk and imprudent lending. Moreover, both were periods with comparatively little prudential regulation. In the mid-1980s the regulatory framework was in its infancy as the process of financial liberalisation unwound decades of financial repression and direct controls on financial institutions. In the 19th century there was no lender of last resort and only minimal regulations contained in the Act of Parliament establishing each bank’s right to operate in New Zealand.

In both cases there are identifiable international shocks that help mark the limits of the preceding boom, or indeed trigger the unfolding banking crisis. In the late nineteenth century these include the decline in export prices from the late 1870s, the change in international risk aversion associated with the failure of the City of Glasgow bank in

¹⁶ These figures include a contribution of \$112 million to the resolution of DFC’s debt obligations.

1878, the Barings Crisis in London 1890, and contagion from the Australian banking crisis of the early 1890s. In the more recent episode, the 1987 global share market crash was the obvious trigger.

Moreover, the domestic banking crisis was part of a wider global banking crisis. In Australia, 13 of 23 banks temporarily closed their doors in 1893, while Argentina, Italy and the US also experienced banking crises around the same time. In the late 1980s, the Nordic countries suffered severe output losses emanating from problems in their respective banking systems. A number of Australian banks also experienced problems in the early 1990s related to exposure to commercial property.

Banking crises are products of their specific institutional and macroeconomic environs and certain features distinguish each episode. In the case of the nineteenth century event, the banking crisis was the result of both a lengthy expansion period following by a sustained period of subdued economic growth. Credit growth and the resulting 'land gambling' contributed to average annual growth rates of 8 percent over the Vogel boom, whereas annual growth fell to around 2 percent from 1880–95. By contrast, the financial euphoria associated with the mid-1980s reforms was much shorter-lived and the banking crisis more immediate coming just four to five years following the initial displacement. Moreover, the mid-1980s was not a period of generalised prosperity despite the optimism embedded in the stock market and speculation in commercial property. Growth averaged just over 2 percent between 1984 and 1987, and was essentially flat between 1988 and 1992 as many parts of the economy, including the rural and manufacturing sectors, adjusted to the removal of subsidies and other forms of protection.

The resolution process was more drawn out and more costly in the earlier episode. The direct cost of the recapitalisation in 1895 was 11.5 percent, while the government bailout in the 1990 episode was 2.7 percent of government expenditure. However, the gross fiscal costs in terms of GDP are more comparable, given the much smaller share of government expenditure in national output in the 1890s. As a percentage of GDP, the gross recapitalisation cost was 1.6 percent in the mid-1890s, compared to 1 percent of GDP in the latter case.

The respective banking systems were also situated within different monetary and exchange rate regimes. New Zealand in the nineteenth century was tied, indirectly to the Gold Standard, with domestic monetary conditions governed by the trading banks' holding of sterling reserves in London (Hawke 1985). Any negative economic shock had to be mediated via an internal adjustment in the price level (deflation) given the fixing of the New Zealand pound to the pound sterling at parity by the trading banks. A floating exchange rate in the 1980s gave a buffer to external shocks while allowing authorities the ability to affect domestic monetary conditions. However, the imperative to reduce accumulated inflation pressures that had been built up since the 1970s meant that there was no attempt to offset the effects of financial sector deleveraging by monetary or fiscal stimulus. This contrasts with the current financial crisis, where authorities in many countries, including New Zealand, have responded with fiscal and monetary stimulus to support domestic demand.

Examples of episodes where global financial and economic crises have not coincided with a systemic banking crisis in New Zealand are also instructive. Some of the relevant features of the Great Depression and current global financial crisis are also summarised in table 2. In the Great Depression, for example, New Zealand suffered a severe real-side shock to the economy in the form of a 45 percent decline in export prices between 1929-31, and an accompanying decline in real GDP of 12 percent from 1931-33.

However, New Zealand, like Australia and a handful of other countries, did not experience a systemic banking crisis or the currency and sovereign debt crises characteristic of the period. Fisher and Kent (1996) suggest the lack of pre-existing balance sheet vulnerabilities in the Australian banking system in the 1930s protected Australia from a systemic banking crisis. A similar story rings true in the New Zealand context, where the economy did not experience a credit-fuelled asset price boom during the 1920s. Moreover, trading banks appeared much more circumspect during the second rural land boom associated with refrigeration, which ended in the early 1920s. Bank balance sheets were therefore sufficiently robust to manage the decline in asset quality arising from subdued economic conditions in the

Table 1
Financial crisis episodes compared

	Late 1880s	1930s	Late 1980s	2007–2009
Global context	Robust growth 1880s. Secular decline in world export prices from late 1870s. Economic weakness 1890s: disruption in capital flows and banking crises.	'Roaring twenties'. 1929 Wall St crash and sharp decline in global growth. Sharp decline in export prices. Banking, currency and sovereign debt crises.	Global financial liberalisation and deregulation. Boom in asset prices. Stock market crash 1987. Banking crises.	Sustained expansion in global growth. Financial innovation and sub-prime mortgages. Sharp decline in global growth 2008-09. Global banking crises.
Domestic economic conditions	'Vogel boom' 1870s. 'Long Depression' late 1870s-mid-1890s.	Sustained period of economic weakness/ uncertainty from early 1920s.	Mid-1980s economic restructuring & financial deregulation. Disinflationary policies late 1980s.	Longest post-war economic expansion. Household debt accumulation.
Asset price boom and credit growth	Rural land to early 1880s. Enabled by access to UK capital (via London retail deposits of NZ banks and debenture financing by pastoral finance companies).	Rural land (up to early 1920s). Increasing role of State provision of mortgage finance. Enabled by government overseas borrowing. More prudent bank lending.	Commercial property & equities. Bank lending enabled by increasing access to global sources of funding.	Residential property & rural land. Enabled by bank offshore wholesale funding.
Prudential regulation	Minimal regulations contained in each bank's enabling legislation.	Government informal oversight via ownership stake in largest bank (BNZ).	Regulatory framework in state of flux.	Well established. NZ banks not exposed to sub-prime.
Wider financial issues	Widespread failures of pastoral finance companies. Major capital write-downs for National Bank.	Severe balance sheet distress for rural sector (and urban unemployed), mitigated somewhat by policies of forbearance on part of banks.	Failure of investment companies and property developers. Failure of 7th-largest financial institution (DFC). Issues with smaller institutions.	Finance company failures. Increase in bank NPLs, but low by international comparison. Funding liquidity risks for banks.
Government intervention	Bank Note Issue Act 1894 to stem bank runs. Government guarantee of BNZ's liabilities 1894. Bailout 1895 and asset management company set up.	Legislation to reduce mortgage interest rates. 'Voluntary' conversion of internal government debt.	Organised private sector-dominated recapitalisation of BNZ 1989. Recapitalisation of BNZ 1990 and setting up of asset management company.	Retail and wholesale guarantees. RBNZ liquidity facilities.
Systemic banking crisis	Yes Duration – nearly 10 years Long resolution period (11 years) Direct fiscal costs – 11.5% of government expenditure	No	Yes Duration 2-3 years Relatively short resolution period Direct fiscal costs – 2.7% of government expenditure	No

1920s and the sharp deterioration in economic activity in the early 1930s. Capital buffers were much larger, and as Hawke illustrates in his account of the history of the National Bank, the “1930s were a period of reduced profitability, but they were not so much a struggle for survival as the 1880s had been” (1997, p. 173). Indeed, faith in the soundness of the banking system saw the level of fixed deposits increase between 1930 and 1934, at the expense of other forms of investment (Moore and Barton 1935, p. 226).

New Zealand entered the financial crisis of 2008–09 having experienced a credit-fuelled run-up in asset prices – both residential and rural land prices and a prolonged period of economic growth. Lending risks through this period may have been under-priced, at least for some types of lending, but the relaxation of lending standards on the part of banks has not been to the same extent seen in the mid-1980s. Banks have been better able to manage the risks associated with this traditional lending with well-established risk management frameworks, as well as the subsequent decline in asset quality. New Zealand banks were also not involved in the particular opaque products associated with sub-prime lending and securitised assets that have been at the heart of the global financial crisis.

6 Conclusion

This article has provided a detailed account of banking system crises in New Zealand, of which there are but two examples. Both banking crisis episodes illustrate a model of financial development and crisis where an exogenous shock to the expectations of economic agents, interacting with the provision of credit by financial institutions can lead ultimately to overoptimism, speculation and mania, creating vulnerabilities that then become cruelly exposed following some negative shock. This negative shock precipitates an unwinding of imbalances accumulated during the euphoric period. While it is not necessarily the only possible model to understand the respective banking crises, the Kindleberger/Minsky framework does arguably provide a plausible one in both cases.

The initial condition of the financial system proves to be key in determining whether any shock – real or financial –

constitutes a threat to the health of financial institutions that are at the heart of the intermediation process. The Great Depression is a useful example, where one of the largest macroeconomic shocks New Zealand has experienced did not undermine the solvency of the financial system as a whole.

In the current environment, New Zealand’s financial system has proved reasonably resilient to the on-going global financial shock. New Zealand banks did not purchase the US mortgage assets that subsequently proved so toxic, while heightened global risk aversion and the concomitant re-pricing of risk has not entailed a full-blown sudden stop in capital flows. Nevertheless, the banking system’s reliance on overseas funding does create obvious vulnerabilities, and current resilience should not be taken for granted.

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The evolution of New Zealand's trade flows

Victoria Yili Zhang¹

New Zealand's trading patterns have changed considerably in recent years. Our trade is increasingly oriented towards the Asia-Pacific region, both in terms of our exports and imports. This article examines changes in New Zealand's trading patterns and provides details on how the Reserve Bank measures activity and inflation in our trading partner economies. To reflect recent changes in New Zealand's trading patterns, the Reserve Bank has expanded the basket of countries that we focus on when examining international conditions. The Reserve Bank is conscious of the ongoing changes and uncertainties around the activity outlook in our trading partner economies. We will continue monitoring changes in trade patterns and make adjustments as required.

1 Introduction

Developments during the global financial crisis have highlighted the complex relationships between economies and the significant implications such relationships can have during periods of economic stress. Such relationships are particularly important for New Zealand, as we are a small open economy. Exports form a large proportion of our GDP. Additionally, significant amounts of New Zealand's consumption and investment goods are imported.

The past two decades have seen considerable changes in New Zealand's trading patterns.² Shifts are continuing to occur, with an increasing proportion of New Zealand's trade linked with Asia-Pacific economies.

In this article, we describe these changes and how the Reserve Bank measures global activity and inflation. This article is structured as follows. Section 2 looks at how export patterns have changed in recent years. Section 3 looks at how import patterns have changed. Section 4 looks at how the Bank monitors trading partner activities and section 5 concludes.

2 How have export patterns changed in recent years?

Significant changes in the demand for New Zealand's exports have continued to occur over the past two decades, with trade increasingly oriented towards Asia-Pacific economies.

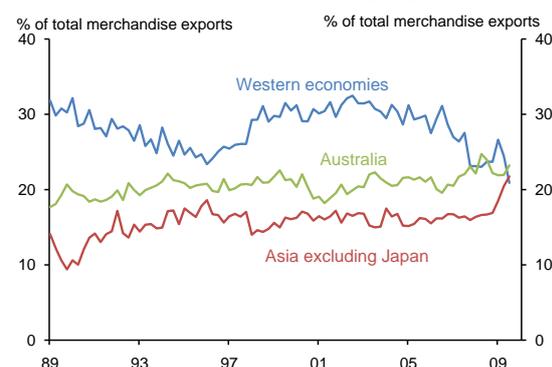
Australia remains our largest export destination, accounting

¹ I would like to thank Satish Ranchhod and Kirdan Lees for their comments and assistance with the preparation of this article.

² Merchandise trade data is used when analysing changes in trade flow. Services trade data for each trading partner is not currently available.

for 23 percent of total merchandise exports in the year ended September 2009. However, there has been significant growth in New Zealand's exports to economies in Asia excluding-Japan, in particular China, Hong Kong, Malaysia, Singapore, South Korea and Taiwan. Asia excluding-Japan's share of total merchandise exports increased from 8.5 percent in 1989 to 21 percent in 2009. The corollary of this has been a reduction in the share of our exports to Western economies (US, UK, the euro area and Canada) and Japan. Western economies' share of New Zealand's total merchandise export has fallen from 33 percent in 1989 to just over 20 percent in 2009 (figure 1).

Figure 1
Share of merchandise exports by region

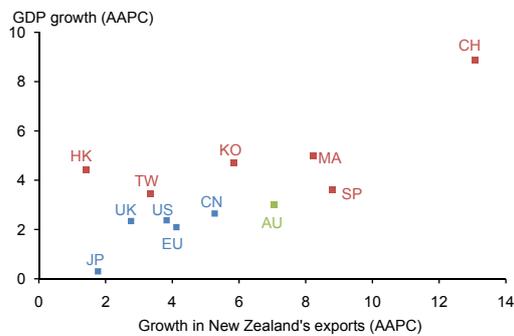


Source: Statistics New Zealand.

Smith (2004) points out that increases in the value of New Zealand's exports tend to be positively correlated with the rate of economic growth of the trading partner (figure 2). The emerging Asia region has been experiencing persistently high rates of GDP growth in comparison to more developed countries, including New Zealand's main trading partners such as Australia, Japan, and the euro area. This has seen Asia excluding-Japan's share of global output rising from 8.4 percent in 1988 to 18.5 percent in 2008.

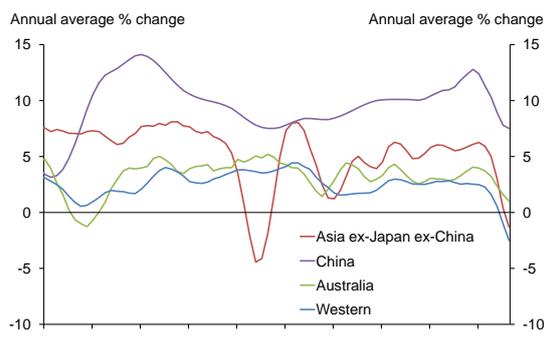
Much of the strength in Asia ex-Japan activity is attributable to China. Chinese purchasing power parity-based GDP share of world total has increased from 3.5 percent to 11.4 percent. This strength has resulted in positive spillovers for other economies in the Asia-Pacific region, including New Zealand. For the year ended September 2009, exports to China had the largest growth among all of our trading partners, increasing 57 percent year on year. The increase in value of exports to China was mainly led by an increase in exports of wood and dairy products.

Figure 2
Average NZ export value growth and GDP growth of export markets (1998-2008)



Source: Statistics New Zealand, RBNZ estimates. Country key: AU Australia, CH China, CN Canada, HK Hong Kong, JP Japan, MA Malaysia, SP Singapore, TW Taiwan, UK United Kingdom, US United States.

Figure 3
Regional growth rate



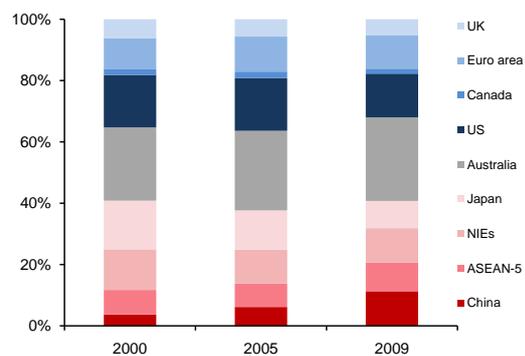
Source: DataStream, RBNZ estimates.

In addition to the rapid growth in exports to China, the share of New Zealand's exports to Southeast Asia has been expanding quickly, especially to the rapidly growing ASEAN-5 economies (Malaysia, Indonesia, Thailand, the Philippines and Vietnam). This is in part attributable to ongoing income

growth and changes in consumer preferences in the region. Although per capita income levels are relatively low in many Asian economies, earnings growth has been firm and these economies are populous. At the same time, changes in consumer preferences and dietary patterns in the region have led to rapid increases in consumption of dairy, beef and sheep meat (New Zealand's main export products to the Southeast Asia region).

While agriculture production in the ASEAN-5 region has also experienced some significant changes through improvements in farming technology, the region has had to rely on agricultural imports to help meet the huge increases in demand. This growth in demand from Asian economies has also been an important contributor to the significant price rises in some of our agricultural commodity exports since mid-2002; in particular, meat and dairy products. Improvements in the trading relationships with the ASEAN region (such as the signing of free trade agreements) have also contributed to the exceptional increase of exports to these countries.

Figure 4
Changes in destinations for New Zealand's merchandise exports



Source: Statistics New Zealand

Smith *et al* (2003) shows that China's strong growth and greater integration into the global economy implies that its business cycle might begin to have a larger impact on East Asia's and Australia's business cycles. For instance, China is Australia's largest trading partner; over 80 percent of Australia's exports to China are for Chinese domestic use. During the global financial crisis, Australia benefited from firm Chinese activity, with only a modest slowdown in Australian growth. Australia's close ties to China are also

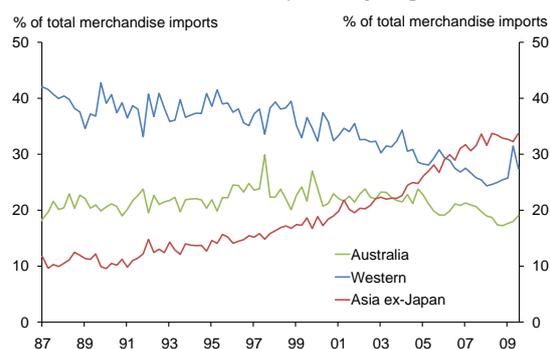
likely to provide a significant boost to their economy over the coming years. Strength in Chinese activity is also favourable for New Zealand's export outlook due to strong demand from China and through the boost to Australian activity.

3 How have import patterns changed in recent years?

Pronounced changes have also occurred in New Zealand's import patterns. While Australia remains New Zealand's largest single source of imports, the Asia excluding-Japan region has become increasingly important. The share of our imports from Asia has risen from 16 percent to 33 percent over the past decade. There has been particularly strong growth in our imports from China, which has overtaken the Euro area, US and Japan to become our second-largest source of imports. Indeed, the value of imports from China has more than tripled over the past decade. Imports from newly industrialised economies (NIEs – including Hong Kong, Singapore, Taiwan and South Korea) have also experienced strong growth, as have New Zealand's imports from the ASEAN-5 region. The signing of free trade agreements suggest that this strength will continue for some time.

Figure 5

Share of merchandise imports by region



Source: Statistics New Zealand.

While the share of imports from the Asia-Pacific region has been increasing over time, Western economies' share of merchandise imports has declined more than 10 percentage points since 2000. In particular, the US has moved from the second-largest source of imports to the fourth-largest. The value of imports from Japan has also been trending downwards, declining almost 20 percent since the mid-1980s.

The price of imports is an important contributor to the underlying trend in New Zealand's tradable inflation. Changes in trading partner inflation, together with exchange rate movements, have strong influence on import prices and therefore on tradable inflation.³ For instance, through the late 1990s and early part of this decade, New Zealand's increased trade with lower-cost producers in Asia significantly dampened tradable inflation pressures in New Zealand (Hunt 2007). However, more recently, robust growth in the Asia ex-Japan region has contributed to an increase in global inflation pressure and commodity prices since 2004 (Ranchhod 2008).

Inflation is also highly sensitive to developments in the real economy. For instance, the recent global financial crisis has put downward pressure on inflation globally. There are some uncertainties regarding the effect this will have on domestic inflation as global activity starts to recover, and both commodity prices and producer prices are starting to rise again. The impact of these developments will be strongly influenced by the state of economic activity.

4 How the Reserve Bank measures global activity

As a small open economy, New Zealand trades with over 100 countries around the world. However, it is impractical for the Reserve Bank to monitor developments in all of these countries. Instead, we focus on a subset of economies or groups of economies that are of particular importance for New Zealand. Finding the right subset of our trading partners is important, as activity in these economies is used to construct aggregate measures that act as proxies for export demand and global prices in our modelling of economic activity.

Until recently, the Reserve Bank has used a twelve-country basket to monitor developments in other economies. GDP-12 was an export-weighted aggregate of GDP in our trading partner economies, while CPI-12 was an import-weighted aggregate of consumer prices in our trading

³ Ranchhod (2008) provides detailed information on how trading partners inflation impacts New Zealand's domestic inflation, activity and the stance of monetary policy.

partner economies. The use of trade weights allows us to account for the relative importance of our trading partners in terms of their demand for New Zealand's exports. Changes in New Zealand's export and import patterns in recent years have prompted a review of the country basket we use. GDP-12's share of total merchandise exports has dropped from over 80 percent in 2000 to around 73 percent in September 2009. Additionally, export and import patterns have both suggested that the ASEAN-5 economies (most of which were excluded from GDP-12 and CPI-12) are becoming increasingly important markets for both exports and imports.

Given these developments, we have shifted to a 16-country basket for monitoring international activity (GDP-16 and CPI-16), which accounts for around 80 percent of total merchandise trade by value. GDP-16 and CPI-16 are constructed using the same method as their earlier GDP-12

and CPI-12 counterparts. Appropriately, the measures now have a stronger emphasis on the Asia-Pacific region, including the addition of Indonesia, the Philippines, Thailand and Vietnam to the country basket. The Asia-Pacific region now forms around 60 percent of GDP-16 (vs. 53 percent of GDP-12). At the same time, the weight of North American economies has fallen by 1.4 percent and Japan's weighting has declined by 1.1 percent. About 1.5 percent of the weighting of the Euro area and UK has also shifted to the Asia-Pacific region (table 1).

GDP growth in the new 16-country basket tracks the growth in 12 country basket closely (in part reflecting that the trade shares in these baskets are regularly updated). The differences between the two measures became apparent from 2006, with slightly stronger growth in GDP-16 (figure 6). CPI-16 and CPI-12 are broadly similar, although the annual average growth rate of CPI-16 is slightly higher than

Table 1
Weights in GDP-16, GDP-12, CPI-16 and CPI12
(Two-year moving average)

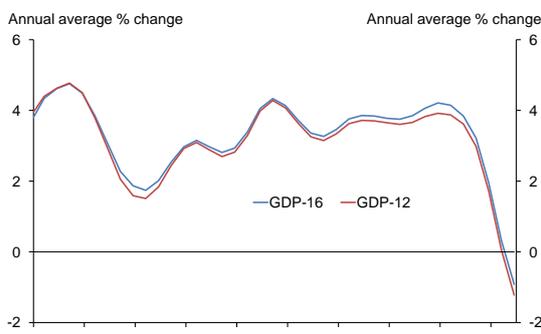
	GDP-16	GDP-12	CPI-16	CPI-12
Australia	28.8	31.6	21.3	22.9
US	13.3	14.1	11.6	12.5
EU	10.6	11.3	14.4	15.5
Japan	9.9	11.0	9.4	10.0
China	8.8	9.5	16.2	17.4
UK	5.0	5.5	2.7	2.9
Korea	4.1	4.5	3.5	3.8
Indonesia	3.2	-	2.5	-
Singapore	2.6	3.0	5.4	5.9
Malaysia	2.5	2.8	4.0	4.3
Taiwan	2.3	2.5	2.2	2.3
Hong Kong	2.3	2.4	0.5	0.5
Thailand	2.0	-	3.1	-
Philippines	2.1	-	0.4	-
Canada	1.6	1.8	1.7	1.9
Vietnam	1.0	-	1.0	-
Asia ex-Japan	30.8	24.7	38.9	34.4
Western economies	30.5	32.6	30.4	32.7

Source: Statistics New Zealand, RBNZ estimates.

CPI-12, reflecting the higher inflation rate in the Asia ex-Japan economies (figure 7). Asia excluding-Japan economies have continued to provide a strong positive contribution to GDP-16 growth during the recent financial crisis, while developed economies are putting downside pressure on the aggregate growth measure (figure 8), again highlighting the growing importance of Asian economies for New Zealand.

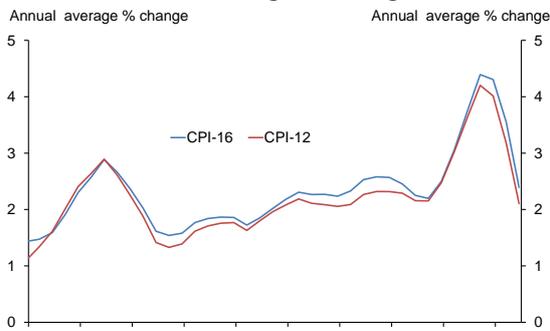
While we focus on GDP-16 and CPI-16 for forecasting purposes, we remain conscious that developments in other

Figure 6
GDP-12 and GDP-16 average annual growth



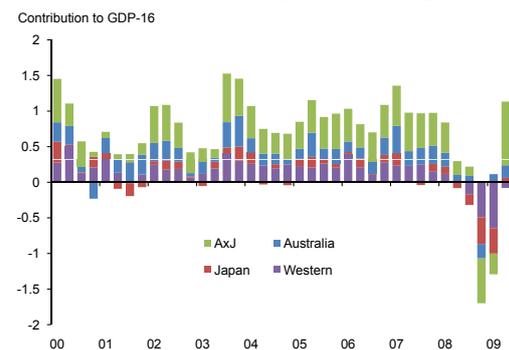
Source: Datastream, RBNZ estimates.

Figure 7
CPI-12 and CPI-16 average annual growth



Source: Datastream, RBNZ estimates.

Figure 8
Contribution to GDP-16 growth by region



Source: Datastream, RBNZ estimates.

economies affect New Zealand through a range of channels other than export demand and import prices (for example developments that affect financial markets). Consequently the Bank monitors a wide range of information on the global economy.

5 Conclusion

The make-up of global activity is continuing to change. Asian economies' share in global activity has increased and is likely to continue doing so for some time. Such changes have important implications for activity in New Zealand. Economies in Asia are becoming increasingly important export markets and source of imports for New Zealand. The strong growth in Asian economies is also having an impact on some of New Zealand's traditional trading partners. In particular, Australia has benefited significantly from strong growth in Asia, and this is likely to pass through to New Zealand.

The Reserve Bank is conscious of the ongoing evolution of our trading relationships, including the growing importance of the Asia-Pacific region for the New Zealand economy. Reflecting such changes, we have recently expanded the basket of countries that we use for examining New Zealand's trade patterns. There are some uncertainties around the activity outlook in New Zealand's trading partner economies, but the Reserve Bank will continue to monitor trade flows and make adjustments to our methodologies as required.

6 References

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FOR THE RECORD

DISCUSSION PAPERS

DP2009/11

A cobweb model of financial stability in New Zealand

Paul Bedford and Chris Bloor, November 2009

Financial turbulence over the past two years has generated increased interest in the analysis of financial stability. However, such analysis often suffers from conceptual difficulties and a lack of measurability. This paper develops a 'cobweb model' for analysing financial stability in New Zealand. A key objective of this cobweb model is to depict the Reserve Bank of New Zealand's assessment of financial stability in a single diagram that will enable better communication of the main risks facing New Zealand's financial system. The results of this model are displayed using a cobweb-style diagram, with five dimensions constructed using a wide range of quantitative indicators, supplemented by expert judgement where necessary. It is anticipated that this cobweb diagram will become the focal point of the Reserve Bank's *Financial Stability Report*.

DP2009/12

A quarterly post-World War II real GDP series for New Zealand

Viv B Hall and C John McDermott, November 2009

There are no official quarterly real GDP estimates for New Zealand, for the period prior to 1977. We report the development of a seasonally adjusted series for a period of more than 60 years from mid-1947, and evaluate statistical properties. The series were developed by linking quarterly observations from two recent official series to temporally disaggregated observations for an earlier time period. Annual real GDP series are disaggregated, using the information from two quarterly diffusion indexes, developed by Haywood and Campbell (1976). Three econometric models are used: the Chow and Lin (1971) model that disaggregates the level of GDP; and the Fernández (1981) and Litterman (1983) models that disaggregate changes in GDP. Our preferred quarterly series is based on results generated from the

Chow-Lin model. We assess movements in the new series against qualitative findings from New Zealand's post-WWII economic history.

DP2009/13

The "suite" smell of success- Complementary personnel practices and firm performance

Richard Fabling and Arthur Grimes, December 2009

How do personnel practices affect firm performance? To examine this issue we use a panel of over 1,500 New Zealand firms, drawn from a diverse range of industries. The panel comprises respondents to official surveys of management practices in 2001 and 2005. These surveys ask a wide range of comparable qualitative questions covering organisational practices including human resource management (HRM). To this panel, we link longitudinal firm performance data from Statistics New Zealand's Longitudinal Business Database. We find that suites of complementary HRM-related practices impact positively on firm productivity and wages; effects on employee turnover depend on the practices considered.

DP2009/14

Impulse Response Identification in DSGE Models

Martin Fukac, December 2009

DSGE models have become a widely used tool for policymakers. This paper takes the global identification theory used for structural vectorautoregressions, and applies it to dynamic stochastic general equilibrium (DSGE) models. We use this modified theory to check whether a DSGE model structure allows for unique estimates of structural shocks and their dynamic effects. The potential cost of a lack of identification for policy oriented models along that specific dimension is huge, as the same model can generate a number of contrasting yet theoretically and empirically justifiable recommendations. The problem and methodology are illustrated using a simple New Keynesian business cycle model.

DP2009/15

Measuring Output Gap Uncertainty

Anthony Garratt, James Mitchell, and Shaun P. Vahey, December 2009

We propose a methodology for producing density forecasts for the output gap in real time using a large number of vector autoregressions in inflation and output gap measures. Density combination utilizes a linear mixture of experts framework to produce potentially non-Gaussian ensemble densities for the unobserved output gap. In our application, we show that data revisions alter substantially our probabilistic assessments of the output gap using a variety of output gap measures derived from univariate detrending filters. The resulting ensemble produces well-calibrated forecast densities for US inflation in real time, in contrast to those from simple univariate autoregressions which ignore the contribution of the output gap. Combining evidence from both linear trends and more flexible univariate detrending filters induces strong multi-modality in the predictive densities for the unobserved output gap. The peaks associated with these two detrending methodologies indicate output gaps of opposite sign for some observations, reflecting the pervasive nature of model uncertainty in our US data.

DP2009/16

Structural Macro-Econometric Modelling in a Policy Environment

Martin Fukac and Adrian Pagan, December 2009

In this paper we review the evolution of macroeconomic modelling in a policy environment that took place over the past sixty years. We identify and characterise four generations of macro models. Particular attention is paid to the fourth generation – dynamic stochastic general equilibrium models. We discuss some of the problems in how these models are implemented and quantified.

NEWS RELEASES

Medals of Sir Edmund Hillary on display

22 September 2009

The Reserve Bank Museum is hosting an exhibition of the orders, decorations and medals of the late Sir Edmund Hillary, KG, ONZ, KBE.

The exhibition reflects a lifetime of extraordinary achievements that included the first ascent of Mount Everest, the first overland drive to the South Pole, and many projects to benefit the people of the Himalayas.

Acting Governor Grant Spencer said the Reserve Bank Museum was honoured to host the temporary exhibition.

“The loan of the medals to the Museum extends the special relationship the Bank has had with Sir Edmund and his family since 1992, when his portrait appeared on the five dollar note.”

At the time Sir Edmund was the only living person, other than the Queen, to appear on circulating currency. A large portrait window featuring the five dollar note is one of the main features of the Reserve Bank Museum.

Sir Edmund’s achievements and work made him a highly respected and well known name in New Zealand and internationally. He was made High Commissioner to India in 1984, three years later appointed to the Order of New Zealand, and in 1995 was made a Knight of the Garter.

Medals and awards on temporary display include the Knight Companion of the Most Noble Order of the Garter, the Letters Patent for his personal Coat of Arms, the Order of the Gurkha Right Arm, and a range of medals and awards from such diverse organisations as the American Geographical Society, the French Geographical Society, and many governments around the world.

The exhibition is open to the public on Tuesday 22 September.

The Museum is open to the public weekdays 9.30am–4.00 pm, except for special events. Entry is free. The Reserve Bank Museum is located in the Reserve Bank Building, 2 The Terrace, Wellington.

Reserve Bank *Bulletin* released

30 September 2009

Strengthening the economy in light of the economic and financial crisis, and lessons that can be learned from history, are the focus of the September 2009 Reserve Bank of New Zealand *Bulletin*, released today.

The issue opens with an article by Kevin Hoskin and Stuart Irvine about the minimum capital levels that the four largest banks in New Zealand need to hold, under the Basel II international bank capital framework. A sound financial system requires banks to hold sufficient capital at all times.

Greater transparency in fiscal policy is the focus of the second article. Eric Leeper, Professor of Economics at Indiana University, discusses how enhanced transparency could make fiscal policy more predictable and effective, similar to the way in which greater transparency about monetary policy around the world has improved the effectiveness of monetary policy.

Matthew Wright focuses on the lessons that can be learned from history by discussing in the third article the socio-economic and political aspects of the 1930s Great Depression.

Our fourth article is an interview with Michael Bordo, Professor of Economics and Director of the Center for Monetary and Financial History at Rutgers University in New Brunswick, New Jersey. Professor Bordo talks about his research on financial crises, New Zealand’s financial vulnerability, and challenges in handling the financial crisis.

The fifth article is the text of a public speech delivered in Wellington by Howard Davies, Director of the London School of Economics, to mark the occasion of the Reserve Bank’s 75th Anniversary this year. Howard Davies looks at the various parties involved in the current crisis and asks: whodunnit?

The *Bulletin* concludes with the paper for a speech given by Governor Alan Bollard in July 2009, about the recovery from the current crisis. The Governor looks at the impact of the crisis on New Zealand, and at the factors that will promote sustainable growth and reduce the New Zealand economy’s vulnerability in the future.

Reserve Bank releases 2008-09 *Annual Report* 9 October 2009

New Zealand has escaped major damage in the worst global financial crisis in decades, but the experience has highlighted imbalances and vulnerabilities, the Reserve Bank says in its 2008-2009 *Annual Report* released today.

"Prior to the crisis, households had been consuming beyond their incomes, borrowing heavily offshore through their banks. In the past two years there has been a substantial correction in household savings and the external payments imbalance. However, further improvements will be needed to stop our international debt position from mounting further," Reserve Bank Governor Alan Bollard said today, when releasing the *Annual Report*.

The recent appreciation of the exchange rate has not supported the shift towards the export and import-competing industries that will be necessary to improve this situation, he added. "On these trends, there is a real risk that recent improvements in the external balance will be reversed."

The *Report* notes the importance of the Bank's full-service role, enabling it to integrate its policy tools across monetary policy, financial stability and prudential supervision.

"In response to the financial crisis we coordinated a range of policy measures, including the fastest and furthest fall in the OCR on record, and ensuring banks could obtain funding by allowing them to borrow from the Reserve Bank, using a broader range of facilities and collateral," Dr Bollard said.

He said there were important lessons from the experience of the last few years. "International regulators are likely to require better tools to regulate financial systems over the economic cycle, including stronger liquidity and capital adequacy standards. We will assess these developments in the New Zealand context as they emerge. In the meantime the Bank has introduced a new prudential liquidity policy for banks which aims to address the main vulnerability of the New Zealand system that was exposed during the crisis."

He also noted that, in the wake of considerable weakness in the non-bank sector over recent years, progress is well underway to implement the new prudential regime for non-bank deposit takers.

The Bank's crisis liquidity measures and earlier foreign exchange intervention carried risks to the Bank's balance sheet that continued to require careful management. The Bank's total assets expanded over the year to 30 June 2009 by approximately \$6 billion, to reach \$31 billion. The Bank's equity at 30 June was \$3.0 billion.

Dr Bollard said that significant reductions in interest rates and exchange rates in the 2008-09 financial year meant that the Bank recorded a net profit of \$906 million and paid a dividend of \$630 million to the Government.

"This is a strong financial result which reflects abnormally large changes in market conditions," Dr Bollard said. However, he warned that the Bank's future financial performance can be expected to be more volatile than it has been in recent years.

In recognition of the seriousness of the financial crisis, the Governor, Deputy Governor and two Assistant Governors requested they be given no remuneration increase in calendar year 2009.

Some temporary crisis liquidity facilities to be removed

14 October 2009

The Reserve Bank announced today that it will be removing and consolidating some of the temporary emergency liquidity facilities put in place during the financial crisis in 2008.

The specific measures include:

- The removal of the Term Auction Facility (TAF) where banks have been able to borrow funds for 3, 6 and 12 months using eligible collateral (such as Residential Mortgage Backed Securities (RMBS), registered bank bills, NZ Government securities etc).
- A change to the regular Tuesday Open Market Operation (OMO) to allow all eligible securities (including corporate securities and RMBS) to be acceptable collateral for repurchase transactions of maturity up to three months. Currently, only approved Corporate and Asset-backed securities are acceptable as collateral in this OMO for terms of up to two months. The regular weekly OMO will continue until the end of March 2010 when it will

be reviewed with a view to discontinuing it if market conditions allow.

- A shortening of the maximum term over which funds may be borrowed from the Bank in the Overnight/Term Reverse Repo Facility (ORRF/TRRF) from one month to an overnight basis only. All currently approved eligible collateral (including corporate securities and RMBS) will remain acceptable in the ORRF.
- The withdrawal of the regular weekly Reserve Bank bill tender. The Bank will continue to offer Reserve Bank bills as required in the daily OMO.

The changes announced above will take effect from the beginning of November, with the final TAF and Reserve Bank bill tenders scheduled for the week beginning of 26 October. For details on the Bank's liquidity facilities refer to <http://www.rbnz.govt.nz/finmarkets/domesticmarkets/3329772.html>.

Commenting on the measures Reserve Bank Deputy Governor Grant Spencer said: "Financial market conditions have improved significantly since 2008 when these facilities were introduced. New Zealand banks are now able to readily access funding from the markets, and the usage of these special facilities has been very low in the last six months. The Bank feels that the time has come to start removing and consolidating the temporary crisis facilities.

"The Reserve Bank will continue to monitor markets closely and is in a position to supply sufficient liquidity as required depending on market conditions via its regular Open Market Operations.

"This decision has no implications for the stance of monetary policy."

Government passes law on money laundering

15 October 2009

A bill that boosts measures to counter money laundering by criminal gangs and organised crime, and which counters the financing of terrorism, was passed into law today.

Justice Minister Simon Power said the Anti-Money Laundering and Countering Financing of Terrorism Act will help tackle

financial and drug-related crime by assisting Police to detect and trace profits of organised crime groups.

"This Act enhances our ability to investigate organised crime, by following the illegal money trail through financial systems, and goes hand-in-hand with the Criminal Proceeds (Recovery) Act, passed by the Government in April, which can be used to attack criminal profits.

"This is also another weapon in the fight against methamphetamine, in that it will be an impediment to the laundering of money from such activities by the criminal gangs.

"The Act will also ensure that New Zealand's financial sector continues to be attractive to legitimate international investors, and is not seen as a safe haven for organised criminals and tax evaders.

"New Zealand cannot be seen as a weak link for organised criminals and terrorists.

"This Act will allow us to better contribute to the international fight against money laundering, tax evasion, and terrorism financing.

"It implements measures established by the Financial Action Task Force (FATF) – an inter-governmental body that sets international standards for combating money laundering and terrorist financing.

"Most of New Zealand's trading partners are included in the task force, and not implementing its measures puts our reputation and access to international financial markets at risk."

Mr Power said the legislation provided for a lead-in time for financial service providers and casinos to make sure they have measures in place to, for example, check their customers are who they say they are, and systems that can identify and report suspicious activity.

"As far as possible, the Act enables businesses to focus their resources on those customers or products that represent the most risk," Mr Power said.

"It recognises that effective control of money laundering requires a collaborative approach between industry and government.

“The Reserve Bank, the Securities Commission, and the Department of Internal Affairs are tasked with supervisory roles and will support the new regime as it is phased in.

“The legislation brings this aspect of our financial sector regulation into line with those countries to whom we might like to compare ourselves, such as Australia.”

Prudential liquidity policy for banks finalised

22 October 2009

The Reserve Bank today released the finalised version of its prudential liquidity policy for banks, originally announced at the end of June.

Since issuing the policy on 30 June, the Reserve Bank has been engaged in extensive consultation with the banks and this has resulted in some changes to the initial liquidity ratio definitions as well as changes in the overall calibration of the requirements.

Deputy Governor Grant Spencer said: “In light of feedback on the initial policy, the Reserve Bank is now giving the banks more time to set up the systems they need to monitor compliance with the required minimum liquidity standards. So while the policy framework has now been formally imposed on the large Australian subsidiaries and on the locally-owned banks, they will have until 1 April 2010 to meet the requirements of the policy.”

The policy includes a minimum one-year Core Funding Ratio (CFR), which aims to ensure that banks hold sufficient retail and longer-dated wholesale funding. The minimum for the CFR will start at 65 percent. The Reserve Bank plans to increase this minimum to 70 percent from 1 July 2011 and to 75 percent from 1 July 2012.

The Reserve Bank will shortly extend the policy to all other registered banks, including the foreign bank branches. The ratio requirements will be adapted for them on a case-by-case basis, taking account of factors such as their home country prudential liquidity requirements.

OCR unchanged at 2.5 percent

29 October 2009

The Official Cash Rate (OCR) remains unchanged at 2.5 percent.

Reserve Bank Governor Alan Bollard said: “There are welcome signs that economic activity is growing again.

“Activity in New Zealand’s trading partners continued to rebound during the September quarter and financial market sentiment has improved further. However, there remain significant vulnerabilities and challenges to be worked through in many economies. This process could weigh on global growth going forward.

“In New Zealand, the housing market has reversed some of the decline in prices experienced over the past couple of years and a very gradual increase in household spending appears to be taking place. Government spending is also supporting activity. Business spending, however, remains weak and credit growth is very subdued.

“The high level of the New Zealand dollar has limited the scope for exports to contribute to the recovery, and reinforces a bias towards domestic expenditure. After some short-term correction it is also likely to see the current account deficit begin to widen in the medium term.

“The current composition of growth continues to raise questions about its sustainability. These concerns would intensify if credit growth began to propel stronger domestic demand.

“Annual CPI inflation is expected to continue to track comfortably within the target range over the medium term.

“The forecast recovery in economic activity is based on fiscal and monetary policy continuing to provide substantial support to the economy. We think such support remains appropriate. Further ahead, removing some of the current fiscal stimulus is likely to reduce the work that monetary policy will otherwise need to do.

“In contrast to current market pricing, we see no urgency to begin withdrawing monetary policy stimulus, and we expect to keep the OCR at the current level until the second half of 2010.”

NZ is not Australia, but could be their lucky neighbour

5 November 2009

Financial markets and businesses need to appreciate the different futures New Zealand and Australia are charting out of the global financial crisis, Reserve Bank Governor Alan Bollard said today.

Speaking to Trans-Tasman Business Circle in Auckland, Dr Bollard said both countries have survived the crisis well, due to a mix of strong institutions and stimulative policies.

“However, their immediate prospects are different. Australia has avoided negative growth, and its prospects are driven by strong terms of trade, vast mineral deposits, the Chinese market, and rapid population growth.

“New Zealand has had a recession, and the pick-up is slower and more vulnerable – a difference financial markets do not appear to appreciate.

“This is particularly evident in the relatively stable cross-rate on foreign exchange markets. If financial markets can’t see the differences, they will eventually lose money, and it will hurt the New Zealand economy.”

Dr Bollard said New Zealand could improve its prospects by taking advantage of Australia’s very strong future growth potential. “Australia is a lucky country, but we could be a lucky neighbour.”

Australia is entering a new minerals boom, investing heavily and encouraged by new finds, re-opening markets, bottlenecks and strong prices. Strong investment and export growth would mean big challenges for Australian policy. “This all means an economy that looks less like New Zealand.”

However, Australia’s potential raised the prospects for New Zealand’s manufacturers and services, which have a bigger share of exports than the same sectors in Australia.

“Australia will likely be a very strong growth market, and could help New Zealand to indirectly benefit from East Asian growth. Less inflation pressure here will help our competitiveness, assisted by relative exchange rate stability and the spreading Single Economic Market.

“New Zealand and Australia have very different resource endowments, financial markets treat us like Australia, but actually we are quite different. We talk about catching up with Australian incomes, but we have better chances of taking advantage of their growth.”

November 2009 Financial Stability Report released

11 November 2009

The outlook for the New Zealand economy and financial system has improved in the past six months as international conditions have stabilised, but some risks and challenges remain, Reserve Bank Governor Alan Bollard said today when releasing the Bank’s November 2009 *Financial Stability Report*.

“Financial market strains have eased, equity markets have mounted a recovery and confidence has improved. Economic forecasts are now tending to be revised upwards rather than downwards. However, global recovery has been fuelled by stimulatory fiscal and monetary policy settings which cannot be kept in place forever. Also, the global banking system remains vulnerable to further shocks.”

Dr Bollard noted that while the improved global outlook was generally positive for New Zealand, the rise in the New Zealand dollar over recent months could hinder continued improvement in the external balance. “The New Zealand economy needs to live more within its means to reduce its vulnerability to adverse developments in offshore markets.

“While we see some progress to recover savings and reduce our current account deficit, there is still a considerable adjustment needed to reduce our vulnerability to external shocks. To assist this we need to ensure there is no return to a debt-fuelled housing cycle, which would likely bring with it further exchange rate pressure and erosion of competitiveness.”

Commenting on the financial system, Deputy Governor Grant Spencer said that banks in New Zealand and Australia had withstood the crisis better than those in many other countries. However, the banks were overly dependent on offshore wholesale capital markets which broke down during

the crisis. Also, the banks' asset quality has deteriorated during the recession, as reflected in recent provisioning and profit results. Further loan losses are likely as unemployment continues to rise through into 2010.

Mr Spencer noted that the improvement in global financial markets is now making it easier for the banks to raise funds in the international markets. "For this reason we are now starting to remove some of our special liquidity facilities that were brought in to support the banks during the crisis.

"The banks nevertheless remain very cautious in their credit and funding decisions. While generally supporting this approach, we have continued to emphasise that the banks should not overly restrict lending to the business sector.

"In support of the banks' more careful approach to liquidity, we have recently introduced a new prudential liquidity policy that is intended to reduce the banks' vulnerability to short-term wholesale funding markets. This policy comes into force in April 2010.

"We also expect that international policy reforms through the Basel Committee will see a tightening of bank capital adequacy standards over the next year or two. We will be watching these developments closely to assess which reforms are suitable for introduction in New Zealand."

Mr Spencer said many non-banks remain under pressure as they seek to repair the damage to balance sheets from the recession. "The non-bank sector is now also faced with the challenge, over the coming year, of meeting the requirements of the Reserve Bank's new non-bank prudential regime. In meeting these challenges, we fully expect to see further rationalisation and closures. The government has extended the deposit guarantee for a year to help the sector through this difficult period."

OCR unchanged at 2.5 percent

10 December 2009

The Official Cash Rate (OCR) remains unchanged at 2.5 percent.

Reserve Bank Governor Alan Bollard said: "The New Zealand economy continues to recover but there remains considerable uncertainty about the durability of the expansion.

"Global activity has continued to rebound. Most obviously, activity in Australia, China and emerging Asia continues to increase and solid growth is expected over the next few years.

"The picture is more mixed in the major developed economies. While activity is expanding, sustained growth is not assured. Financial sectors are still impaired in a number of economies and economic activity is still heavily dependent on policy support.

"In New Zealand, the economy continues to recover, reflecting improved world growth, higher export commodity prices, increased government spending and housing strength. A key uncertainty is the extent to which higher house prices are eventually reflected in increased consumer spending. At this point credit growth remains subdued suggesting households are being relatively cautious.

"While business confidence has improved, actual business spending remains weak. In addition, the high level of the New Zealand dollar has limited the scope for exports to contribute to the recovery. After some short-term correction the current account deficit is expected to widen in the future.

"Annual CPI inflation is expected to remain below 2 percent until early 2011 and track within the target range over the medium term.

"The economy is being assisted by both monetary and fiscal policy support. As growth becomes self sustaining, fiscal consolidation would help reduce the work that monetary policy might otherwise need to do.

"If the economy continues to recover, conditions may support beginning to remove monetary stimulus around the middle of 2010. Recent tightening in financial conditions, driven by a higher exchange rate, increased long-term interest rates and a wider gap between the OCR and bank funding costs, reduces the need for more immediate action."

PUBLICATIONS

Regular publications

Annual Report

Financial Stability Report

Monetary Policy Statement

Reserve Bank of New Zealand Statement of Intent, 2007-2010

Published in October each year.

Published six-monthly. A statement from the Reserve Bank on the stability of the financial system.

Published quarterly. A statement from the Reserve Bank on the conduct of monetary policy.

Recent Reserve Bank Discussion Papers

2009

DP2009/01	Revealing monetary policy preferences <i>Christie Smith</i>
DP2009/02	Real-time conditional forecasts with Bayesian VARs: An application to New Zealand <i>Chris Bloor and Troy Matheson</i>
DP2009/03	Evaluating household expenditures and their relationship with house prices at the microeconomic level <i>Mark Smith</i>
DP2009/04	Forecasting national activity using lots of international predictors: an application to New Zealand <i>Sandra Eickmeier and Tim Ng</i>
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DP2009/12	A quarterly post-World War II real GDP series for New Zealand <i>Viv B Hall and C John McDermott</i>
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DP2009/15	Measuring Output Gap Uncertainty <i>Anthony Garratt, James Mitchell, and Shaun P. Vahey</i>
DP2009/16	Structural Macro-Econometric Modelling in a Policy Environment <i>Martin Fukac and Adrian Pagan</i>

A full list of Discussion Papers is available from Administration, Economics Department.

Selected other publications

Testing stabilisation policy limits in a small open economy: proceedings from a macroeconomic policy forum
Finance and Expenditure Select Committee inquiry into the future monetary policy framework: submission by the Reserve Bank of New Zealand

Pamphlets

Explaining Currency

Explaining Monetary Policy

The Reserve Bank and New Zealand's Economic History

This is the Reserve Bank

Your Bank's Disclosure Statement – what's in it for you?

Snakes and Ladders – a guide to risk for savers and investors, by Mary Holm

For further information, go to www.rbnz.govt.nz, or contact:

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Evolution of the Reserve Bank's liquidity facilities

The global financial crisis and its transmission to New Zealand – an external balance sheet analysis

The Reserve Bank's payment system oversight role applied to settlement risk in the retail payment system

New legislation for regulation of non-bank deposit takers

Results from the recent survey of *Bulletin* readers

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Financial vulnerability of mortgage-indebted households in New Zealand – evidence from the Household Economic Survey

Thinking about more than one thing at a time: Eric Leeper on monetary and fiscal policy interactions

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Coping with global financial and economic stresses

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The financial crisis: whodunnit?

Economic recovery