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# Reserve Bank of New Zealand Bulletin

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# Editor's Note

This issue of the Bulletin contains three articles and three speeches.

The first article in this Bulletin, *Developments in the New Zealand banking industry*, is the annual review of the New Zealand banking system, prepared by the Bank's Banking System Department. Drawing from prudential information contained in registered banks' public disclosure statements, the article discusses recent developments in the banking system and summarises the financial condition of the banking industry. The article notes that the banking system continues to be in good health, with strong capitalisation, a low level of non-performing loans and sound profitability. It also notes that the banking industry has continued to evolve its use of technology to better meet the needs of customers and discusses other innovations in the banking industry.

In the June 2000 issue of the Bulletin, we published, for the first time, a comprehensive summary of data relating to household balance sheets, the institutional sources of lending to households and the nature of households' financial investments. In this issue of the Bulletin we provide an update of data on these matters and set out further analysis of trends in household saving, borrowing and investment. The article includes comparisons with similar data for other advanced economies. It also discusses the evolution in the institutional provision of financial services to the household sector and explains some of the factors underlying these developments.

The last of the articles in this Bulletin deals with the issue of market expectations of the Official Cash Rate (OCR). It explains the importance of understanding market expectations of the OCR and the uses we make of data on market expectations, including in respect of formulating views on monetary conditions. The article also explains the different ways by which data on market expectations are derived, with reference to survey data and techniques for inferring expectations from interest rate data.

Of the three speeches in the Bulletin, one deals with monetary policy issues while the other two address issues relating to the Bank's responsibility for financial system oversight. The first of these speeches, *Should the Reserve Bank have eased as fast as the Federal Reserve?*, delivered by Dr Don Brash, Governor of the Bank, on 21 May this year to the Rotary Club of Auckland, sets out the Governor's thinking on the

considerations influencing the Bank's monetary policy stance and why the Bank has not eased interest rates as sharply as the United States Federal Reserve.

The second speech, *Promoting financial stability: the New Zealand approach*, delivered on 6 June to a Conference for Commonwealth Central Banks in London by Dr Brash, sets out the Bank's approach to the promotion of financial stability. In particular, it deals with the important themes of corporate governance and market discipline in the financial sector. It includes reference to some work currently being undertaken by the Bank on a possible approach to the management of bank failures, whereby creditors' funds would be used to absorb losses in the failed bank and to facilitate the bank's re-capitalisation and re-entry into the banking system.

The third speech in this issue of the Bulletin is by Dr Roderick Carr, Deputy Governor, to the New Zealand Association of Economists on 27 June, entitled *Banking on capital punishment*. This speech discusses a number of issues relating to the supervision of banks, with particular emphasis on the regulation of bank capital and the proposed changes to the Basel Capital Accord. In that context, Dr Carr refers to the moral hazard risks that can arise from the intensive supervision of banks and the bailing out of insolvent banks, and discusses options for reducing these risks.

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# Developments in the New Zealand banking industry

Loretta DeSourdy, Banking System Department

This article reviews developments in the New Zealand banking system over the year to December 2000. Financial information extracted from banks' disclosure statements indicates a strong banking system with good asset quality.

## 1 Introduction

This article discusses recent developments in the New Zealand banking industry. It also looks at some of the current policy and structural issues affecting the industry. It then comments briefly on the financial performance of the industry, using financial data for the year 2000 published in registered banks' disclosure statements. That information shows that the New Zealand banking sector performed solidly during the year to December 2000. Profits and assets grew in a market that continues to be highly competitive. This competition led to a further narrowing of interest margins, but this narrowing was offset by growth in both interest and non-interest income. Asset quality remains very sound.

## 2 Policy developments

In past articles we have discussed trends in international banking, an important one of which has been the establishment of financial conglomerates that operate in all spheres of the financial system, and the challenges that this trend presents for regulators. Until recently the Reserve Bank has been able to take a permissive approach to the activities that banks can conduct, because banks have substantially restricted themselves to traditional banking business. The financial landscape in New Zealand is now changing, with the boundaries between banking and particularly insurance beginning to be blurred. A major banking group has acquired a large insurance operation, an insurance company has become involved in banking and there is the prospect of further financial conglomerates emerging. There has also been a good deal of discussion amongst the international supervisory community on the issue of supervision of financial conglomerates.

These developments have motivated a review of what kind of supervisory approach is appropriate for financial conglomerates operating in New Zealand. The outcome of this review has been a set of policy proposals from the Bank dealing with financial conglomerates and lending by banks to connected parties. In essence we are proposing a framework that separates banking from non-banking activity, with Reserve Bank supervision focused on banking, and affiliated non-banking activities being subject to disclosure requirements. At the same time we are seeking to ensure that connected lending does not undermine the capital buffer of banks, but to do so in a way that provides more flexibility to banks. We are currently in consultation with the industry on these proposals.

Another major development in international banking that has implications for banking in New Zealand has been the review of the 1988 Capital Accord by the Basel Committee on Banking Supervision. The Committee released its first consultative package in June 1999, with a second round of consultation documents published in January of this year. The aim of the revision is to improve safety and soundness in the banking system. The Committee's proposals are built around three pillars – minimum capital requirements, a supervisory review process and market discipline. In our submission to the Committee we indicated broad support for the proposals in the minimum capital requirements and market discipline pillars, but expressed concern about the proposed supervisory review process, which envisages the supervisor being directly and explicitly involved in validating a bank's measurement of risk and assignment of capital. We see this undermining a regulatory approach aimed at strengthening the incentives on the private sector (directors, management, and the creditors of a bank) to promote

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prudent bank behaviour, and have recommended that the Committee allow for a review process that places primary responsibility on bank directors, with supporting independent expert advice from the private sector. The Committee expects to publish the new Accord at the end of this year with implementation envisaged by 2004.

In addition to these internationally generated initiatives there have been a number of policy developments aimed at strengthening the prudential policy approach applied to banks in New Zealand. One of these was a review by the Bank of its policy on credit rating for registered banks. When the disclosure based supervision regime was introduced in 1996, we considered the provision in the Reserve Bank Act which enables us to require banks to obtain a credit rating, but decided not to implement mandatory ratings at the time. However, banks were required to disclose whether they had a rating applicable to their long-term senior unsecured New Zealand dollar debt payable in New Zealand. Where they did have such a rating, it had to be disclosed in the quarterly disclosure statements. After revisiting this issue and consulting with banks, we have now decided that all registered banks will be required to obtain and subsequently maintain a current rating. Banks will continue to be required to publish the rating in quarterly disclosure statements.

The Bank has also placed increasing emphasis on the need to ensure that the New Zealand banking system will be resilient in the face of bank distress. This has led to a range of initiatives including a review of bank organisational form, and the role of innovative capital instruments in meeting a bank's regulatory capital requirements.

In the past, the Bank has been largely indifferent as to the organisational form of foreign owned banks and in particular whether they operate in New Zealand as branches of an overseas bank or as locally incorporated subsidiaries. Following a review and consultation with the industry, banks falling into certain categories will now be required to incorporate locally. The relevant categories are banks that are systemically important; and retail deposit takers that have more than \$200 million in retail deposits if they are from jurisdictions with statutory preferences for local creditors in a winding-up or if they have inadequate disclosure in the home jurisdiction. The main rationale behind the new policy is to improve the ability of the Reserve Bank to manage the

failure of a systemically important bank effectively and to ensure that retail depositors have access to the information they need to assess the risk of dealing with a particular bank.

In order to implement the new policy, regulations have been made under section 73(2)(g) of the Reserve Bank Act. These regulations prescribe additional matters to which the Bank must have regard when it considers applications for bank registration and in respect of which it can impose conditions of registration on registered banks. The additional matters prescribed in regulations include the size and nature of any part of the (proposed) bank's business, disclosure in the home jurisdiction and the priority of creditors in a winding up. The Bank is still consulting on the local incorporation issue with affected parties.

The work on innovative capital instruments (ie instruments that have both equity and debt characteristics) has involved looking at the components of capital and deciding whether capital instruments of a hybrid nature should be eligible for inclusion in tier one capital. We reached a preliminary view that such instruments should not be included in tier one capital because of our wish to ensure that banks will have a capital buffer in place that is not only adequate in size, but also of sufficient quality to withstand significant adverse events. The Bank will, however, be giving further consideration to the advantages and disadvantages of different types of capital instruments, in discussion with the industry.

Finally on the policy front, we have begun consulting with the banking sector on proposals for updating the statutory framework under which the Reserve Bank supervises registered banks. The proposed changes include amendments that deal with the restrictions on business names that include the word "bank" and its derivatives and refinements to the rules covering the registration and supervision of banks by the Reserve Bank. Some provisions need to be updated to reflect recent technological innovations and changes in banking practice. Other suggested changes help bring New Zealand into line with recognised international standards, while some others represent fine-tuning in the light of experience. There is also a proposal to add a new part to the Reserve Bank Act to clarify and make explicit the Bank's oversight interest and responsibility in the payment system in New Zealand. This

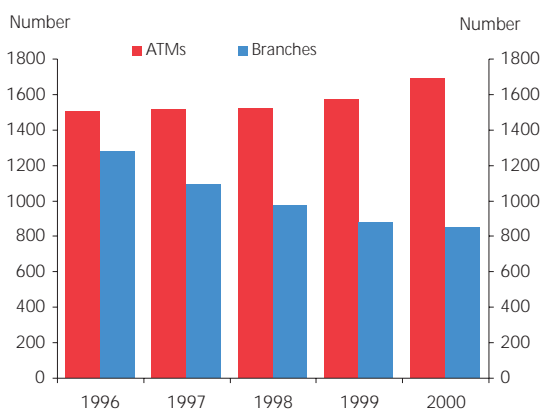
function has previously been conducted informally and the proposed new part is little more than a codification of the Bank's current role. Consultation on these changes should be finalised shortly and final recommendations will be made to the Government.

### 3 Structural developments

We comment now on some structural developments in the financial system. Last year we remarked on the expansion of electronic banking. This trend has continued. For example, all major banks are now offering online banking facilities. A recently published survey by KPMG<sup>1</sup> shows that the number of Internet banking customers increased rapidly during 2000 from 112,890 at 31 March 2000 to 345,130 at 31 December 2000. While the number of users continues to grow, globally there seems to be a recognition in the industry that the Internet will not, at least in the immediate future, replace the branch network and telephone channels for the delivery of banking services. While the number of bank branches has continued to decline, the pace of decline has slowed considerably compared with closures during the previous five years. Figure 1 shows the number of bank branches and the growth of automatic teller machines during the period from 1996 to 2000.

New Zealanders continue to be enthusiastic users of debit cards. Convenience and the fee structure that banks have put in place for electronic payments seem to be contributing

**Figure 1**  
Number of automatic teller machines and branches

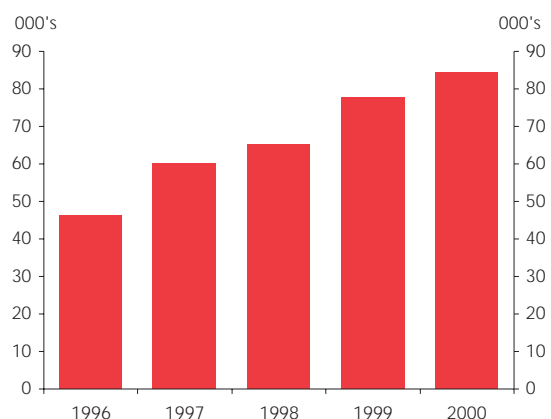


Source: New Zealand Bankers' Association

<sup>1</sup> KPMG, Financial Institutions Performance Survey 2001, April 2001.

to this growth. The convenience is evidenced by the growth in the number of Automatic Teller Machines and particularly in the number of electronic funds transfer at point of sale (EFTPOS) terminals in recent years. Figure 2 shows the growth in EFTPOS terminals over a four year period. These increased from 46,360 in 1996 to 84,351 at the end of 2000. On a per capita basis, the availability of terminals in New Zealand appears to be as widespread as in any developed banking systems overseas.

**Figure 2**  
Number of EFTPOS terminals

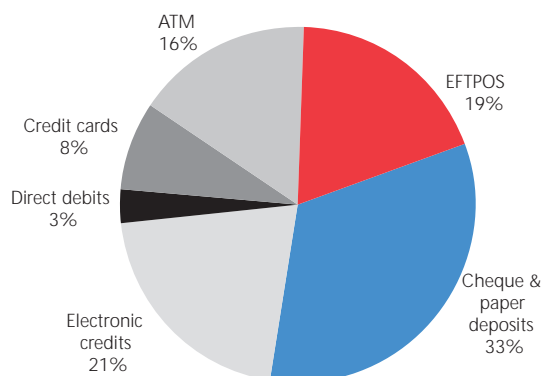


Source: New Zealand Bankers' Association

More evidence of the shift to electronic payments is provided in figure 3, which compares the number of non-cash payment transactions in 1996 and 2000. Cheque use as a percentage of total transactions continued to decline, although the total number of cheque transactions increased very slightly during the year. Figure 3 shows that cheque transactions accounted for 18 per cent of the volume of payments made in the year 2000, whereas EFTPOS transactions made up 32 per cent of the total. This is almost the reverse of the situation four years ago when cheques represented 33 per cent of the volume of payment transactions and EFTPOS transactions made up only 19 per cent. Credit card transactions also increased significantly during the year, with their use being boosted by the loyalty programs that have been put in place.

The number of registered banks stood at 18 as at 31 December 2000, an increase of one over the previous year, but this number has since declined to 17. A list of the registered banks as at 31 December 2000 is set out in appendix 1. The new entrant was Commonwealth Bank of

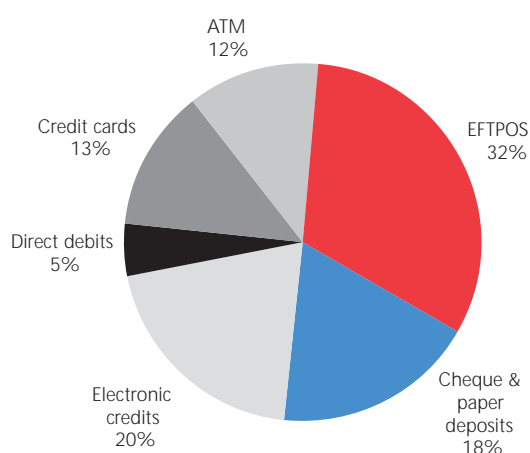
**Figure 3: Payment methods (1996)**



**Total number of transactions in 1996 was 1,070 million**

**Source: New Zealand Bankers' Association**

**Payment methods (2000)**



**Total number of transactions in 2000 was 1,515 million.**

**Source: New Zealand Bankers' Association**

Australia, which was registered as an overseas incorporated bank in June 2000. During the year, Commonwealth Bank of Australia also increased its shareholding in ASB Bank Limited, a New Zealand incorporated registered bank, to 100 per cent by purchasing the 25 per cent shareholding that was held by ASB Bank Community Trust. In March 2001, BNP Paribas SA, (formerly Banque Nationale de Paris SA), which had been an overseas incorporated bank since March 1997, relinquished its bank registration as part of a rationalisation of the bank's operations worldwide.

## 4 Financial performance of banks in New Zealand

The commentary in this section is based on data for the year to December 2000, compiled from registered bank disclosure statements. The data disclosed in the four quarterly disclosure statements for each bank over the calendar year have been aggregated where appropriate. Where there is more than one registered bank in a corporate group, totals have been adjusted to avoid double counting. Figures for BNP Paribas SA have been included, as the bank's registration was not relinquished until March of this year.

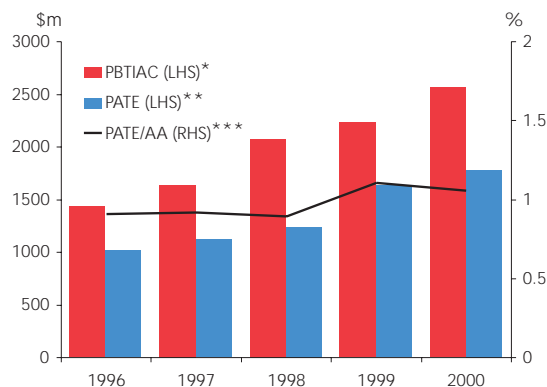
The results for the year 2000 show a banking sector that remains healthy, with many of the characteristics and trends we noted last year continuing. These included an increase in profitability, growth in lending, containment of costs and a further tightening of interest margins. The banking sector remains highly competitive.

### Profitability

Profits after tax and extraordinary items for the sector increased by 9 per cent for the year ended December 2000. This was down on the 32 per cent increase for 1999, but last year's increase was boosted by the dual effect of two extraordinary items – a \$107 million gain in 1999 on the sale of Bankers Trust funds management business and a lower 1998 figure as a result of a \$120 million restructuring charge recorded by one bank. As shown in figure 4, net profit after tax as a proportion of average total assets (the rate of return on assets) was 1.05 per cent, the second year in a row that it was above the frequently quoted benchmark of 1 per cent for international banks. Net profit after tax and extraordinary items as a proportion of average shareholders' funds (the rate of return on equity) for New Zealand incorporated banks was 23.98 per cent, up from 22.47 per cent in 1999.

The growth in banks' profit was the result of increases in both interest and non-interest income (refer to table 1 and figure 5). Net interest income, the largest component of banks' income, increased by 7 per cent during the period, compared with a 3.5 per cent increase in 1999. The increase was attributable to the growth in interest earning assets, which increased by just over 13 per cent for the second year in a row. The increase in net interest income occurred despite another drop in interest margins, a trend in recent years both

**Figure 4**  
**Profitability**

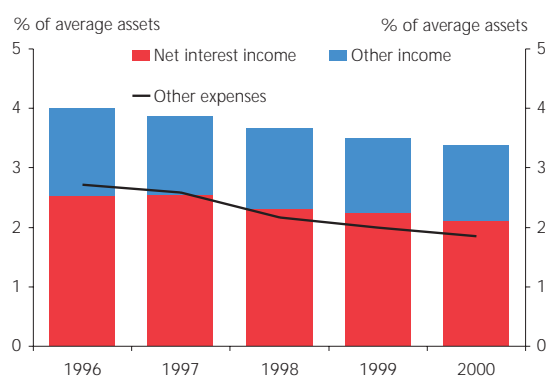


\* Profit before tax and impaired asset charge

\*\* Profit after tax and extraordinary items

\*\*\* Profit after tax as a percentage of average assets

**Figure 5: Income and expenses as a percentage of total assets**



in New Zealand and globally. The interest rate margin for the sector declined to 2.29 per cent in 2000, down 13.5 basis points from 1999.

Non-interest income, which is made up of items such as trading income, fees and commissions, grew by a strong 15 per cent during the year. In contrast, the growth rate for

the previous year was less than 1 per cent. However, as a proportion of assets non-interest income has remained unchanged. We have noted in past articles the trend, both internationally and in New Zealand, for banks to seek to diversify their revenue from other sources.

Ongoing containment of costs also contributed to the rise in profitability. Operating costs increased in dollar terms but continued to decline as a percentage of total assets. They have now fallen to 1.84 per cent from 1.99 per cent last year as banks continue to achieve cost efficiencies in an increasingly competitive market, as shown in figure 5. Another measure of cost containment is operating costs to total income. That ratio has also been tracking downward in recent years and was 54.8 per cent for 2000, with six banks having ratios below 47 per cent. In 1999 the average ratio for banks was 56.9 per cent, and as recently as 1997 the figure was above 65 per cent. The ratio has been dropping steadily in recent years as banks have controlled costs and achieved efficiencies by consolidating their branch networks, centralising and outsourcing services, and encouraging customers to use lower cost channels. In future, it may be difficult to sustain the improvements seen in recent years, as the major efficiencies available now seem to have been realised.

### Assets and liabilities

At the end of December 2000 banks held assets to the value of \$180 billion, which was up a strong 14 per cent on a year ago. Figure 6 provides a graphical representation of the growth in bank assets and their composition based on the data in table 2. As can be seen, growth occurred in all areas. Residential mortgage growth slowed to 7 per cent for the

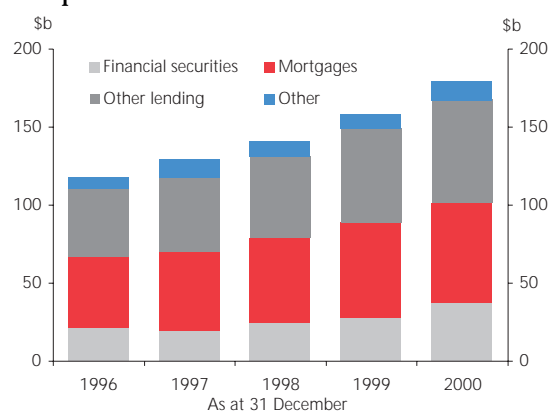
**Table 1: Aggregate income statement**  
*Year to December*

\$ million	1996	1997	1998	1999	2000
Net interest income	2,827	3,095	3,193	3,307	3,527
plus Other income	1,638	1,705	1,862	1,865	2,140
less Operating expenses	3,038	3,158	2,982	2,944	3,106
<b>Underlying profit</b>	<b>1,427</b>	<b>1,642</b>	<b>2,073</b>	<b>2,228</b>	<b>2,561</b>
less Impaired asset costs	-42	88	201	144	127
less Tax and other items	453	430	637	451	658
<b>Net Profit</b>	<b>1,016</b>	<b>1,124</b>	<b>1,235</b>	<b>1,633</b>	<b>1,776</b>

**Table 2**  
**Composition of assets**  
*As at 31 December*

\$ billion	1996	1997	1998	1999	2000
Investments	21.5	19.2	24.3	28.2	37.1
Mortgages	45.7	50.6	54.5	61.0	64.3
Other lending	43.9	48.3	52.5	60.3	66.3
Other assets	7.5	12.1	10.3	9.0	12.4
Total assets	118.6	130.2	141.6	158.5	180.1

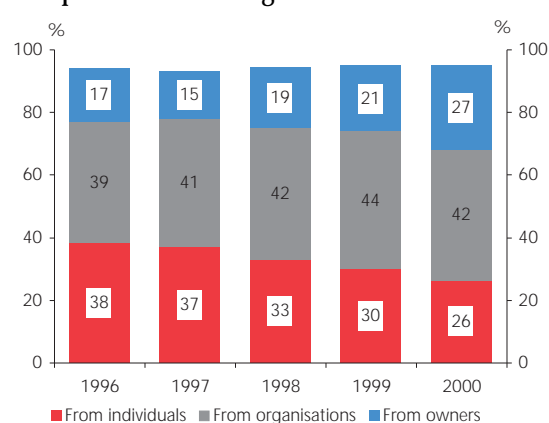
**Figure 6**  
**Composition of assets**



year compared with an increase of 10 per cent last year, with mortgages representing 49 per cent of total lending, down slightly from 50 per cent last year. Other lending increased by 10 per cent, compared with an increase of 14 per cent for 1999, and is now the dominant system asset at \$66 billion. Financial securities, a more volatile asset, stood at \$37 billion in December 2000, an increase of 31 per cent over the 1999 figure.

Figure 7 shows the sources of bank funding (ie the liability side of the balance sheet). The funding structure of the various banks is not uniform and varies depending on the markets in which the banks are active. Bearing in mind this qualification, for the banking industry as a whole the proportion of funding from individuals has continued to decline over recent years, in part as competition by the non-bank sector for household savings has increased. While funding from other financial institutions (ie wholesale funding) remains the dominant source of funds, bank owners have been contributing an increasing share of total funding. The proportion of funding from outside New Zealand has also been increasing steadily in recent years.

**Figure 7**  
**Composition of funding**



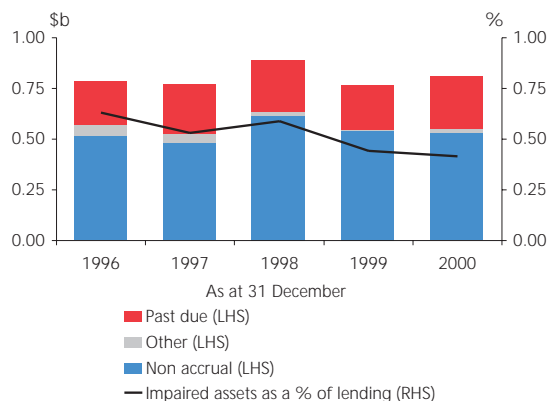
**Note:** Information for this graph has been extracted from half-year or end-of-year General Disclosure Statement. Therefore the data is either from 30 September or 31 December.

### Asset quality

Although there was some degree of pessimism among both consumers and businesses during 2000, significant parts of the New Zealand economy were operating at close to capacity and the economy grew moderately. Exports grew steadily as world demand raised the prices of most of the commodities that New Zealand exports. Towards the end of the year, there was a slowdown in the world economy as the United States economy slowed, as did the economies of Australia and some countries in Asia. Against this background, asset quality across the banking system remained strong during 2000. While there was a slight deterioration in impaired asset and past due asset levels, this came off a very low base and was not widespread.

Total impaired assets at the end of December 2000 stood at \$548 million, up from \$541 million in 1999. However, impaired assets as a proportion of total lending has been tracking downward in recent years (except for 1998), and

**Figure 8**  
Asset quality

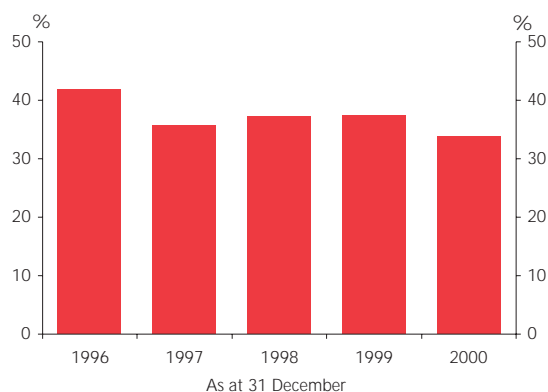


continued to do so again in 2000 (refer to figure 8). Impaired assets as a percentage of total lending fell to 0.42 per cent at the end of December 2000, from 0.44 per cent a year earlier. This compares very favourably both internationally and historically, possibly suggesting that further improvement may be difficult to achieve.

Past due assets (loans that have been in arrears for 90 days or more but where the bank does not expect to make a loss) increased by \$36 million during the year to \$259 million. This represents an annual rate of increase of 16 per cent, compared with a decrease of 13 per cent in the previous year.

Total provisioning for bad and doubtful debts increased by \$11 million. Total provisions as a percentage of lending have decreased slightly from 0.57 per cent in 1999 to 0.54 per cent in 2000. Specific provisions as a percentage of impaired assets also declined slightly during the year from 37 per cent

**Figure 9**  
Specific provisions as a percentage of impaired assets

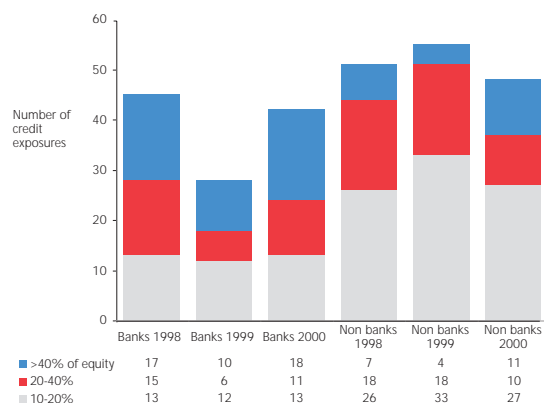


to 34 per cent (refer figure 9). All of this suggests that banks do not currently see the slight deterioration in impaired and past due assets as being the beginning of a significant worsening in asset quality.

### Large exposures

Banks are required to report large exposures to individual counterparties that exceed 10 per cent of the bank's equity. The number of exposures to bank and non-bank counterparties are reported separately. Because branch banks have few exposures in New Zealand which exceed 10 per cent of the bank's global equity, the measure is more relevant for New Zealand incorporated banks. Exposures to other banks are typically short-term, while exposures to non-bank counterparties are generally longer term in nature.

**Figure 10**  
Number of large exposures to bank and non-bank counterparties



As at 31 December.

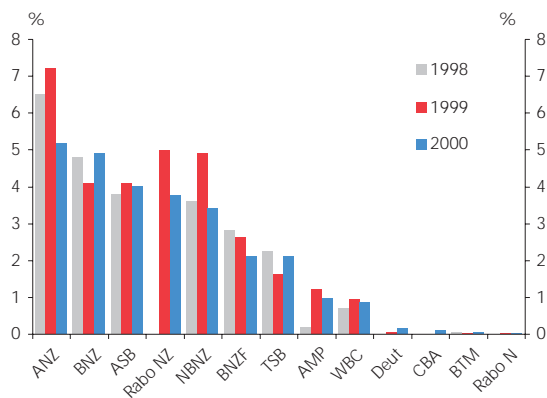
Figure 10 indicates the trends in large exposures at year end from 1998 to 2000. Last year we explained that the marked reduction in large exposures to banks at the end of 1999 primarily reflected changes to the institutional composition of New Zealand's banking sector, notably the purchase and amalgamation of Bankers Trust New Zealand Limited's business into a branch operation. As explained above, branches seldom have exposures that exceed the 10 per cent reporting requirements. At year end 2000, exposures to banks have increased in aggregate since the end of 1999 in all ranges. Exposures to non-banks have decreased in the 10 to 20 per cent and the 20 to 40 per cent of equity ranges but increased in the above 40 per cent of equity range.

Aggregate bank equity has also increased in recent years. The increasing equity base may accommodate some increase in counterparty credit limits in dollar terms without adding to credit concentration.

### Market risk

Market risk disclosure gives an indication of a bank's vulnerability to the change in the value of its on and off-balance sheet assets and liabilities arising from movements in market prices (interest rates, exchange rates or equity prices). Banks are required to disclose their level of market risk, by component, as an amount and as a percentage of equity.

**Figure 11**  
Peak interest rate risk as a percentage of equity



Note: See appendix 1 for full bank names

The largest component of reported market risk tends to be interest rate risk. Figure 11 shows details of peak interest rate risk for 1998, 1999 and 2000 for individual banks. As the graph shows, interest rate risk levels are small in terms of equity at risk for all banks, with no bank having a material risk position for the three years shown.

### Operational risk

Operational risk has become more of a focus for banks in recent years and generated considerable attention with the century date change. The banking industry successfully carried out a program of systems testing and contingency planning to ensure that systems would be able to cope with the date change.

The Basel Committee on Banking Supervision is proposing in its new capital framework that an explicit capital charge be made for operational risk. They see this as being a major source of risk in banking and expect, on average, 20 per cent of a bank's minimum capital requirement to cover this form of risk. There is no universally agreed definition of what operational risk is, but the Committee has defined it as "the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events".<sup>2</sup> Examples of operational risk caused by people are unauthorised trading, fraud, employee errors and dependence on key individuals. Operational risk caused by technology includes programming errors, computer viruses and security breaches. The risk can be a legal one, for example where a contract cannot be enforced, or a business interruption risk due to the failure of a key service provider, or flood, fire or earthquake.

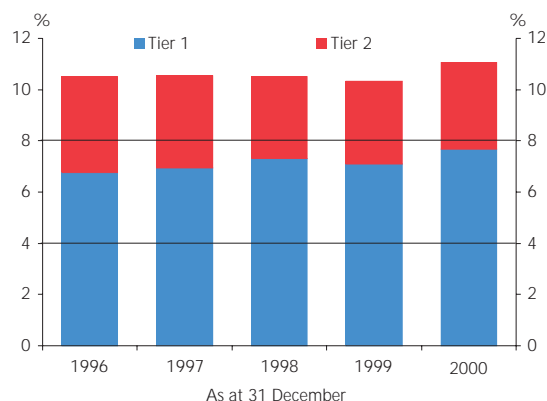
Operational risk management in banks involves management oversight, measurement and monitoring of risk, and the use of risk mitigation techniques. Internal audit and risk assessment units assist bank management in monitoring and managing the various types of risk. In recent years, the century date change and the Auckland power crisis were events where the banks' operational risk systems were put to the test and were found to cope well.

### Capital adequacy and credit ratings

Registered banks that are incorporated in New Zealand must maintain a tier one capital ratio of 4 per cent of risk-weighted exposures and an overall 8 per cent total capital ratio, measured using the standard Basel capital methodology. Overseas incorporated banks that operate as branches are not required to observe a capital requirement in New Zealand as they are subject to capital ratio requirements on their global operations in the country of incorporation. New Zealand incorporated banks remain comfortably above the minimum levels, as do the parent banks of overseas incorporated banks with operations in New Zealand.

<sup>2</sup> Basel Committee on Banking Supervision, Bank for International Settlements, *Consultative Document, Operational Risk, Supporting Document to the New Basel Capital Accord*, January 2001.

**Figure 12**  
Capital adequacy



As shown in figure 12 the aggregate total capital ratio of New Zealand incorporated banks increased to 11.05 per cent as at the end of December 2000, from 10.32 per cent a year earlier. Over the same period, aggregate tier one capital increased by 15 per cent compared with a 5 per cent increase in 1999, with higher retained profits in the capital measure being the main source of the increase.

Figure 13 shows the risk-weighted exposures for all registered banks. These increased by 9 per cent during the year 2000. Risk-weighted on-balance sheet exposures increased by 8 per cent during the year. Off-balance sheet exposures grew by 23 per cent, but represent only 9 per cent of total risk-weighted exposures.

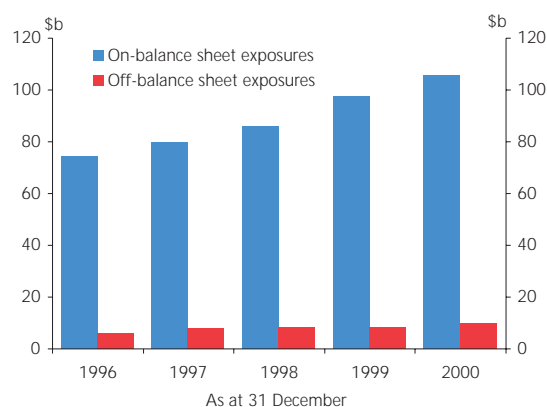
Another indicator of the financial strength of banks is the credit ratings that are provided by credit rating agencies. The credit ratings for New Zealand registered banks that have a rating portray not only a banking system that is financially

sound but also a system whose soundness is improving. The ratings of two banks were upgraded during the year and no banks were downgraded. As at 31 December 2000, 10 banks had a rating of AA- or above, whereas a year earlier only eight were in that group. A double A rating is the second highest in the rating scale and means that rating agencies judge these banks to have very strong capacity to pay interest and to repay principal in a timely manner.

## 4 Conclusion

The New Zealand banking system performed well during the past year. A profitability performance which achieved international benchmarks came from a combination of system asset growth, cost containment, and a rise in non-interest income. Interest margins continue to be squeezed in what is a highly competitive market. While there was a small rise in asset impairment, asset quality remained in very good shape. Measures of financial strength show a banking system that is well capitalised and highly rated by credit rating agencies. Developments overall seem to be well aligned with the Bank's goal of promoting a financial system which is both sound and efficient.

**Figure 13**  
Risk-weighted exposures



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## Appendix 1

### Registered banks as at 31 December 2000

#### New Zealand incorporated banks

<i>Registered bank</i>	<i>Owner</i>	<i>Abbreviation</i>
ANZ Banking Group (New Zealand) Limited	Australia and New Zealand Banking Group Limited	ANZ
ASB Bank Limited	Commonwealth Bank of Australia	ASB
Bank of New Zealand	National Australia Bank Limited	BNZ
BNZ Finance Limited	National Australia Bank Limited	BNZF
The National Bank of New Zealand Limited	Lloyds TSB Group plc	NBNZ
Rabobank New Zealand Limited	Rabobank Nederland	Rabo NZ
TSB Bank Limited	TSB Community Trust	TSB

#### Overseas incorporated banks

<i>Registered bank</i>	<i>Abbreviation</i>
ABN AMRO Bank N.V.	ABN AMRO
AMP Bank Limited	AMP
Bank of Tokyo-Mitsubishi (Australia) Limited	BTM
BNP Paribas SA	BNP
Citibank N.A.	CITI
Commonwealth Bank of Australia	CBA
Deutsche Bank A.G.	DEUT
Hong Kong and Shanghai Banking Corporation	HKSB
Kookmin Bank	KMIN
Rabobank Nederland	RABO
Westpac Banking Corporation	WBC

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# Recent trends in household financial assets and liabilities

Clive Thorp and Bun Ung, Economics Department

Financial markets serving households have undergone marked changes since they were fully deregulated from the mid-1980s. This article examines changing trends in the sources and allocation of household financial liabilities and assets since then in the context of a long-run perspective on changes in household wealth.

## 1 Introduction

The first long-run, comprehensive set of data series for household financial assets and liabilities published in New Zealand was introduced in the June 2000 Bulletin. While most of the data are obtained from regular quarterly and monthly surveys conducted by the Reserve Bank, an annual December survey is required to obtain comprehensive coverage. This article revises and updates the data series to 2000: all data are for calendar years. Unless they have required revision, definitions and explanations for the data series are not repeated here and can be found in the original article, available on the Bank's website ([www.rbnz.govt.nz](http://www.rbnz.govt.nz)).

This article first provides a five-yearly summary from 1980 to 2000 of the key household financial data and wealth series, with a brief commentary on overall trends. The summary data also serve as a context for a subsequent discussion on the market distribution of household financial liabilities and the disposition of household financial assets. The next two sections are on household financial liabilities and assets, using disaggregated financial aggregates from the summary to show trends in industry practice and household preferences.

## 2 Overview of key household financial data series 1980 to 2000<sup>1</sup>

### Key highlights

- Net household wealth, as a ratio of personal disposable income, has declined over 10 per cent from its peak in the mid-1990s to a level now similar to that of the mid-1980s.

- In 2000, housing represented over 80 per cent of the net wealth of New Zealand households, an increase from under 70 per cent in 1980.
- Household real net financial wealth (financial assets less liabilities), which was relatively constant from 1985 to 1995, has declined over 20 per cent since then.
- Household financial assets have increased 80 per cent in real terms since 1980, while household liabilities have increased 240 per cent.

### Market structure

Before examining the institutional composition of household liabilities and assets in more detail in the next two sections, it is useful to review the broad context for that exposition. Over the two decades to 2000, the allocation of household financial assets and liabilities among financial market structures has changed markedly, most notably from 1985 to 1995, as the radical restructuring of the financial system that began in 1984 took effect. Table 1 illustrates this changing pattern at five year intervals. The data are influenced by the rate of inflation, which averaged over 10 per cent per annum in the decade to 1990, but less than 2 per cent per annum in the ten years to December 2000.

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<sup>1</sup> Minor revisions apart, two notable changes have occurred to these series as a consequence of new work by Statistics New Zealand (SNZ). The implementation of SNA93 (System of National Accounts, 1993) standards for the national accounts, and data revision, delivered a revised series for household disposable income. This is lower than was published previously, increasing data values expressed as a ratio of disposable income. SNZ has also published data for direct equity investment overseas as at June 2000, with values substantially less than the tentative estimates we derived last year. This affects the ratio of financial assets and net financial wealth to household disposable income previously published. A technical discussion of the equity revision is contained in the appendix.

**Table 1**  
Household financial assets and liabilities 1980 to 2000

As at December \$ billion	1980	1985	1990	1995	2000
<b>Financial assets</b>					
Deposit-taking institutions	9	18	32	41	48
Other fixed interest assets	3	5	7	8	8
Life, super and managed funds	6	15	25	37	49
Direct equities	3	10	8	13	15
<b>Total financial assets</b>	<b>21</b>	<b>47</b>	<b>72</b>	<b>100</b>	<b>119</b>
<b>Financial liabilities</b>					
Large deposit-taking institutions	5	10	25	44	70
All other loan sources	2	3	3	4	7
<b>Total financial liabilities</b>	<b>7</b>	<b>14</b>	<b>28</b>	<b>47</b>	<b>77</b>
<b>Net financial wealth</b>	<b>13</b>	<b>33</b>	<b>44</b>	<b>53</b>	<b>42</b>
Housing value	29	69	113	155	184
<b>Household net wealth</b>	<b>42</b>	<b>102</b>	<b>157</b>	<b>208</b>	<b>227</b>

Source: RBNZ, SNZ, NZIER

## Wealth

The major household financial asset and liability categories in table 1 are summarised in table 2 and combined with housing value data to provide a wealth perspective, expressed as a percentage of personal disposable income. New data from SNZ on equities held directly overseas has reduced by over 15 per cent the total value of equities that would otherwise have been estimated at December 2000. Net household wealth in consequence is over 3 per cent lower. This fall is masked in comparison to data published last year because of the effect on net household wealth of the revisions to personal disposable income, which raise wealth ratios overall.<sup>2</sup>

As a percentage of disposable income, household financial liabilities almost doubled in the decade to 2000. Their growth rate outstripped the 1990s' growth in financial assets, which had picked up slightly from the 1980s, with the consequence that net financial wealth fell in 2000 to a level below that of 1980. Table 3 presents these data in real terms so that the relative values of household asset, liability and wealth categories can be more easily followed over time (the ratios to personal disposable income are unaffected, and remain as in table 2). Two striking features of the table are the relatively slow rate of growth of financial assets, and the very rapid growth of households' outstanding debt in the

**Table 2**  
Household financial assets, liabilities and real assets as a percentage of personal disposable income

As at December Per cent	1980	1985	1990	1995	2000
Equities	25	45	34	48	56
Other financial assets	115	127	131	145	131
<b>Total financial assets</b>	<b>141</b>	<b>172</b>	<b>165</b>	<b>193</b>	<b>187</b>
Financial liabilities	49	50	64	91	121
<b>Net financial wealth</b>	<b>92</b>	<b>122</b>	<b>100</b>	<b>102</b>	<b>67</b>
Housing value	197	253	257	299	289
<b>Net wealth</b>	<b>289</b>	<b>375</b>	<b>358</b>	<b>401</b>	<b>356</b>

Source: RBNZ, SNZ, NZIER

<sup>2</sup> See explanation in footnote 1.

**Table 3**  
**Real net financial wealth and net wealth\***

As at December \$ billion, 1980 values	1980	1985	1990	<i>ten year growth</i>	1995	2000	<i>ten year growth</i>
Equities	4	7	6	51%	9	11	104%
Other financial assets	17	20	22	28%	26	26	22%
<b>Total household financial assets</b>	<b>21</b>	<b>27</b>	<b>27</b>	<b>32%</b>	<b>34</b>	<b>38</b>	<b>39%</b>
Household financial liabilities	7	8	11	48%	16	24	129%
<b>Household net financial wealth</b>	<b>13</b>	<b>19</b>	<b>17</b>	<b>23%</b>	<b>18</b>	<b>13</b>	<b>-19%</b>
Housing value	29	40	43	47%	53	58	37%
Housing share of total net wealth	68%	67%	72%		75%	81%	
<b>Household net wealth</b>	<b>42</b>	<b>59</b>	<b>59</b>	<b>40%</b>	<b>71</b>	<b>72</b>	<b>21%</b>
Personal disposable income	15	16	17	13%	18	20	22%

\* The CPI is used as the deflator

Source: RBNZ, SNZ, NZIER

decade to 2000 compared with the 1990s, when debt nonetheless also grew faster than financial or real assets. Although the housing values that secured much of the increased borrowing by households doubled in the 20 years to 2000, they grew more slowly in real terms in the 1990s than in the 1980s, and in consequence, so did net household wealth.

While New Zealand's household debt has grown very fast since the late 1980s, when full financial market deregulation began to take effect, measured as a share of personal disposable income (see figure 1) it is at similar levels to other countries with deregulated financial markets. The rate of growth of household debt tends to divert attention from the fairly low rate of growth of financial assets, and their relatively low ratio to personal disposable income, in comparison with other developed OECD countries<sup>3</sup>. Furthermore, the share of household financial assets held in equities, directly and indirectly, at about 30 per cent, is 'in the middle of the pack': the low total financial asset ratio is not a function of asset allocation. Financial asset accumulation has taken second place to borrowing and the financing of housing, which was entirely understandable in the high inflation 1980s. From the early 1990s, strong economic growth, significant net inward migration and the loan market impact of earlier financial market liberalisation boosted borrowing for housing.

The June 2000 Bulletin article that introduced these data series discussed the institutional and other relevant economic

<sup>3</sup> See Thorp C and B Ung (2000).

and financial market developments that have influenced the way in which wealth aggregation has unfolded in New Zealand over the past two decades. Caution is required in interpreting these data and ratios in an international context. Net financial wealth, for example, is likely to be affected by home ownership ratios. Over 15 per cent of New Zealand's housing stock is owned directly by households in the form of rental properties<sup>4</sup>. In New Zealand, investment in private forestry plots is a significant alternative to financial investments. Moreover, the value of household investment in businesses not priced through a stock exchange is ignored in wealth calculations of the kind outlined here. Given the degree to which New Zealand commerce is dominated by small unlisted businesses, household wealth measurement using financial market data is underestimated. Other countries may have other, equivalent, non-financial investment practices, which in turn affect their financial market data values.

It should be noted that the household real wealth figure, comprising house values alone, also excludes a number of other sources of real household wealth, including consumer durables. In New Zealand, with its extensive family-based agricultural economy, the exclusion of net farm wealth is particularly significant. A conservative estimate for 2000 suggests that net real farm wealth attributable to households

<sup>4</sup> Census of Population and Dwellings 1996. Some 29 per cent of private dwellings are not owner-occupied, while Housing New Zealand provides about one fifth of all rented accommodation.

is over \$40 billion<sup>5</sup>, or more than a sixth of the \$227 billion figure shown for 'households' in table 1. The value of household durables and other material household assets may vary among countries to an extent that distorts comparisons based on more narrow definitions. These examples of factors relevant to inter-country comparisons are raised not to invalidate the broad conclusions that may still be drawn, but to indicate some of the limitations of the data in relation to the concept of 'wealth' of the household sector in any economy. Our focus here, however, is on the trends revealed in the New Zealand data through time.

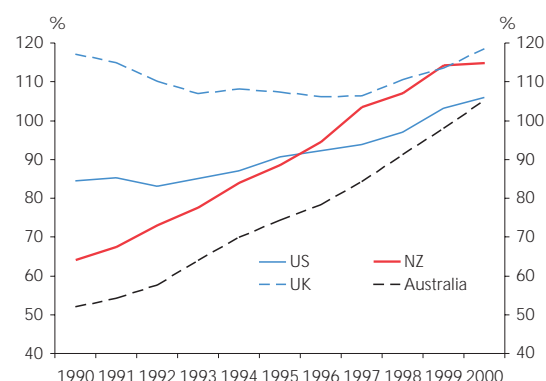
### 3 Household debt in the 1990s

#### Key highlights

- Household debt is highly concentrated, with five large banking groups holding over 90 per cent.
- Household debt market concentration increased markedly in the 1990s as government and solicitors' mortgage market sources became insignificant.
- Housing loans are about 85 per cent of household debt.
- Student loans have become the largest non-housing debt category.

New Zealanders are somewhat more indebted than households in most other countries, in relation to their income. Figure 1 compares the ratio of household debt to disposable income in Australia, the United States and United Kingdom to that of New Zealand since 1990<sup>6</sup>. These four countries' household sectors are among the most heavily indebted of members of the Organisation for Economic Co-operation and Development (OECD), a group of 30 developed nations. The four have similar home ownership ratios and household lending practices among financial institutions. New Zealand and Australia began the decade with much lower household indebtedness than the United Kingdom and the United States, largely because controls on household lending until the mid-1980s had constrained antipodean

**Figure 1**  
Household debt as a percentage of personal disposable income



Source: RBNZ, RBA

households. Since then, the pace of borrowing 'down under' has been faster than in the United States and United Kingdom, as individual households have borrowed to levels similar to those that obtained earlier in the United Kingdom and United States (although without the favourable tax treatment accorded housing borrowing in these two countries)<sup>7</sup>.

#### Lending market developments in the 1990s

This section examines the relative size and structure of the financial 'channels' that have delivered loans to households in the decade of rapid borrowing growth that has brought the ratio of household sector debt to disposable income to such relatively high levels.

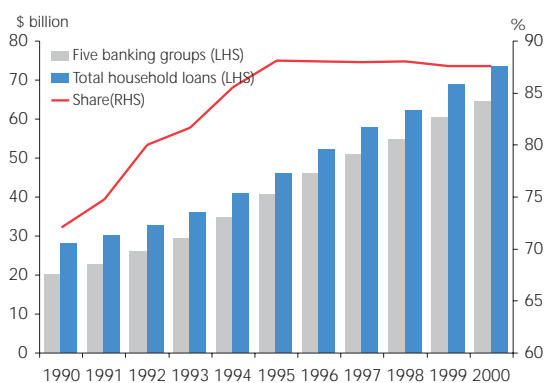
Savings banks and building societies already serving the household sector registered as banks, forming three of the seven large retail banking groups serving households at the beginning of the decade. At the turn of the millenium, mergers had reduced these seven to five banking groups. Already providing about 60 per cent of total household finance in 1990, their share had increased sharply to 88 per cent by 2000 (now represented by five banking groups), and over 90 per cent for residential mortgages. Adding the next five largest lenders to the household sector gives a total 94 per cent market share for the 10 largest institutions in the

<sup>5</sup> Estimate based on information from the Meat & Wool Economic Service of New Zealand and the Livestock Improvement Corporation.

<sup>6</sup> Student debt is excluded in these comparisons, as comparable data have been unobtainable.

<sup>7</sup> The main reasons for the New Zealand household borrowing trend from 1980 are canvassed in Thorp C and B Ung (2000).

**Figure 2**  
**Top five banking groups' share of total household debt**



household lending market (excluding student loans) as at December 2000. For residential mortgages alone the concentration ratio is even higher, at 97 per cent for the ten largest lending groups. For non-residential household lending, the top ten have a market share of about 70 per cent, with about half of this lending in the form of credit card advances. This degree of concentration is greater than in Australia, Canada and the United Kingdom (countries with similar banking systems) and much greater than in the United States, for example.

In 1990, \$4 billion, or 14 per cent of total household lending, was provided by non-bank institutions owned by the government. A further \$2 billion, or nearly 7 per cent of the market, is estimated to have been supplied through the solicitors' trust and contributory mortgage market. The latter may now be only 10 per cent of this size, and the government's current role, represented principally by the Housing Corporation, is negligible. Today's five large banking groups, compared on a 'like for like' basis in 1990 by adding back the merged financial institutions now part of them, dominated the private sector market in 1990, with well over 70 per cent of it. Figure 2 shows how they were able to acquire the government and solicitors' market shares between 1990 and 1995, from which time their loans to households, and those of all other lenders, have grown at the same rate.

Different types of loans to households can be allocated among classes of institution. Table 4 illustrates the distribution of several loan categories, on and off-balance sheet, among banks (not banking groups) and other lending sources. In December 2000, ten of the 18 banks then registered recorded \$60 billion of lending for housing. Several of them have managed fund subsidiaries offering units in fixed interest residential mortgage trusts. Together with other

**Table 4**  
**Household liabilities by type and holder**

As at December 2000	
<b>\$ million</b>	
	<b>Housing loans</b>
Banks (on-balance sheet)	60000
Non-banks	1500
Managed fund assets	1500
Securitised mortgages, <i>net</i>	2000
<b>Total</b>	<b>65000</b>
	<b>Other loans</b>
Banks	2000
All credit/charge card loans	2800
<b>Non-banks</b>	
Hire purchase	2000
Other loans	500
Securitised loans (HP)	500
Store cards	500
<b>Total</b>	<b>8300</b>
Student loans	3700
<b>Total household liabilities</b>	<b>77000</b>

Source: RBNZ, The Treasury

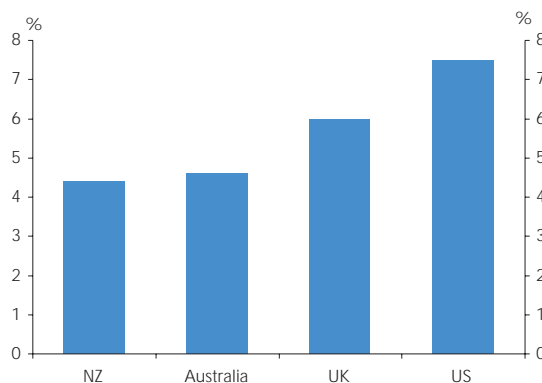
managed funds (including life and superannuation funds), these vehicles held around \$1.5 billion of residential loans or mortgage-backed paper. Building societies, credit unions, solicitors' trust and contributory mortgage sources, and more than twenty other institutions in our survey accounted for another \$1.5 billion in residential mortgage loans. Finally, the survey identifies about \$2 billion of securitised mortgages outstanding (not included elsewhere in portfolio), by far the bulk of them originated by banking groups.

Credit card debt has grown relatively quickly in New Zealand in the last few years, although it remains less than 4 per cent of total household debt. As noted elsewhere, several factors have contributed to this growth. Increased use of telephone and 'e-shopping', as well as the acceptance of credit card payment in supermarkets, have led to an increase in outstanding borrowing on credit cards, if only because the size of the 'float' not attracting an interest charge has increased with greater use. This use has been encouraged also by 'loyalty' programmes, offering airpoints and other forms of non-price inducement. Finally, a new market entrant and better software, enabling interest rates to be 'tiered' according to the amount borrowed, have reduced credit card loan costs.

Figure 3 illustrates the extent of credit card borrowing as a ratio of personal disposable income, indicating that the ratio in New Zealand is similar to that of several other countries. The figures for the US are slightly overstated, as they include other forms of personal non-residential revolving credit. (An estimate for store cards has been removed from the original flow of funds data.)<sup>8</sup>

It is important to recognise that the channels, or products, showing the forms in which householders borrow, and the classes of institution involved, do not correspond perfectly to the uses of funds borrowed implied by the label on the loan product or the name of the channel. This is particularly true of the housing loan category. 'Housing' loans in table 4 are all secured on residential property, but a proportion will not be for housing purposes. We have previously suggested, on the basis of industry estimates, that perhaps 10 per cent

**Figure 3**  
Credit card debt outstanding as a ratio of household disposable income, December 2000



Source: RBNZ, RBA, Bank of England and Federal Reserve

of the \$60 billion shown as housing loans in table 4 is applied to a business purpose, rather than to housing.

Some lenders' systems do enable them to track separately business and household borrowing secured on residential property. For this reason, the residential property data obtained from banks' disclosure statements, calculated from capital ratio data, are higher in aggregate than those provided here. The overstatement of personal lending that occurs when the security designation is used to indicate purpose should be borne in mind in considering the degree of indebtedness of households in tables 1, 2, and 3. The practice of using residential properties to secure borrowing by small businesses was not common before the 1990s, and will have exaggerated the trend growth rate of housing borrowing in these tables and figure 1.

For similar practical reasons, a significant amount – perhaps over \$2 billion – represented as housing lending, is likely to have been lent for personal non-housing purposes. These purposes will include the financing of cars (which is probably the major share of such lending), but they will also include borrowing for holidays, boats and share purchase, for example. A very large element of the 40 per cent share of floating rate loans secured on housing in New Zealand is provided with loan products that may be freely repaid and redrawn within the original limit, using telephone or internet banking transfers to a current account, for instance. Making loan use even more flexible, banks have introduced loan accounts, secured by residential mortgage, with chequebook

<sup>8</sup> Credit card totals for New Zealand are slightly lower than last year, as a revised survey has identified personal card borrowing only. New Zealand data in figure 3 includes a minor personal charge card component.

access, accounting now for about 15 per cent of the \$25 billion floating rate residential mortgage loan total. While most of the loan amounts in this category will be for house purchase, it will all be reported as house lending, as there is no way with such a product to distinguish purpose. Personal debt may in the main originate with the purchase of a house, but it is also used to support consumption. Loan practices introduced through the 1990s have made this easier to do than was the case earlier.

### Financial liabilities summary

There were three principal channels through which households borrowed at the start of the twenty year period covered by the tables in this survey. These were the government-owned Housing Corporation and a solicitors' and contributory mortgage market for housing loans, and a fragmented and varied institutional market (not dominated by banks) for housing and other personal purposes. Major financial policy and institutional changes, including the removal of funding constraints on financial institutions, took full effect from the second half of the 1980s in the context of widespread economic reform. Financial institutions found that they could fund new lending in a less constrained way than was previously the case, particularly from wholesale international sources.

These changes enabled households to increase their borrowing in relation to their income. The changes also whetted financial institutions' appetite for household lending. Households' strong demand for loans, coupled with financial market reform, led to the development of a highly concentrated financial market serving households' borrowing needs.

## 4 Household financial assets

### Key highlights

- Since 1990, households have directed more of their financial assets to managed funds than to deposits.
- Personal deposits in banks have increased very little since 1997.
- Unit trusts have been the fastest growing sector of managed funds.

- Since 1990, managed funds have switched the bulk of their equity investment overseas.

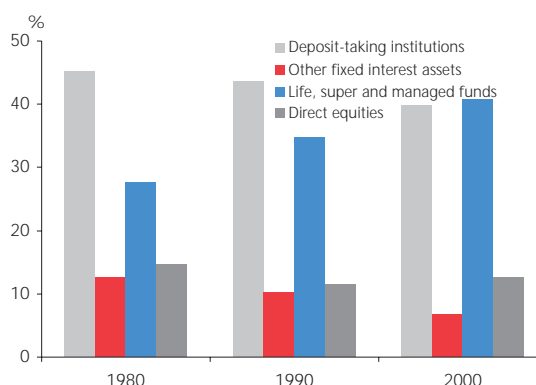
### Deposit-taking institutions

Twenty years ago the largest proportion of households' financial assets, nearly 45 per cent, was in the form of deposits with different classes of financial institution. While still large, that proportion is now lower and ranks second in size to financial assets held in life, superannuation and other managed funds (see figure 4). Other fixed interest assets are relatively less important now, as a result of the decline in demand for funds from the solicitors' trust mortgage market. Although equity investment has increased, this has mostly occurred indirectly through managed fund investment.

The legislation and regulations governing deposit-taking institutions in 1980 varied among banks, finance companies, savings banks and building societies, to name just four groups. These institutions were just beginning to adapt to the removal of deposit controls over the previous few years when controls were re-imposed from 1981 to 1984. The five commercial banks had the largest market share of household deposits in 1980, at over 25 per cent. The deregulation that occurred from the mid-1980s promoted more than ten years of consolidation of the institutional deposit market for household savings. By December 2000, deposits with the five largest banking groups accounted for over 80 per cent of total household deposits.

The growth of personal deposits at banks and other deposit-takers has been vastly outstripped over the twenty years to

**Figure 4**  
Household financial assets: share of total



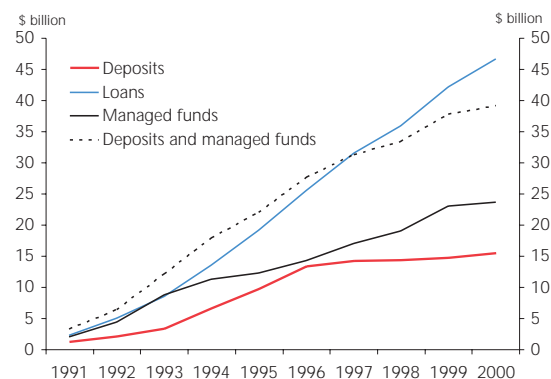
Source: RBNZ, SNZ

2000 by their personal lending. The appetite of households for loans was far greater than for deposits, and so deposit-taking institutions changed from being net borrowers from households in the 1980s, to net lenders to them in the 1990s. In many other OECD economies, banks' efficiency in lending to households has also outrun the attractiveness of their basic deposit products to the same market. Reflecting this, in some of these countries, household loans have been securitised, that is, sold off the balance sheet. These loans have mostly been bought by long-term savings vehicles and various types of managed fund. The funds' liabilities in turn are owned by the household sector. As a result, although banks generate more housing loans than they can fund from households on their balance sheets, households fund a substantial proportion of household lending by funding the longer term savings vehicles.

Securitisation has happened only to a limited extent in New Zealand. To make up their funding shortfall, banks have borrowed from non-residents. At December 2000, over 35 per cent of the total net deposits of 'M3 institutions' (all but one a banking group) was from non-residents. Figure 5 shows that from 1990, net new loan growth exceeded deposit growth by 1994 and the total of net new deposit and managed fund growth was surpassed by borrowing from deposit-taking institutions by 1998.

Since 1997, non-bank deposit-taking institutions have increased their share of household deposits from about 6 to 8 per cent of the total. A group of 15 to 25 smaller building societies and finance companies have increased their household deposits by 40 per cent, while bank deposits increased very little. This contrasts with the 1990 to 1997 period, when banks obtained 40 per cent of the total growth in household financial assets. In general, since 1997, the smaller institutions have paid higher deposit rates and earned the greater revenues to pay them from lending for non-housing purposes, particularly hire purchase lending, property development (often residential) and commercial mortgages. They have been able to attract deposits easily at the margins they pay over bank deposits, with their growth constrained only by the availability of higher return lending opportunities. In the process, the balance sheets of a number of institutions originally focused on household lending have over the past

**Figure 5**  
**Growth in household loans, deposits and managed funds from 1990**



Source: RBNZ

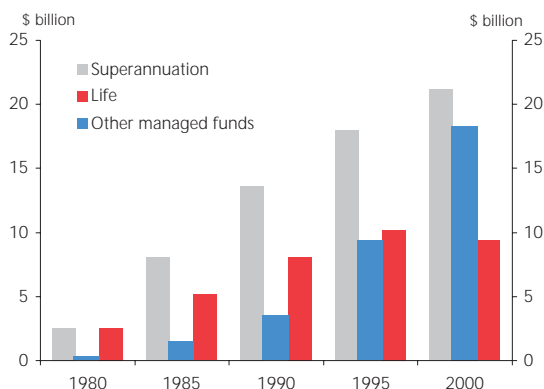
decade become more heavily weighted towards loans of a commercial nature.

### Managed funds

'Managed funds', throughout this article, refers to households' funds under management that are sourced from registered superannuation products, products with a life insurance component and other fund management products (almost all unit trusts). Life offices manage the greatest proportion of funds, having broadened their role to become fund managers and offer all three main product classes. Several registered banks have established managed fund subsidiaries, and there are a number of fund managers specialising in unit trust business. Merger and ongoing concentration has been a feature of this industry in the 1990s, as economies of scale have been sought. Unit trust products have grown fastest in the last decade, with life product assets under management declining. Trends in the value of assets invested in superannuation, life and other managed funds from 1980 are illustrated in figure 6.

Life insurance contributions were favoured with a taxation advantage over other forms of saving until the mid-1980s. The removal of this incentive and the growth of a vigorous term life insurance market meant that endowment and whole of life insurance products lost momentum in the 1990s. Superannuation funds under management in figure 6 include the funded portion of government employees' superannuation contributions.

**Figure 6**  
**Superannuation, life and other managed funds**



Source: RBNZ, The Treasury

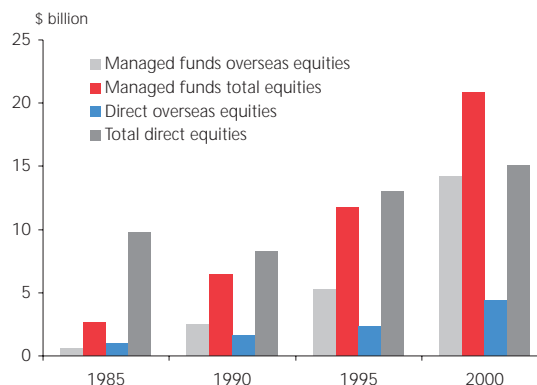
Funds managed in group investment funds offered by trustee companies are included with unit trusts in the “other managed fund” category, as is a small proportion of household funds under management in private portfolios. One reason for the stronger growth of unit trust assets since 1995, compared to superannuation, has been the different portfolio balance adopted; in particular, the degree to which unit trusts have invested abroad in equity markets, with currency impacts accentuating this in recent years. Within the superannuation category, employer-related superannuation became less common from the late 1980s. Retail superannuation products grew quite strongly from then and now represent almost 40 per cent of the superannuation market, exclusive of the funded proportion of the government employees’ scheme.

### Equities

The New Zealand domestic sharemarket had a predominance of directly held household shareholdings in the early 1980s, but by 2000 only a fifth of the market was held directly by New Zealanders. The growth of the managed funds industry offered diversification possibilities and undoubtedly encouraged more people to save in long-term vehicles, which in turn invested in the sharemarket. However, since 1995, managed funds have directed a greater share of their equity investment to overseas markets. By 2000 two-thirds of the value of their equity portfolios was invested overseas. Until 1984, households and institutions alike were prevented by exchange control regulations from owning shares overseas,

except under limited circumstances. From 1985, their overseas equity holdings have grown relatively rapidly, driven by the managed funds industry. Estimates of direct overseas shareholdings by New Zealand households suggest they did not grow as fast, but are nonetheless around 30 per cent of total direct equity holdings. Figure 7 illustrates this growth from 1985. The high proportion held offshore (50 per cent) of the total of equity holdings of New Zealanders in 2000 is unusual among OECD countries.

**Figure 7**  
**Managed fund and direct holdings of equities**



Source: RBNZ, SNZ

### Other fixed interest assets

Other fixed interest assets comprise local authority and government stock holdings, including retail issues of around \$1 billion, and retail bonds, estimated loans from households through solicitors and contributory mortgage companies, financial assets in property syndication and funds in solicitors’ trust accounts held in banks. The aggregate of these categories grew quite rapidly in the 1980s as demand for housing finance from solicitors attracted household funding and the government offered very competitive interest rates on its retail issues. Since 1990, both these markets have declined, with retail bonds and some growth in property syndication until recently roughly replacing these financial asset values, together with some growth in solicitors’ trust account funds at banks. This market is a relatively small proportion of total household financial assets, as a ratio of household disposable income, compared to the more developed and deeper markets in several other OECD

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countries. No estimate is made for direct overseas holdings of fixed interest securities and bank deposits.

### Financial assets summary

Growth of household financial assets across all markets and products in the last twenty years has in aggregate been slow in New Zealand in comparison to such growth in other countries. This has been the case despite relatively high real interest rates. One reason is likely to have been the drive to invest in housing from 1985, after the preceding 15 years of high inflation had demonstrated the value of doing so, and given the relatively low gearing of the household sector that then prevailed. Another possible explanation is that the domestic capital market has not been as attractive to domestic investors as has been the case elsewhere. International equity markets were relatively difficult to access directly before the mid-1990s. The ratio of financial wealth to real wealth in housing in New Zealand is one to four, which is low in relation to the range of results for OECD countries with relatively similar institutional and home-owning conditions. In 2000 there has been some evidence that the pace of housing investment has slowed. Over the next five years we might expect to see some improvement in the value of the gross net financial assets of households, as they rebalance their wealth holdings.

## 5 Conclusion

The borrowing needs of households in New Zealand are well catered for. The lending market's high degree of concentration is associated with vigorous competition for market share and efficient delivery of home loans. The transformation of the channels and sources of household loan delivery over the past fifteen years coincided with a period of economic restructuring and liberalisation. Up until 1985, households' access to housing finance had been

restricted. When controls were removed, much freer access to loans, and the lessons of the previous fifteen years of inflation, led New Zealanders to increase their borrowing for housing at a rapid rate. Financial industry development facilitated this, and in turn was spurred by the strong demand. These factors carried the momentum of household borrowing growth strongly into the late 1990s, despite the sharp fall in inflation from the start of the decade, and significantly higher real interest rates than were experienced on average in the 1970s and 1980s. Since 1998 there have been indications that households' appetite for loans has abated, as evidenced by flat house prices and, during 2000, the slowest rate of growth of borrowing experienced for more than twenty years.

With over a decade's experience of inflation averaging more than 10 per cent prior to 1980, the household sector received little encouragement to preserve its wealth in financial assets over this period. The removal of controls on financial markets in the second half of the 1970s was reversed early in the 1980s, retarding growth in innovation and flexibility in the household financial asset market. Once controls (including overseas exchange control) were fully removed from 1985, and with the new regulatory regime in place for banks by 1987, financial institutions were able to offer a greater range of products and channels for saving. The strong household investment in housing has been one reason household financial asset growth has been relatively slow. Also, over the last two decades, growth in household incomes has been slow, another reason for sluggish growth in household financial assets. In the 1990s, the managed fund industry in particular has rationalised its structure, with the emergence of fewer larger fund managers being a recent feature of this market. If the current relatively slower rate of growth of borrowing for housing persists, as seems likely, a faster rate of accumulation of wealth in financial assets may begin to be observed in the next five years.

## Appendix 1

### Equity holdings

The publication last year of data series for household equities separated households' equity holdings into four categories: direct and indirect, domestic and overseas. Indirect holdings, through managed funds, were available from existing surveys, as were direct domestic holdings. There was no ongoing survey to draw on for direct overseas holdings. A 'one-off' 1985 Reserve Bank survey of direct holdings in Australia had revealed almost \$1 billion of equities owned by New Zealanders in only 31 large companies. We adjusted this figure to \$1.6 billion to incorporate assumptions about greater Australian coverage and direct equity investment elsewhere. We revalued this over time by currency and equity market index changes. We then assumed that a further net \$3 billion had been invested directly overseas in the course of the 1990s and arrived at a total of \$11 billion in direct overseas equity holdings. This total was split roughly equally between Australia and the rest of the world.

Working with data from the Australian Bureau of Statistics, Statistics New Zealand has estimated a June 2000 figure for

direct equity investment in Australia by New Zealanders of about \$2.7 billion, or a little less than half of the 'guesstimate' our methodology would have produced for December 2000. Statistics New Zealand has further estimated that holdings elsewhere were \$2.1 billion. For Australia, these data imply that the value of the equity in the original survey has simply increased in line with changes in the values of the two currencies and the 'All Ords' index, with no net additional investment. One reason why this might have occurred is fairly rapid growth of managed funds from 1985, which may have encouraged people to exchange their direct holdings for the advantage of diversification in units in trusts invested in Australia. Another possibility is that equity holdings were exchanged for property ownership, to take advantage of the rapid growth in residential property values in Australia that occurred over this period.

We have recalculated our series for direct overseas holdings to align with the latest SNZ data. The results (with previous values in italics) are set out in table 5.

**Table 5**  
**Household equity holdings**

As at December \$ billion	1985	1990	1995	1999	2000
<b>Managed funds holdings</b>					
Domestic	2	4	7	8	7
Overseas	1	3	5	12	14
Managed fund total	3	7	12	20	21
<b>Direct holdings</b>					
Domestic	9	7	11	13	11
Overseas	1	2	2	4	4
<i>RB overseas estimate</i>	2	2	5	11	12
Direct total	10	8	13	17	15
<b>Total household equities</b>	12	15	25	37	36
<i>RB estimate</i>	13	16	27	43	44
<b>Ratio of total disposable income*</b>					
Equities to disposable income now	45%	34%	48%	61%	56%
<i>Former ratio</i>	48%	35%	52%	72%	69%

\* SNA 93 basis in both cases

Source: RBNZ, SNZ, NZIER

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# Market expectations of the official cash rate

Leo Krippner and Michael Gordon,<sup>1</sup> Financial Markets Department

The Reserve Bank is interested in expectations of the official cash rate that are held by financial market participants. In this article we discuss two formal methods by which the Bank measures these expectations; a direct survey of market surveys, and extracting OCR expectations indirectly from financial market prices.

## 1 Introduction

This article introduces issues related to market expectations of New Zealand's Official Cash Rate (OCR). The first part of the article discusses the general concept of expectations, and why the Bank is interested in OCR expectations in particular. The main part of the article is concerned with two formal approaches used to gauge market expectations of the OCR, namely, market surveys and extracting information from market prices. The article finishes with a discussion of the related research in progress at the Bank, and the potential for ongoing work.

## 2 What are “expectations”?

Everyone has some expectations about the future. For example, many people will have an opinion on the questions: Which team will win next year's Super 12 rugby final? What political party will win the next general election? Will it rain tomorrow, or next week, etc? Other people might not have an opinion, but are often willing to default to “expert” views on the matter.

Likewise, people may have specific expectations of the economy and financial market prices. For example, how much will GDP grow this year, and what will inflation be? Will interest rates or the exchange rate be higher or lower tomorrow? Next week? Next year? Some people even make a career of forecasting economic data and market prices (a “formal” expectation) for their own financial market trading, or to advise others. Other people's opinions might not be so

formal, but their savings and spending decisions may imply a view. For example, fixing a term mortgage rate today might be based on an expectation that floating mortgage rates are likely to rise in the future.

So an expectation, or forecast, is formed today for an event due at a future date. That expectation should incorporate all information currently available, and expectations will naturally change as new information is incorporated. For example, knowing the winner of this year's Super 12 final might shape opinions on next year's winner. On the day of the final next year, the half-time score will give an even more specific clue. Hence, expectations can change continuously right up until the event occurs (the Super 12 final full-time score). In financial markets, new information may take the form of updated indicators of how the economy is performing, advances in understanding “how the world works”, and completely unexpected events.

## 3 Why are OCR expectations useful to the Bank?

### Background

The Reserve Bank is responsible for implementing monetary policy to maintain price stability, and the OCR has been used since March 1999 for adjusting the stance of monetary policy. The OCR is reviewed at eight pre-announced dates per year; four associated with the (approximately quarterly) release of a *Monetary Policy Statement*, and four at reviews conducted roughly half-way between each *Monetary Policy Statement*.<sup>2</sup>

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<sup>1</sup> We thank Michael Reddell, Kelly Eckhold, and Geof Mortlock for extensive comments on earlier drafts. We also thank Philip Barker, Andrew Allan, and Michael Pearce for ongoing discussions on the topic.

<sup>2</sup> This is the normal mode of operation, although the Bank reserves the right to adjust the OCR at any time as required, in exceptional circumstances for example.

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Any change to the OCR is in multiples of 25 basis points, for example 25 or 50 basis points.<sup>3</sup>

Market participants usually have expectations about what the Bank will do, and often views about what the Bank “should” do. Of course, the Bank ultimately sets the OCR based on its own assessment of what is required to maintain price stability, but is interested in these market views and expectations as a “reality check” on its own thinking, and also because peoples’ expectations will influence how they react to an OCR announcement. Both of these points are expanded on below.

For convenience, we often refer to a collection of market participants’ expectations as “the market expectation”, implicitly taking for granted that “the market” is really a vast collection of independent individuals, each with potentially different expectations. For example, participants in “the market” will include traders, analysts, economists, investors, borrowers, both retail and wholesale, both domestic and offshore, and of both large and small financial size. Some will express their expectations by directly trading in markets, and others by way of commentaries or advice to market participants.

Typically, the Bank is most interested in the “average” market expectation, although the range of expectations is also of interest. In addition, it is often useful to have OCR expectations for different sectors of the market, if possible. For example, what do foreign exchange traders expect compared to interest rate traders? Or what do domestic participants expect compared to foreign investors? Does any sector, or individual participant, have a strongly held OCR expectation, with a substantial associated trading position?

### The “reality check”

One main use of market OCR expectations, particularly for horizons well into the future, is a “reality check” or “peer review” for the Bank’s own thinking. The market has access to much of the same information as the Bank, and the Bank’s objectives are clearly and publicly defined. However, uncertainty is a dominant feature in economic forecasting and setting monetary policy, and well informed people will

often have legitimate differences in their interpretation of the current state of the economic cycle, the economic outlook (and uncertainties associated with that outlook), and/or “the way the world works.”

If market participants do have a different assessment to the Bank’s broad view, this is likely to be reflected in expectations of the future OCR path that are different to the Bank’s own expectations. However, sometimes the market may generally share the Bank’s assessment of the broad economic outlook, but the difference in OCR expectations might only imply a different view of how the future effects of the exchange rate and interest rates are likely to combine to deliver the desired inflation outcome.<sup>4</sup>

How market expectations of the OCR change in response to individual data releases may also provide the Bank with information on what the market considers to be the key uncertainties in the outlook for monetary policy. For example, it might be useful to know whether the market is currently most sensitive to growth or inflation data, or information about particular sectors of the economy.

### Tactical considerations

In finalising the OCR decision and the accompanying statement, the Bank likes to have a reasonable assessment of their likely market consequences. What others expect the Bank to do will influence how they react to an OCR announcement. If the decision and the tone of the statement is expected, and regarded as appropriate by the market, then any market reaction to the release should be minor. Similarly, an unexpected OCR decision that is nonetheless widely regarded as appropriate by market participants should typically prompt a reaction consistent with the Bank’s policy intentions.

The situation could be different if the market is both surprised and disappointed with the Bank’s OCR decision, and/or the tone of the accompanying statement. For example, a decision

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<sup>3</sup> A basis point is 0.01 percentage points.

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<sup>4</sup> The Bank’s projections use technical assumptions for the exchange rate, rather than genuine forecasts. Market participants will generally forecast the exchange rate, and if those forecasts are materially different to the Bank’s projections, then the market’s expected OCR path may also be quite different. However, this difference would be “purely technical”.

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to raise the OCR that the market regards as inappropriate and unwarranted could prompt sharp selling of the currency, perhaps leaving overall monetary conditions easier than they were before the policy “tightening”. Several central banks saw this type of reaction last year.

The Bank reviews the reaction in financial markets after an OCR announcement. If the reaction is vastly different than the Bank expects, this could indicate that the Bank had misread market expectations, or the way the market would respond to the accompanying commentary. Or alternatively, perhaps only some individual sectors of the market, or even just some dominant market participants, were disappointed in the decision, and are trading quickly to “cut” unprofitable trading positions.

## 4 Gauging market expectations of the OCR

There is a range of ways the Bank can gauge market expectations of the OCR and the likely impact of the release of an OCR announcement. One important method is simply to talk freely with market participants from a wide variety of groups, discussing their individual views and trading positions, and noting anecdotal information on market flows. This source of information is available to the Bank due to the “neutral” relationship it has with many market participants (ie the Bank is not in competition with them), and obviously this information is strictly confidential between the Bank and those individual parties. Through a variety of contacts, the Bank can often construct a central view of market expectations of the OCR, and directly gauge likely market reactions, particularly with nuances of information that are not always widely available. Apart from that, the Bank also regularly reads market commentaries to stay in touch with individual views, particularly following important data releases that might challenge or alter those views.

In addition to market liaison, there are essentially two other obvious methods that the Bank can use to gauge market expectations of the OCR: monitoring formal surveys of market participants, or extracting market expectations from financial market prices. We now proceed to discuss these in more detail, before comparing these two methods later in the article.

## 5 Market surveys of the OCR

A survey is simply a collection of the opinions of selected individuals. In New Zealand, there are three reasonably regular and timely surveys of OCR expectations. These surveys are undertaken and published by Reuters, Standard and Poor’s MMS, and Westpac. There are other occasional surveys, for example by Bridge and Bloomberg.

The Reuters OCR survey is conducted among approximately twelve market analysts and economists of the major banks (including investment banks) that participate in New Zealand financial markets. Those participants are asked where they expect the OCR to be set in the upcoming review, and then at three-monthly intervals in the future. Publication is via Reuters’ own newswire service. Reuters’ surveys are fairly frequent but are sometimes irregular; in the past there have been as few as one and as many as five surveys between OCR reviews. Reuters often holds snap surveys after major events, such as OCR reviews or data releases, particularly if these events go against expectations. One notable feature of the Reuters’ survey is that it publishes the identity of individual forecasters with their forecasts, whereas the other surveys show only aggregate data.

The Standard and Poor’s MMS OCR survey includes forecasts from up to eleven respondents (a similar pool to the Reuters’ survey). Expectations are collected for the next three OCR announcement dates, and the published results include the high, low, average and median forecasts of the OCR for those dates. Typically the survey is held and published every Friday, although they are sometimes less frequent, particularly during holiday periods. The results are forwarded to survey participants, selected media, and some other recipients.

The Westpac OCR survey is the least frequent (monthly), but the most comprehensive, and it also draws opinions from a different section of the market. It includes forecasts from fourteen domestic fund managers for the next eight OCR reviews, ie all reviews for the next year. The published results cover the average, high, low, and median forecasts, and the distribution of responses for each OCR announcement date. The OCR question is part of a wider survey, and the results are limited to survey participants and selected recipients.

**Figure 1**  
**Example of 25 May 2001 Standard and Poor's MMS OCR survey**

Item/Event	OCR 4 Jul Review	OCR 15 Aug MPS	OCR 3 Oct review
Median	5.75	5.75	5.75
High	5.75	5.75	5.75
Low	5.50	5.25	5.25
Average	5.64	5.61	5.61
Mode	5.75	5.75	5.75
Standard deviation	0.13	0.20	0.20
Respondents	7	7	7

Source: Standard and Poor's MMS. Published with permission.

## 6 OCR expectations implied by market prices

Another way to measure market expectations of the OCR is to estimate the expectations implied from financial market prices. This is more complex than survey methods, but it does offer a useful complement to survey data. We first discuss the general background behind this method, and then discuss the approach to extracting OCR expectations being investigated within the Bank.

### OCR expectations and the "yield curve"

The OCR and OCR expectations influence many different financial market prices, but the focus of this article will be on the wholesale interest rate market. This market is essentially banks, major investors, and major borrowers transacting among themselves in very large amounts for terms ranging from one day to more than ten years.

The influence of the OCR and OCR expectations on the interest rate market is very powerful, though somewhat indirect. Without delving into the inner workings here, the interest rate on one day lending or borrowing (the "overnight cash market") is almost always at the OCR.<sup>5</sup> Hence, an investor will typically have a choice today between investing at a term rate, or investing for a succession of one day rates; at the OCR today, and at the OCR prevailing at each day in the future. Ultimately then, anyone investing in term rates is likely to have a view on the average expected OCR over

the term of the investment (and the same will apply to term borrowers).

As a specific example, consider a trader deciding today on the choice between a one day and two day term investment. He or she could invest at the two day rate of 6.10 (per cent per annum; omitted for clarity hereafter) that is currently available. The alternative is investing at today's one day rate (the current OCR) which is fixed at 6.00, and reinvesting tomorrow at tomorrow's one day rate (tomorrow's OCR).

Now, assume there is an OCR review due tomorrow.

If the trader fully expects no change to the OCR tomorrow, then it is obviously better to invest for the two day term at 6.10, rather than invest for one day at 6.00, and for one day again tomorrow at the expected 6.00. The latter would effectively be an investment at an average rate of 6.00 for the same two day period:  $(6.00 + 6.00) / 2 = 6.00$ , which is less attractive than 6.10.

However, if the trader fully expects the OCR to be raised to 6.50 tomorrow, then it is better to invest for one day at 6.00, and for one day again tomorrow at the expected 6.50, rather than invest at 6.10 for the two day term. The former would effectively be an investment at an average rate of 6.25 for the same two day period:  $(6.00 + 6.50) / 2 = 6.25$ , which is more attractive than 6.10.

Now, what if the trader thinks there is a 60 per cent chance that the OCR will remain at 6.00 tomorrow, and a 40 per cent chance of a change to 6.50? In this case, the known return for a 6.10 two day investment is identical to the return from the known one day investment at 6.00 today combined with the "expected" return for the one day investment tomorrow:

<sup>5</sup> Details regarding the introduction of the OCR system are contained in Archer, Brookes, and Reddell (1999). A related article is that of Brookes and Hampton (2000).

$(6.00 + [6.00 * 60\% + 6.50 * 40\%]) / 2 = 6.10$ . Hence, the trader should be indifferent between either choice, since the expected average rate is the same for both.

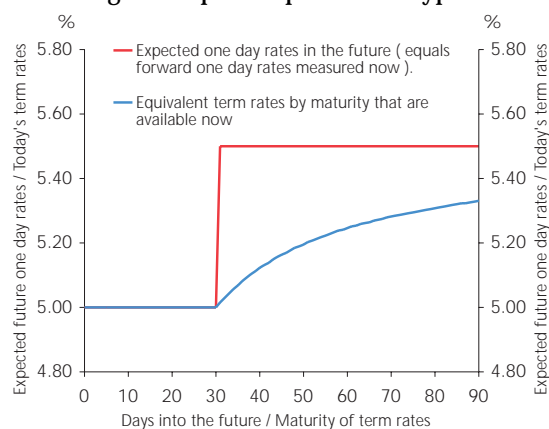
This example illustrates the assessment that all market participants make, either implicitly or explicitly. Their transactions reflect those assessments, and those transactions cause market prices to change until “the collective view” of the market is reflected in the two day term rate. Hence, the two day term rate of 6.10 in this example implies that the “average” market expectation of tomorrow’s OCR is 6.20 per cent.<sup>6</sup> If that “average” market expectation changes, then so should the two day term rate. By extension, term rates for longer maturities (eg three days, three months, or three years) should naturally reflect expectations of the OCR over those longer horizons.

It would be convenient if expectations of the future OCR were the only consideration that the market took into account when “arriving at” the appropriate two day term rate. In this case, we could calculate the implicit market expectation for the OCR tomorrow by simply calculating tomorrow’s “break-even one day rate” from today’s OCR and today’s two day term rate. That would be the 6.20 noted above. This “break-even one day rate” is known as the one day rate one day forward. Likewise, we could also calculate the implicit market expectation for the OCR in two days time, by using today’s two day and three day term rates to calculate the one day rate two days forward. This series of forward one day calculations could be continued indefinitely, so long as the term rate data for longer maturities exists to calculate it.

Technically, the series of term rates by maturity (6.00 per cent for one day, 6.20 per cent for two days, ..., 6.50 per cent for three months, ..., 7.00 per cent for one year, etc)

<sup>6</sup> Although we do not discuss it further in this article, the interpretation of the “average” market expectation is interesting in itself. In the example discussed in the text, the expected OCR of 6.20 could imply that *all* market participants put the chances of 6.00 or 6.50 at 60 per cent and 40 per cent respectively. Or 60 per cent of market participants could expect no change to the OCR, while 40 per cent could expect a change to 6.50. Or 80 per cent of market participants could expect a change to 6.25. There are obviously many other combinations of rates, probabilities, and proportions of the market that could correspond to an “average” expectation of 6.20 for the OCR.

**Figure 2**  
Expected one day rates and current term rates according to the pure expectations hypothesis



that are available today is known as the “yield curve”. From the discussion above, we could equally represent today’s yield curve as a series of forward one day rates (an example of this is shown in figure 2). Then, if market expectations of the OCR were the only factor responsible for the pattern of term rates along the yield curve, these forward one day rates should represent the market expectation of the path of the OCR going forward.

Some may recognise this as the “expectations hypothesis” of the yield curve. The expectations hypothesis has two direct implications. Firstly, that a term rate is defined *only* by the average of expected OCR rates (one day rates) over the term of the investment. Secondly (and equivalently) the expected OCR is *equal* to the forward one day rates calculated from the day-by-day term rates. Hence, if today’s term rates are above the current OCR, the path of forward one day rates would also be above the current OCR, and the implied market expectation (according to the expectations hypothesis) is that the OCR will rise over time. The stylised example in figure 2 illustrates the concept of today’s term rates being an average of the one day rates expected in the future.

As appealing as the expectations hypothesis is (since it makes the task of extracting OCR expectations a simple mechanical task of calculating forward one day rates from the yield curve of term rates), it does not accurately describe the “real world”. An investor must also consider other factors when deciding whether to make a term investment.

Two of the several other factors that have to be allowed for are “credit risk” and “liquidity risk”. Credit risk arises because

banks are private companies with limited shareholder liability, and there is naturally some risk of a company defaulting on interest or principal payments on their debt due to some adverse event that might arise during the term of the loan. Credit risk is allowed for by investors demanding higher term rates when lending to banks (or other companies) than they would if expectations of the OCR were the only consideration. Note that investments with no risk of default, such as deposits with the government, need no allowance for credit risk, and so bank term rates usually sit above government term rates for the same maturity.

Liquidity risk arises because investors often prefer to hold cash or short-term investments to cover themselves against unexpected cash needs that could lead to their own default or missed investment opportunities. Higher term rates are therefore required to induce investors to invest for longer periods. However, if an investment can usually be readily exchanged *before maturity* for a cash amount close to its quoted market value, then the allowance for liquidity risk need not be so large.

Together, credit risk and liquidity risk are the main elements of the "term premium"; the difference between the level of interest rates based on a pure expectations hypothesis of the yield curve, and their actual level in the "real world" when other practical factors are taken into account. Hence, when extracting OCR expectations from the yield curve, we must make some allowance for the impact of the term premium on the yield curve.

### Extracting OCR expectations from the yield curve

Creating an OCR expectations model based on wholesale term interest rate data that we can observe in the market essentially involves the following steps:

- Obtain the required term interest rate data. The analysis discussed in this article uses bank bill rates for standard maturities, and interpolates those rates to obtain day-by-day term rates.
- Calculate forward one day rates from the day-by-day term rates. This is a standard mechanical calculation, similar to the example noted in the previous section.

- Adjust the forward one day rates for an estimated term premium. Ongoing analysis within the Bank suggests that the "term premium function" associated with New Zealand bank bill rates is roughly a "wedge shape" that increases with maturity.
- Average the adjusted forward one day rates between OCR announcement dates. This is required because often the adjusted forward one day rates from the previous step show an "uneven" path between OCR announcement dates, when we actually know that the OCR will remain steady between scheduled announcement dates.

Readers interested in further background and detail on each of these points are referred to the appendix to this article. However, a reader mainly interested in a general overview may continue directly to the graphical example of the above process contained in the next section.

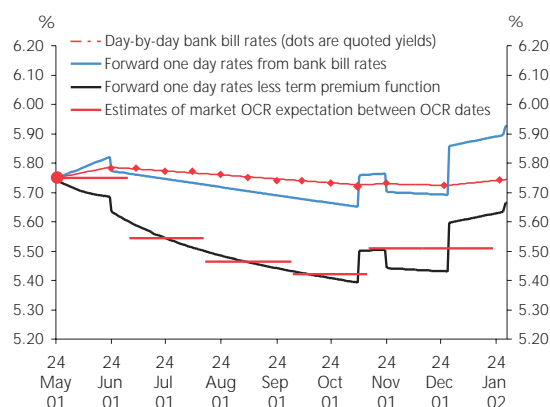
## 7 A summary example of the Bank's OCR expectations model

Figure 3 represents an example of the calculation of OCR expectations implied from bank bill rates quoted on 24 May 2001:

- The first line shows the dots indicating the quoted bank bill rates (as supplied by a wholesale interest rate broker) and the joining line shows the day-by-day bank bill rates calculated by linear interpolation.
- The second line shows the forward one day rates calculated from the day-by-day bank bill rates.
- The third line shows the forward one day rates less the appropriate value of the "term premium function" (which is illustrated in the appendix, figure A5).
- The fourth line shows the average of the adjusted forward one day rates for each OCR period. This line is therefore an estimate of the market's expectation for the future path of the OCR.

This example is indicative only, but it does illustrate some key points. If we had made no allowance for the term premium, it would appear that, as at 24 May, the "average"

**Figure 3**  
**Estimates of market OCR expectations**  
**as at 24 May 2001**



Source: RBNZ data and RBNZ estimates.

market expectation was that the OCR would remain “on hold” at 5.75. However, after allowing for the term premium, it actually appears that the market expected one further 25 basis point cut, to an OCR of 5.50, perhaps in the 4 July review, or more likely the 15 August *Monetary Policy Statement*. This result corresponds better to market surveys of the OCR taken at around the same time (for example, the average OCR expectations contained in figure 1 earlier).

Market participants often do this calculation in reverse. That is, they assume a path for the OCR, calculate the “underlying” term rates implied from that path, add an estimated term premium, and then compare the result to bank bill rates quoted in the market. The assumed OCR path is then adjusted until the calculated bank bill rates best match the bank bill rates quoted in the market.

## 8 Comparing the survey and market price approaches

### Advantages and disadvantages

Using surveys or market prices to gauge market expectations of the OCR both have advantages and disadvantages. It is worthwhile discussing these in tandem, because it is then apparent that both approaches are complementary.

The main advantage of OCR surveys is that the printed results are a *direct* gauge of OCR expectations held by market participants. Of course, the results themselves are subject

to interpretation, such as whether the mean or median of the survey is most representative of the market’s OCR expectation, but at least the “raw data” are definite. On the other hand, OCR expectations extracted from bank bill rates are an *indirect* gauge that requires significant estimation work to obtain reasonable results, and the results can differ depending on the data used and/or the estimation techniques applied. (In the appendix we note the uncertainties associated with estimates derived from a relatively short period of historical data.) Further to that, bank bill rates are only one market in which OCR expectations are reflected. In an ideal world, the effects of the OCR on other markets should be reflected back into the bank bill market, as markets are generally interconnected, but this will not always necessarily occur perfectly or instantaneously in practice.

However, surveys of the OCR also have some disadvantages. Firstly, surveys only contain a subset of opinions, rather than the opinions of the entire market (ie a survey is a sample, rather than a census of the market). Sometimes offshore fund managers, for example, may have completely different expectations of the OCR than the domestic market. Further, the small number of participants in the OCR surveys means that measures of the average and distribution of OCR expectations may be unreliable, particularly if the survey coverage is not consistent from survey to survey. By contrast, the major advantage of OCR expectations implied from financial market prices is that they *should* effectively include the opinions of all market participants. That is, financial market prices may be seen as a type of census, which should be more representative of “the market” than a survey.

Another disadvantage of surveys is that they are not very timely or frequent, at least by the standards of financial markets, where expectations and market prices can change continuously. As noted earlier, the Bank wants to know how market OCR expectations change due to particular events, but this is not possible if a new survey is not available after each particular event. Rather, the changes in expectations between surveys will be due to all of the new information received by the market since the last survey. Indeed, the time between conducting a survey and publishing it may mean that even “fresh” published surveys are sometimes out of date. Changes in financial market prices are very timely and frequent, since market participants have a financial

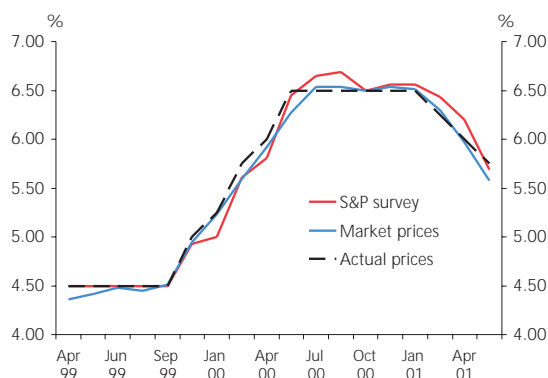
incentive to react quickly to evolving circumstances. Hence, expectations derived from market prices may be updated continuously, so the impact of individual events on OCR expectations can be ascertained.

That said, some of the disadvantages noted for surveys are not as major as they might seem. The opinions of analysts from major banks and fund managers are probably a reasonable representation of the total market, since they are large participants in the New Zealand market, they keep in touch with many market participants, and they also tend to influence others with their opinions. Likewise, the disadvantages for implied OCR expectations are not necessarily that major: in the appendix we discuss practical guidelines for choosing the appropriate interest rate data, and any data that meet these criteria will likely yield similar estimates of OCR expectations. There are also standard guidelines available for the appropriate statistical estimation of the “term premium function.”

### A quantitative comparison

Figure 4 below shows a comparison of OCR expectations over time. It is apparent that surveys and prices are typically very close, which is a good illustration of how the OCR expectations from both sources complement each other. In principle, one would expect survey expectations and market-based expectations to be close, since markets are dominated by institutions that the surveyed economists and analysts work for.

**Figure 4**  
Market surveys and market-implied OCR expectations over time



Source: RBNZ data and RBNZ estimates. Standard and Poor's MMS survey data used with permission.

However, the results from the two methods are not always exactly consistent, and occasional divergences do occur. For example, implied OCR expectations may sometimes be distorted by abnormal market flows, and periods of market illiquidity. Market surveys may sometimes be misleading if new information is released between the survey being undertaken and its publication, or if there is a change in the survey coverage, for example. In the continued theme of this article, such differences between the two methods can be useful information; if the divergence becomes large, this raises a “flag” that something unusual may be occurring in the market. In turn, the Bank might then put greater weight on our direct conversations with market participants.

Figure 5 below contains a statistical summary of forecast errors (expectations less the actual OCR set later) of market surveys and OCR expectations implied by bank bill rates. Each of the market survey results has been calculated using the most recent survey available before each OCR review, and these surveys are sometimes up to a month old. OCR expectations extracted from bank bill rates have been calculated using data recorded a week and a day ahead of the OCR announcement date.

The important point from figure 5 is that none of the survey results or market price results are “consistently wrong”, ie average forecast errors from both methods are essentially unbiased. This at least suggests that neither of the methods (or individual surveys) give consistently misleading results. Regarding forecast accuracy, on the face of it the standard deviations in figure 5 indicate some variation in the reliability of the different expectations. However, this mostly reflects the differences in timing of the surveys relative to the upcoming OCR announcement date. For example, the (monthly) Westpac survey of institutional fund managers *appears* least accurate, but those expectations of the upcoming OCR are sometimes made up to a month before the OCR announcement date; the participants of other surveys and implied OCR expectations have more up-to-date information to work with. A genuine comparison of “forecasting *ability*” would at least require expectations to be recorded at the same time, so each expectation is formed with equal information.

**Figure 5**  
**The accuracy of market surveys and market-implied OCR expectations**

Method	Forecast error	Immediate	1 Period ahead
S&P survey	Average	-0.1	3.6
	standard deviation	8.5	16.1
Reuters survey	Average	2.3	-1.3
	standard deviation	7.5	32.5
Westpac survey	Average	3.2	10.5
	standard deviation	12.3	27.0
Market prices 1 day prior	Average	-1.1	-5.1
	standard deviation	4.2	9.8
Market prices 1 week prior	Average	-1.2	-1.2
	standard deviation	6.2	13.3

**Note:** Statistics are in basis points.

**Source:** RBNZ calculations from RBNZ data, some of which are recorded from the original Standard and Poor's MMS, Reuters, and Westpac surveys. We thank each for the use of their data, which is used here with permission.

But in any case, since the Bank sets the OCR, it does not require a forecast! The Bank is interested in OCR expectations in their own right.

## 9 Conclusions and ongoing work at the Reserve Bank

This article has introduced many issues about OCR expectations; in particular why the Bank is interested in them, and how to gauge them through several complementary approaches. It is also a useful "stock-take" for the Bank, as a review of past work, and in setting the scene for several avenues of ongoing and related research.

Several of these avenues are specific to extracting OCR expectations from market prices. The most important ongoing work is to refine the estimate of the "term premium function" as more data become available. From there, it may be useful to test whether the term premium varies in a predictable or stable way: over time; with the general level of interest rates; the general slope of the yield curve; interest rate volatility; and/or the market's perception of the Bank's "bias". Other avenues of research are to compare implied OCR expectations with survey expectations in a systematic way. Once again, any predictable or stable relationship might

prove valuable in providing the Bank with more information about market dynamics related to OCR expectations.

Finally, after looking at these aspects for New Zealand, it will be useful to compare the results against those obtained for other countries where an official rate is also used to adjust the stance of monetary policy.

## References

- Archer, D, A Brookes and M Reddell (1999), 'A cash rate system for implementing monetary policy', *Reserve Bank of New Zealand Bulletin*, March, p 51-61.
- Bank for International Settlements (1999), "Zero coupon yield curves: technical documentation".
- Brooke, M and N Cooper (2000), 'Inferring market expectations from money market rates', *Bank of England Quarterly Bulletin*, November, p 392-402.
- Brookes, A and T Hampton (2000), 'The official cash rate one year on', *Reserve Bank of New Zealand Bulletin*, June, p 53-62.
- Gravelle, T (1998), 'Extracting market expectations at the Bank of Canada', Centre for Central Banking Studies.
- Hamilton, J (1994), '*Time Series Analysis*', Princeton University Press, p 571-629.

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Hawkesby, C (1999), 'A primer on derivatives markets', *Reserve Bank of New Zealand Bulletin*, June, p 24-43.

Krueger, J and K Kuttner (1995), 'The Fed funds futures rate as a predictor of Federal Reserve policy', Chicago Board of Trade.

Nelson, C and A Siegal (1987), 'Parsimonious modelling of yield curves', *Journal of Business*, October, p 473-489.

Paquette J and D Streliski (1998), 'The use of forward rate

agreements in Canada', *Bank of Canada Review*, Spring, p 57-78.

Stock, J and M Watson (1993), 'A simple estimator of cointegrating vectors in higher order integrated systems', *Econometrica*, vol 61, p 783-820.

Svensson, L (1995), 'Estimating and interpreting forward rates with the extended Nelson and Siegal model', *Sveriges Riksbank Quarterly Review*, vol 3, p 13-26.

## Appendix: Extracting OCR expectations from market prices: data selection, manipulation, and the term premium

### Choosing the interest rate data

From the discussion on OCR expectations implied from market prices in the main text, the interest rate data we require is a series of term rates (ie a yield curve) with day-by-day maturities, which we can then use to calculate forward one day rates. Banks would offer term rates for any maturity if specifically asked by an investor, but they don't actually "quote" a series of term rates with day-by-day maturities through the wholesale broker. (Access to this information is available via electronic information services, such as Reuters, Bridge, or Bloomberg but is limited to selected recipients.) Rather, banks tend to quote indicative term rates for standard maturities (such as a one month rate, and a three month rate), with the implicit assumption that similar rates would apply for terms "close" to those standard maturities.

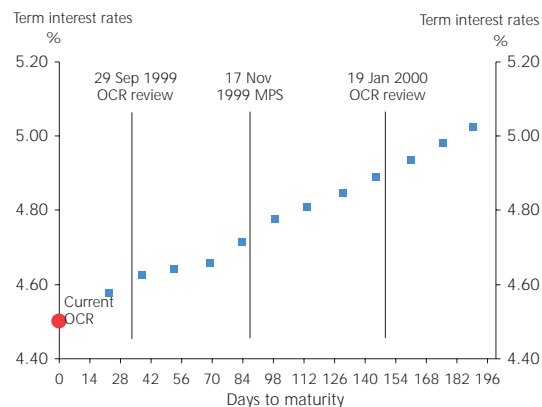
So we have to choose a series of quoted term rates that we can use to estimate a yield curve with day-by-day maturities. Interest rate quotes readily available in the New Zealand market include Treasury bill rates, bank bill rates, and derivatives on the latter.<sup>7</sup> Given the choice, it is best to select a set of interest rate data from a "liquid" market, and with "high density" on the yield curve.

Liquid in this instance essentially means an interest rate market that is traded frequently in reasonably large volumes. Liquidity ensures that the rates are likely to reflect the up-to-date views of many market participants that are trading, and eliminates other potential problems associated with low trading volumes. In the New Zealand context, this liquidity requirement rules out using Treasury bills rates to gauge OCR expectations, although this market is very liquid in other countries. However, New Zealand bank bill rates are sufficiently liquid; they are frequently quoted and traded among banks in the New Zealand market, and are used as investments by fund managers, and as benchmark or reference rates for borrowers.

"High density" on the yield curve simply means getting as many term rate quotes as possible, so as to obtain the best approximation to the day-by-day term rates that we

<sup>7</sup> For more discussion on interest rate derivatives, see Hawkesby (1999).

Figure A1  
Quoted term rates by maturity on  
23 August 1999



Source: RBNZ data

ultimately require for calculating forward one day rates. At the very least, it is desirable to have at least one interest rate quote corresponding to a maturity between two successive OCR announcement dates.

Figure A1 illustrates this concept. We have plotted the quoted bank bill rates as at 23 August 1999, and have also indicated the three OCR announcement dates that fell within the period covered by the longest bank bill maturity (the 29 September 1999 review, the 17 November 1999 *Monetary Policy Statement*, and the 19 January 2000 review).

Bank bill rates are quoted for maturities in each half-month (late September, early October, etc), and therefore four observations fall between each of the OCR announcement dates in this example. However, bank bill rate quotes for maturities greater than six months are sparse in the New Zealand market, so beyond this maturity we extend the yield curve out to longer maturities using forward rate agreements on bank bills or FRAs.<sup>8</sup> These are quoted with month-by-month maturities out to twelve months.

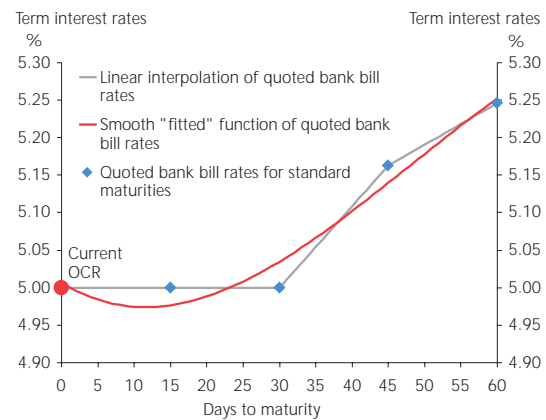
<sup>8</sup> FRAs are an agreement to lend or borrow at a specified future date, for a specified term, at a rate agreed today. They are a derivative of bank bill rates similar to bank bill futures, and can be transformed to a form equivalent to long maturity bank bill rates. Hence, the discussion of bank bill rates in this article should be taken to include the transformed FRA data that is also used. For more discussion on FRAs and bank bill futures, see Hawkesby (1999).

Some market participants use bank bill futures rates to define the yield curve. Futures rates are similar to FRAs, and have the relative advantage of being more liquid, but the disadvantage of a low density on the yield curve (since they are only quoted three months apart: March, June, September, and December). This means that estimations of OCR expectations based only on futures rates would sometimes reflect the combination of OCR expectations for two OCR announcement dates.<sup>9</sup>

Having opted to use quotes for bank bill rates, we need to estimate bank bill rates for each day-by-day maturity. The easiest way to do this is simple linear interpolation. This also has the advantage of retaining the “kinks” of the yield curve. In New Zealand, as in many other countries, kinks arise primarily because the market expects changes to the OCR only on pre-announced dates. For example, the stylised example in figure 2 showed a kink in the yield curve at the 30 day term rate, because future one day rates were expected to “step up” to a higher level in 30 days time.

An alternative approach to interpolation is to fit a “smooth” function to the observed bank bill rates to provide a continuous function of maturity. Apart from being more complicated, this approach may “mask” useful information regarding the timing and magnitude of OCR expectations by smoothing out kinks in the quoted market rates.<sup>10</sup> If OCR reviews were conducted very frequently, or often occurred between pre-announced dates, then the information lost with this approach may not be great. However, neither of these practices are part of the Bank’s approach, and so a “smooth” function model is not likely to be very applicable for gauging OCR expectations in New Zealand.

**Figure A2**  
Estimating all term rates from quoted term rates



The stylised example in figure A2 illustrates both methods. In this example (as in practice) we only observe the rates for bank bills maturing every fifteen days, as shown by the dots. It is obvious in this particular example that bank bill rates fitted using a smooth function (a cubic polynomial spline) are a poor approximation to the actual bank bill rates. This would cause the associated forward one day rates to be a poor approximation to “true” forward one day rates, and hence implied OCR expectations would also be misleading.

The results from either interpolation or yield curve fitting will be affected by the exact maturity date of the bank bill within the half month. This can make a material difference to implied OCR expectations when the yield curve is steeply upward sloping or downward sloping. In a steeply upward sloping yield curve, bank bill rates will generally apply to a date towards the end of the half month. This is because in transactions purely between banks, the borrower decides the exact maturity, and it is more advantageous to borrow “to the end”. For example, if faced with borrowing for 31 days (to the last day of one half month) at 6.12, or 32 days (to the first day of the next half month) at 6.20, most will prefer the 6.12 rate for a single day’s difference. Similarly, in a steeply downward sloping yield curve, the bank bill rate will generally apply to a date near the front of the half month. This practice gets reflected in the rates quoted to other participants in the wholesale market, such as fund managers and large borrowers.

Once we have estimated the bank bill rates for each maturity, we can mechanically calculate forward one day rates from

<sup>9</sup> For major international markets, it is common practice to use overnight indexed swaps or futures based on an overnight interest rate to gauge official rate expectations directly. These are not established in New Zealand.

<sup>10</sup> We are not aware of anyone in the New Zealand market that uses a curve fitting approach for the bank bill curve. However, there is a model commonly used in many central banks for calculating interest rate expectations that is based on fitting the whole yield curve, and using this model would smooth the kinks. The model is discussed in Nelson and Siegal (1987), and it has also been modified by Svensson (1995). Discussion of both of these models and the extent of their use is contained in the Bank for International Settlements (1999) publication.

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the bank bill curve. Then we must allow for the term premium.

### Adjusting for the term premium

We have already discussed why a term premium should exist. We can also plainly observe that bank bill rates sit materially above the OCR even during periods when market analysts and other market participants unanimously expect no change to the OCR. So even casual observation suggests that a term premium is present. Therefore, assuming the pure expectations hypothesis in an OCR expectations model would tend to overstate the "true" path of the OCR expected by the market.

More formal preliminary research by the Bank (summarised below) confirms that a term premium does indeed exist, and it also increases with maturity. This result also accords with international evidence and practice.<sup>11</sup> The key task remaining is then to estimate the form and size of the term premium.

### Estimating the term premium

If credit risk were the only influence on the term premium, then it could be calculated quite easily as the difference between the Treasury bill yield curve (with no default risk) and the bank bill yield curve. This approach is used by some market participants in New Zealand, but a judgemental allowance is required for (the often variable) liquidity risk, and the fact that even the Treasury bill yield curve tends to have an upward slope when no change in the OCR is expected.

Another approach is to estimate the term premium using historical bank bill rate data. One such approach is to use the simple average of a short-term bank bill rate less the OCR over a suitable period of time as the estimate of the term premium. For example, some participants in the New Zealand market calculate the average difference between the one month bank bill rate less the OCR, excluding periods when the maturity of the one month rate extends over the next OCR announcement date. This will generally give a reasonable estimate of the term premium associated with

OCR expectations on a short horizon, and therefore it can be used to reliably gauge estimates of the implied OCR for at least the next OCR period.

However, this approach does have some drawbacks. Most importantly, it does not allow for a term premium that increases with maturity. Indeed, this method of estimating the term premium cannot be reliably used for longer horizons; if the maturity of the bank bill rate regularly extends over an OCR announcement date, then this term premium estimate would become "mixed in" with any expectation of future changes to the OCR.

The analysis discussed below is based on a statistical (econometric) approach to estimating the term premium from historic data.<sup>12</sup> Essentially, this involves calculating forward one day rates ("predictions" of the one day rate) from past yield curve data, and comparing these with the levels where the OCR was later set. Of course, the "prediction error" may be due to new information received subsequent to the expectation being formed (in addition to any term premium), so this possibility is allowed for using an appropriate statistical technique.<sup>13</sup> Any remaining systematic difference in the forward one day rate versus the OCR set later may be interpreted as an estimate of the term premium associated with that maturity.<sup>14</sup> By calculating this for each horizon, we can build up a picture of the "shape" of the term premium, and its magnitude at different horizons.

The following figures illustrate the essence of this approach for the 90 day horizon. In figure A3, we compare the OCR "prediction" for the 90 day horizon (the one day rate 90 days forward, as measured 90 days ago) with the actual path of the OCR. Even in this chart it is apparent that the "prediction" has overstated the actual OCR on average.

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<sup>11</sup> Related research includes Brooke and Cooper (2000), Paquette and Streliski (1998), Gravelle (1998), and Krueger and Kuttner (1995).

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<sup>12</sup> Appropriate econometric estimation is often used in related international research. For example, see Gravelle (1998).

<sup>13</sup> Related to the method of Stock and Watson (1993). An explanation of this method is contained in Hamilton (1994). Details of the actual estimation undertaken within the Bank will be published subsequently.

<sup>14</sup> Actually, what has been described here is the calculation of the *forward* term premium, i.e the systematic difference between the one day rate, *n* days forward, and the OCR in *n* days time. At the risk of some ambiguity, we continue to use "term premium" to describe both the usual term premium observed on the yield curve, and the forward term premium estimated from this analysis.

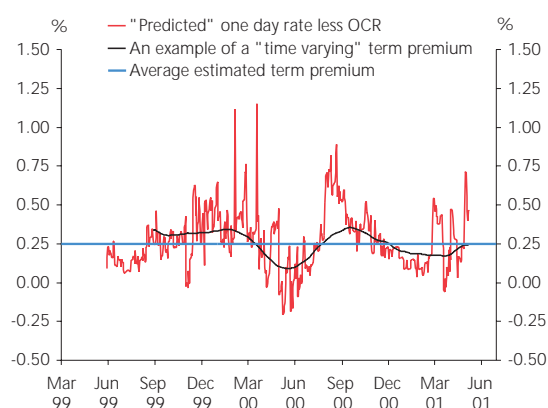
**Figure A3**  
Original data for the 90 day horizon term premium estimate



Source: RBNZ data and RBNZ estimates.

Figure A4 shows these “prediction errors” (the “prediction” less the OCR) more clearly, and suggests that a positive “prediction error” is almost always present. The statistical estimate of the term premium in this example is shown in figure A4.<sup>15</sup> It is also interesting to allow the term premium to vary slowly around that “average”, as illustrated in figure A4. This suggests that the term premium for a particular horizon might vary *over time*.

**Figure A4**  
One day rate “prediction errors”, and term premium estimates for the 90 day horizon

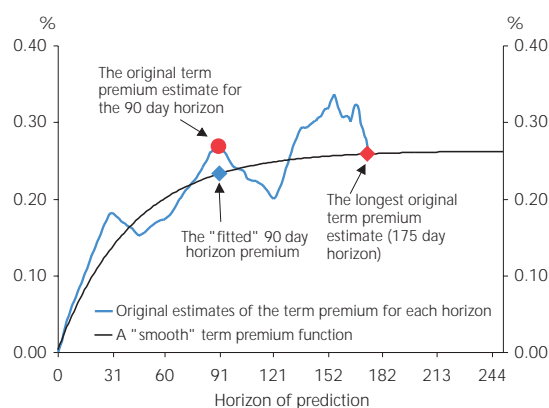


Source: RBNZ estimates

<sup>15</sup> The statistical estimate of the term premium *in this example* is actually very close to the simple average of the “prediction errors”. This will not necessarily always be the case, and it is not actually how the estimate is calculated.

Figure A5 contains estimates of the term premiums for each horizon (ie the one day term premium, the two day term premium, the 90 day term premium, and the 175 term premium; note that the 90 day term premium estimate from the chart above is indicated specifically on the chart). We have also included an example of a “term premium function” that best represents the series of “raw” term premium estimates for each horizon. A term premium function is useful, because it is unlikely that the “true” term premium really varies *with maturity* as much as the “raw” estimates suggest it might. To clarify, we believe that the term premium *at any given point in time* is close to the “smooth wedge shape”, although the “overall size” of this “smooth wedge shape” could possibly change over time.

**Figure A5**  
Actual and fitted term premium estimates by horizon



Source: RBNZ estimates

With an estimate of the term premium function, we can then adjust the initial calculation of forward one day rates from the previous step. This result is likely to show a path for the expected OCR that is “uneven” over time. However, we know that the OCR will remain fixed at a constant level between OCR announcement dates. Hence, we take an average of the adjusted one day rates between successive OCR announcement dates to give an estimate of the expected “step-wise” path of the OCR.<sup>16</sup>

<sup>16</sup> We also know that the OCR will be fixed in “steps” of 25 basis points. Hence, when the implied expectation for the OCR is only a fraction of a 25 basis point step, this may loosely be interpreted as a probability of a 25 basis point move.

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It is worth stressing that there is only slightly more than two years worth of data for the OCR regime so far, and this does not even span a complete cycle (that is, a period between two definite peaks in interest rates, or two definite lows). In addition, it is quite likely that some of the initial data collected after the introduction of the OCR will cover an “adjustment phase” that might not represent the ongoing environment.<sup>17</sup>

Hence, any results obtained from the analysis of historical data collected during the OCR regime so far should still be treated as “work in progress”. This particularly applies to the estimate of the term premium function, since this function is itself estimated from “raw” estimates of the term premium for each horizon.

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<sup>17</sup> Part of the period also spanned the “Y2K” event. This could be specifically factored out in the estimation technique, but it doesn’t appear to have a large impact on the average estimates for the term premium.

# Should the Reserve Bank have eased as fast as the Federal Reserve?

An address by Donald T Brash, Governor of the Reserve Bank of New Zealand to the Rotary Club of Auckland on 21 May 2001

## Introduction

Over recent days, the Reserve Bank of New Zealand has puzzled a lot of people – indeed even angered a few! – because we have been slower to ease monetary policy than they have expected or wanted, and slower than central banks in some other countries.

Surely, it is argued, the Reserve Bank must be able to see that the world economy has slowed sharply, and monetary policy should be eased.

Surely, it is argued, the Reserve Bank must be able to see that the domestic economy has been sluggish, business and consumer confidence are down, and monetary policy should be eased.

Surely, it is argued, the Reserve Bank must be able to see that the drought has been serious and will have a potentially big impact on production next season, and monetary policy should be eased.

Surely, it is argued, the Reserve Bank must be able to see that the US central bank, the Federal Reserve, has eased policy by much more than has been the case in New Zealand. Given the record of growth with low inflation which the US economy has achieved over the last decade, surely this suggests that the Reserve Bank of New Zealand should be following the Fed's example, and easing monetary policy more aggressively.

Certainly, the American central bank has cut its official interest rate by 250 basis points since the beginning of the year. The Australian central bank has cut its official interest rate by 125 basis points since the beginning of the year. And to date the New Zealand central bank has cut its official interest rate by a rather more modest 75 basis points since the beginning of the year.

And forecasts of the parts of the global economy of most relevance to New Zealand, compiled in London by an organisation called *Consensus Forecasts*, continue to be

revised down. Back in November, as we prepared our December *Monetary Policy Statement*, the *Consensus* forecast for the 14 countries of most relevance to us had growth in those countries this year at 3.5 per cent. Three months later, that forecast had been revised down to 2.9 per cent. Now, the forecast is only 2.3 per cent. Surely, it must be obvious to the Reserve Bank that the world economy is going to continue to get weaker, and monetary policy must be eased urgently.

The most important point I want to make to those who run these arguments is that, just because other central banks have eased monetary policy substantially, the Reserve Bank of New Zealand is not necessarily remiss in taking a somewhat different course. Why? Simply because every national economy is unique. Monetary policy is not a race, with every central bank trying to get to the finishing line first. It is about adjusting interest rates to influence demand within a specific economy to ensure price stability in that economy. What is right for one country might well be entirely wrong for another.

So while *of course* it is important that we in New Zealand are aware of what other central banks are doing – because their actions may say something about their economies which could be relevant to inflationary pressures within New Zealand – matching the decisions of other central banks point for point will often make no sense at all.

Should we in New Zealand have been easing monetary policy more quickly than we have been doing? Or in other words, will the slow-down in the world economy reduce inflationary pressures in New Zealand so much that some time in the next year or so inflation will fall towards the bottom of the agreed 0 to 3 per cent target band?

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## Still plenty of risks in the world economy

It is certainly possible to imagine some very pessimistic scenarios which would warrant a major further easing of interest rates in New Zealand, or indeed make us wish that we had eased more quickly over the last few months. In June 1999, I was one of three central bank governors who gave speeches in answer to the question "Is deflation a risk?" at a seminar held in conjunction with the annual meeting of the Bank for International Settlements in Basel, Switzerland. My task was to sketch out a situation in which the world economy found itself in a situation of generalised deflation. I found it disturbingly easy to do.

Two years later, there are still considerable risks. While the high-tech parts of the US equity market have fallen from stratospheric levels to more moderate levels over the last year, the market capitalisation of the stocks in the S & P 500 index, which reached a peak of 132 per cent of US GDP in March 2000, remains at around 110 per cent of US GDP, compared with an average for that ratio of just 50 per cent over the last 75 years. Or to put the matter differently, the US share market appreciated between 1982 and the year 2000 at a rate five times faster than underlying corporate earnings growth. There is plenty of scope, in other words, for US equity markets to fall much further yet, and US business confidence and consumer spending to fall with them.

Indeed, after by far the longest uninterrupted economic expansion in US history, a fairly marked slowdown in the US economy might not even need the trigger of a further fall in US equity markets.

The Japanese economy continues to experience serious difficulties, its banking and insurance sectors fragile, its public debt very large and increasing, and its immediate prospects clouded.

And inevitably, with the outlook for the American and Japanese economies uncertain, the prospects for the economies of non-Japan Asia are also unclear – with banking sectors still showing the open wounds of the crisis of three years ago and their biggest markets slowing sharply.

The Australian economy, of great importance to our own economy as our largest single trading partner, saw a fall in

GDP in the December quarter of last year, while in recent months unemployment has been rising and business confidence falling.

So let me make it quite clear: because of the impact of a slowing world economy on inflation in New Zealand, it may well be necessary to ease monetary policy in New Zealand substantially further than we have done so far. We are as keen to avoid having inflation go below the bottom of our 0 to 3 per cent target as we are to avoid its going above.

But in a situation where the New Zealand economy has recently been operating near to full capacity – with unemployment near a 13 year low, and some measures of capacity utilisation back to levels last seen in the period of strong growth in the mid-nineties – three things have led us to ease policy more slowly than some other central banks have done, and more slowly than some New Zealanders would like.

## So far, the world economy continues to grow

First, and despite the slowing which has occurred, the world economy continues to grow. In the United States, growth in GDP in the March quarter was stronger than most observers had expected, and only a few commentators are expecting the US to experience a recession this year. Indeed, many commentators are predicting that the US economy will "bounce back" in the second half of this year, or at least by the fourth quarter. Interestingly, US equity markets, which must be assumed to reflect sentiment about the future of corporate earnings, have recently advanced, and the S & P 500 index is less than 20 per cent below the all-time high it reached in March last year. The narrower Dow index is less than 5 per cent below its all-time high.

In Japan, the prospect of a new political determination to deal with the problems which have beset that economy for more than a decade has improved sentiment, and the Nikkei stock index is well up from the low point reached in the middle of March this year.

In Australia, it has been pointed out that the modest fall in GDP in the fourth quarter was mainly the result of a very sharp fall-off in the construction sector following the

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introduction of GST in mid-year, with most of the rest of the Australian economy continuing to grow at an annual rate of around 4 per cent.

Although not too much should be made of it at this relatively early stage, *Consensus* forecasts for our 14 major export markets suggest growth next year of 3.6 per cent, well up from the 2.3 per cent expected for the same markets this year.

If we eased policy too much now, and that easing had its biggest effect next year, as we expect, we might find that policy would be stimulating the economy at the very time that the world economy was picking up.

## **New Zealand's export prices continue to hold up**

Secondly, and contrary to much past experience, the slowdown in the world economy which has occurred to date has not had an obviously negative effect on the world prices of many of New Zealand's exports.

Of course, the prices of some exports have been seriously affected. The world price of our seafood exports is well down over the last year for example. But many other prices have held up well, and that has been particularly true of major exports such as meat and dairy products (both up by more than 22 per cent in world price terms in the 12 months to April).

In aggregate, the world price of New Zealand's commodity exports rose almost 14 per cent in the year to April 2001, and almost 23 per cent over the two years to April 2001.<sup>1</sup> This means that an important channel through which weakness in the world economy typically affects New Zealand has so far, on this occasion, been blocked.

## **The New Zealand dollar is sheltering the economy from foreign chills**

Thirdly, as we assess the impact of the relatively subdued world economy on the New Zealand economy, and therefore

on New Zealand inflation, we have to assess also the impact which the New Zealand exchange rate is having on the situation. If, as is possible, the world economy slows further, and if, as also seems possible, this has a negative effect on the world price of New Zealand's export commodities, will our export industries, and those industries competing against imports, be protected from those cold winds by a low exchange rate?

Make no mistake. As many of you are aware, the New Zealand dollar is not far above its lowest level ever against the United States dollar, and remains at a very low level also against the Japanese yen and sterling. It is not so low, to be sure, against the Australian dollar and the euro, two other currencies which have been weak in recent times, but weakness against the US dollar, the yen, and sterling is certainly providing strong benefits to many of the companies and individuals operating in export and import-competing industries.

As a consequence, while the world prices of New Zealand's commodity exports have gone up by an already large increase in the 12 months to April (almost 14 per cent), the New Zealand dollar prices of those exports have risen by a very strong 36 per cent over the last year, and by almost 60 per cent over the two years to April.

Initially, the volume of New Zealand's exports of good and services grew rather strongly in response to this stimulus (helped no doubt in part by the return to more normal climatic conditions down on the farm). More recently, export growth has slowed down quite sharply. We don't fully understand why this is so. Perhaps it just takes longer than we might have thought for businesses to gear up to increase exports. Perhaps businesses have been frightened by media stories about the slowing in the world economy. Perhaps businesses were so traumatised by the experience of a strong exchange rate in the mid-nineties that they will respond only cautiously to the apparent enticements offered by the now-low exchange rate. Perhaps other countries with which New Zealand exporters compete in, say, the US market have experienced similar levels of exchange rate depreciation against the US dollar, thus eroding much of the benefit to our exporters of the depreciation of the New Zealand dollar. Perhaps for many of our exporters the Australian market is

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<sup>1</sup> ANZ New Zealand Commodity Price Index, 2 May 2001.

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still the major market, and here there has been little depreciation over the last few years.

One of the difficult judgements we have had to make in deciding how to run monetary policy in recent months concerns what the low exchange rate means for future inflation pressures. If the economy responds to the low exchange rate as it has in the past, we would expect to see strong growth in net exports over the next year or two, with export and import-competing industries investing in new capacity, hiring more staff, and expanding production. The risk is that such a strong expansion in the export and import-competing industries would put pressure on available resources. That in turn would lead to increased inflation unless monetary policy were kept appropriately tight.

If, on the other hand, the economy does not respond to the low exchange rate as it has in the past, as seems possible on the basis of very recent experience, it may be that export and import-competing industries will expand only moderately. In that situation, monetary policy would not need to be as tight in order to keep inflation under control.

Like it or not, no central bank operating in an open economy can afford to ignore the exchange rate in setting monetary policy. The fact that we have not only not increased the Official Cash Rate despite our currently low exchange rate but have actually felt able to reduce it in recent months largely reflects our assessment of the global economy, and our assessment that, for reasons not yet fully understood, the exchange rate is not providing the stimulus to export and import-competing industries that has been true in the past.

But, as will be obvious, if the economy does start responding to the low exchange rate as it has historically, there will be a need for interest rates to be quite a bit higher than currently, if resources are going to be able to move from domestic parts of the economy to the export and import-competing industries without causing inflation. This is true because, in aggregate, the economy is already operating at close to capacity, with some measures of capacity utilisation back at levels last seen in the boom of the mid-nineties and unemployment at a near 13 year low.

As an aside, the data on employment and job advertisements released 10 days ago on balance support this assessment that there is little spare capacity in the labour market. While

it is true that total employment did not increase over the March quarter, wage rates have begun to climb – by a little more than we and the market had been expecting; hours worked rose strongly during the quarter, and are now some 6 per cent above the level in the first quarter of last year; unemployment is at its lowest level since June 1988; and job advertisements, while down slightly for the month of April, remain well ahead of their level at this time last year.

There are clearly strongly conflicting influences on the future path of inflation in New Zealand. It is entirely possible that we will need to ease monetary policy more than we have done to date. It is also entirely possible that we will need to increase interest rates from their present level. In such an environment, it is prudent to adjust policy cautiously as we watch the evolving balance of those influences.

At this stage, we see inflation settling back near the middle of our target range with something close to current interest rate settings. But it is not difficult to imagine outcomes that are rather less benign – in either direction. At the end of the day, monetary policy depends on the outlook for inflation one to two years ahead. At the moment, that in turn depends primarily on how the economies of our trading partners evolve, on the extent to which any global slowdown affects demand for our exports, on how the New Zealand exchange rate behaves, and on how the New Zealand economy responds to the exchange rate.

My plea to observers and commentators is to keep in mind that New Zealand's economy is not the Australian, or the American, or indeed any other economy. In the March *Monetary Policy Statement*, I mentioned that the New Zealand economy was "favourably out of sync" with the rest of the world. Actually, we are often out of sync with the rest of the world, either favourably or unfavourably. New Zealand's economic fortunes depend to a significant extent on a relatively narrow range of exported goods and services, and so we often face relatively sharp slow-downs and, on the flip-side, relatively fast accelerations. That is the nature of our economy. For the Reserve Bank, that inevitably means trying to steer a course through these short-term vicissitudes, a course appropriate to the inflationary pressures in the New Zealand economy, whatever the Federal Reserve and other central banks are doing.

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# Promoting Financial Stability: the New Zealand Approach

An address by Dr Donald T Brash, Governor of the Reserve Bank of New Zealand to the Conference for Commonwealth Central Banks on Corporate Governance for the Banking Sector, London, 6 June 2001

## Introduction

It is a great pleasure to have the opportunity to speak to you today.

The theme of this conference - Corporate Governance in the Banking Sector - is a subject that has been an important element in the Commonwealth Secretariat's financial sector work in recent years. It has also been a notable feature of other international initiatives, including those of the International Monetary Fund and World Bank, in their efforts to address the causes of financial crises and to promote greater financial stability. Appropriately, improving corporate governance is seen as a significant way of encouraging banks to strengthen their capacity to manage risks. And it has rightly been viewed as an important element in the management of central banks.

Today, I want to discuss the role that corporate governance plays in the New Zealand banking supervision framework and to relate this to the importance we attach to strengthening market discipline in the financial system. But before doing this, let me briefly recap the main points made in the report issued by the Commonwealth Secretariat last year on the causes of financial instability and the policies for promoting stable financial systems. This provides a useful context within which to discuss the New Zealand approach to financial sector regulation.

## Causes of financial instability

As indicated in the Commonwealth Secretariat's paper *Corporate Governance in the Financial Sector*, financial instability is caused by a combination of factors. These include:

- rapid financial sector liberalisation unsupported by measures to encourage prudent risk management in the financial sector;

- unsustainable macroeconomic policies, such as loose monetary policy and excessive fiscal spending – such policies can contribute to asset price volatility and a subsequent erosion of asset quality in the financial system;
- exchange rate arrangements that lack credibility, including unsustainable exchange rate pegs – this is particularly important where financial institutions and corporations have come to rely on an exchange rate peg, and fail to hedge their currency risk, only to sustain currency losses when the peg collapses;
- protection against imports and other policies that impede the efficient allocation of resources in the economy;
- poor banking supervision;
- inadequate financial disclosure arrangements, including poor quality accounting and auditing standards; and
- weak market disciplines in the banking and corporate sectors, reducing the incentives for high quality risk management by banks.

## Policies for promoting stable financial systems

The broad range of factors that can contribute to financial crises suggests the need for an equally broad set of policy responses. Of course, the particular policies will vary from country to country, depending on a country's stage of development, the nature of its economy and the structure of its financial system. There is no single "right" policy prescription. Each country must develop policies that suit its own particular circumstances. However, at a general level, it can safely be said that the following types of policies will be needed in order to promote financial stability:

- sound, sustainable and credible macroeconomic policies, including a monetary policy aimed at promoting price stability;

- microeconomic policies that minimise distortions to relative prices and that encourage efficient allocation of resources;
- exchange rate policy that is seen as credible by all market participants, that facilitates macroeconomic adjustment and that builds in incentives for financial institutions to hedge against currency risk;
- an effective legal and judicial system, facilitating the enforcement of legal contracts;
- policies to encourage banks to manage their risks prudently, including corporate governance and financial disclosure;
- policies to encourage effective market disciplines in the financial sector, thereby strengthening the incentives for banks to manage their risks prudently;
- policies to promote robust payment systems and minimise inter-bank contagion, such as netting arrangements, real time gross settlement and failure-to-settle structures within the payment system; and
- effective and well-enforced banking supervision arrangements.

It would be tempting to discuss each of these policy areas, given their importance to the promotion of sound and efficient financial systems. But we would need a great deal longer than one day to do justice to such a broad range of complicated policy issues. Instead, I want to focus on the main theme of this conference – corporate governance in the financial sector.

## Corporate governance in the financial sector

As noted in the Commonwealth Secretariat's report, improving corporate governance is an important way to promote financial stability. The effectiveness of a bank's internal governance arrangements has a very substantial effect on the ability of a bank to identify, monitor and control its risks. Although banking crises are caused by many factors, some of which are beyond the control of bank management, almost every bank failure is at least partially the result of

poor risk management within the bank itself. And poor risk management is ultimately a failure of internal governance.

Although banking supervision and the regulation of banks' risk positions can go some way towards countering the effects of poor governance, supervision by some external official agency is not a substitute for sound corporate governance practices. Ultimately, banking system risks are most likely to be reduced to acceptable levels by fostering sound risk management practices within individual banks. Instilling sound corporate governance practices within banks is a crucial element of achieving this.

As the Commonwealth Secretariat's report notes, there are a number of ways in which corporate governance in the financial sector can be strengthened. These include:

- having a well designed and enforced company law;
- having codes of principles developed by professional or industry associations, setting out desired attributes of corporate governance, and associated educational and consciousness-raising initiatives;
- maintaining high quality disclosure requirements for banks and other companies, based on robust accounting and auditing standards;
- adopting measures to strengthen market disciplines in the banking sector, including by promoting a contestable and competitive banking system and seeking to ensure that bank creditors are not fully insulated from loss in a bank failure;
- effective banking supervision arrangements, with particular emphasis on policies that encourage sound governance and risk management practices; and
- leadership by example, including the adoption of sound governance, accountability and transparency practices by central banks and regulatory agencies.

## New Zealand's approach to financial stability

Against this background, let me briefly summarise the New Zealand approach to promoting financial stability. This has three main strands:

- promoting self discipline by banks in the management of their risks;
- fostering effective market discipline on the banking system; and
- supervising banks for the purpose of promoting financial stability, but seeking to avoid supervisory practices that might erode market discipline and weaken the incentives for bank directors to take ultimate responsibility for the management of risks.

Let me elaborate on each of these in turn.

### Banks' self discipline in managing risks

Banking supervision in New Zealand places considerable emphasis on encouraging banks' self discipline in managing risks, primarily by reinforcing the role of bank directors in taking ultimate responsibility for the stewardship of their banks. Since the mid 1990s, when a new public disclosure framework was introduced for banks, a key mechanism for encouraging banks to manage risks prudently has been the need for banks to issue public disclosure statements each quarter.

The disclosure statements are in two forms: a brief Key Information Summary, which is aimed at the ordinary depositor; and a more comprehensive General Disclosure Statement, which is aimed principally at the professional analyst.

The Key Information Summary contains a short summary of information on the bank, including:

- the bank's credit rating;
- the bank's capital ratio, measured using the Basel framework; and
- information on exposure concentration, exposures to connected parties, asset quality and profitability.

The Key Information Summary must be displayed prominently in, and be available on demand from, every bank branch.

The General Disclosure Statement contains wider-ranging and much more detailed information on the bank and its banking group, including:

- comprehensive financial statements;
- credit rating information;
- detailed information on capital adequacy, asset quality and various risk exposures; and
- information on the bank's exposure to market risk.

One of the most important features of this disclosure framework is the role it accords bank directors. Each director is required to sign and make certain attestations in the disclosure statements, including:

- whether the bank is complying with the prudential requirements imposed on it by the Reserve Bank;
- whether the bank has systems in place to adequately monitor and control its banking risks and whether those systems are being properly applied;
- whether the bank's exposure to connected parties is contrary to the interests of the bank; and
- whether the disclosure statement contains all the required disclosures and is not false or misleading.

Directors face potentially severe criminal penalties and civil liability where a disclosure statement is held to be false or misleading.

Complementing the disclosure requirements, banks incorporated in New Zealand are required to have a minimum of two independent directors (who must also be independent of any parent company) and a non-executive chairman. These requirements are intended to increase the board's capacity to scrutinise the performance of the management team. In addition, independent directors provide some assurance that the bank's dealings with its parent or other related parties are not in conflict with the interests of the bank in New Zealand. The disclosure requirements have increased the accountability of bank directors and, indirectly, the accountability of various levels of management within the banks. As a result of the disclosure arrangements, we have seen directors taking greater care than might otherwise have been the case to ensure that they are adequately discharging their obligations. In so doing, directors have strong incentives to ensure that there are appropriate accountability mechanisms within the management hierarchy.

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## Market discipline

The New Zealand approach has also stressed the importance of market discipline as a vital element in encouraging prudent risk management within the banking industry. We have sought to do this in a number of ways.

First, our approach stresses the importance of a contestable and competitive banking system. We have no regulatory limit on the number of banks that can be licensed and we have a competitively neutral regulatory framework for the financial sector. This means that any financial institution, whether or not it is licensed as a bank, can perform a wide range of banking functions. As a result, the New Zealand financial system is particularly competitive.

Secondly, the public disclosure regime for banks is an important factor in facilitating market discipline, given that it provides the market with comprehensive information on individual banks on a regular and timely basis. The market therefore has greater scope to react to developments affecting a bank's financial condition – rewarding those banks which are well managed and penalising those which appear to be less well managed. The strongest banks are likely to benefit by operating at lower funding costs. Weaker banks are likely to come under pressure to strengthen their position.

Thirdly, New Zealand has no system of deposit insurance. The absence of deposit insurance is helpful in sharpening the market discipline on banks, given that it strengthens the incentive for depositors to monitor the financial condition of their bank and to be more discerning in their decision about where to bank than might otherwise be the case.

Of course, market discipline is only likely to be effective where creditors, including depositors, actually believe that they will be exposed to a risk of loss if their bank were to fail. If depositors and other creditors think it likely that the government will rescue a bank in distress and insulate creditors from losses, then the incentives for creditors to monitor the financial condition of their bank is greatly reduced. This has been the case in many financial systems around the world, where, time and time again, bank failures have been handled in ways that generally insulate depositors from any loss. I have little doubt that the tendency to insulate creditors from loss in bank failure events has significantly

weakened the incentives for prudent risk management within the world's financial systems.

In order to strengthen the disciplines on banks, the Reserve Bank of New Zealand has for some years stressed publicly that depositors and other creditors should act on a clear presumption that they will bear their fair share of loss should a bank become insolvent.

As part of this approach, the Reserve Bank is currently undertaking work to explore the feasibility of responding to a major bank failure by re-capitalising a failed bank through the use of creditors' funds. This assumes, of course, that all shareholders' funds have been eliminated by loan losses. This would be achieved by "haircutting" depositors' and other creditors' funds in the failed bank to a sufficient extent to absorb estimated loan losses and to facilitate a re-capitalisation of the bank, with the bank's doors being re-opened for business within three or four business days of the failure.

Under this approach, a bank would be placed into statutory management once it had become apparent that the bank was insolvent or likely to become insolvent, and once it had been established that shareholder support would not be forthcoming. In this situation, statutory management would enable the bank's business to be temporarily suspended and an estimate made of the likely maximum extent of loan losses. A haircut would then be applied on a broadly *pari passu* basis across all senior unsecured liabilities (and some off-balance sheet obligations) of the bank sufficient to absorb the estimated maximum losses of the bank. These funds would be set aside using the powers of statutory management and could not be accessed by creditors. However, remaining funds would be accessible and could be drawn down by creditors once the bank is re-opened for business. In order to avoid a situation where creditors rush to withdraw funds from the bank, it would probably be necessary for the central bank or government to announce a guarantee of the remainder of creditors' funds (ie all liabilities of the failed bank other than the haircut funds), at least until a new and credible ownership structure had been devised for the bank.

The extent of the haircut would depend both on the size of the estimated loan losses and also whether the haircut is

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intended to only absorb losses (where new equity is provided by another party, such as the government) or to absorb losses and re-capitalise the bank. It would also depend on whether the government wished to have creditors of the bank absorb all of the bank's losses (assuming that shareholders have already lost all of their equity) or whether the government was prepared to enter into a loss-sharing arrangement, whereby the creditors and government would each bear some of the losses.

Where asset recoveries result in a smaller amount of loan losses than had been estimated, there would be scope to pay the surplus recoveries to creditors in proportion to the funds that were subject to the haircut.

The haircut proposal is intended to be one of a number of options available for responding to a bank failure situation. The decision to apply it would be for the government of the day to determine, having regard to the Reserve Bank's advice and the circumstances prevailing at the time. It is most likely to have application in situations of single bank failures, where the banking system as a whole remains substantially in good health.

At this stage, the haircut proposal is still in the early stages of development. Much work remains to be done. In the period ahead, the Reserve Bank plans to advance its research on the feasibility of using haircuts to handle the failure of systemically important banks. We are hopeful to be in a position to determine the feasibility of the haircut option in the not-too-distant future.

### **Banking supervision**

Although promoting banks' self discipline and promoting market discipline are key components of the New Zealand approach, we do maintain a significant banking supervision framework. However, we have sought to minimise the moral hazard risks and the compliance and efficiency costs that can be associated with a heavy-handed approach to banking supervision. Hence, from the outset, New Zealand's approach to supervision has placed less emphasis on some of the traditional supervisory techniques than has been the case in many other countries. The Reserve Bank applies the standard Basel Capital Accord to banks, with some modifications, and imposes a regulatory limit on connected lending. Banks are

monitored by the Reserve Bank on a quarterly basis using banks' quarterly disclosure statements. But the Reserve Bank does not impose limits on open foreign exchange positions or on credit exposures to single borrowers. It does not specify guidelines for risk management systems and does not involve itself in the screening or approving of bank directors. And the Reserve Bank does not conduct on-site examinations of banks, although it does consult the senior management team of each bank, generally on an annual basis.

## **Corporate governance in the central bank – leading by example**

I have talked about the policies that the Reserve Bank of New Zealand has implemented to promote sound corporate governance and risk management within the banking system. But it is also worth spending a little time to discuss the importance of corporate governance in central banks. Indeed, as the Commonwealth Secretariat's report notes, an important element in promoting sound corporate governance in the banking sector is through "leadership by example" within central government and regulatory agencies.

The adoption of robust corporate governance practices in the financial sector is likely to be greater where central banks lead the way by maintaining effective governance, transparency and accountability arrangements within their own operations.

In New Zealand, the Reserve Bank is subject to a number of policies designed to promote strong internal governance. These include:

- Transparent policy objectives. In particular, the Reserve Bank's monetary policy and banking supervision objectives are set in statute and highly visible.
- A clear assignment of responsibilities for meeting policy objectives. In the Reserve Bank, the responsibility for formulating and implementing policy to meet the statutory objectives is assigned to the Governor.
- Mechanisms for ensuring that the Reserve Bank (and particularly the Governor) are held to account for the performance of their responsibilities. An important part of this is the monitoring of the Bank's performance. This

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is formally the responsibility of the Bank's Board of directors, which is statutorily charged with the task of monitoring the Bank's performance across all policy areas and in terms of the management of the Bank's resources and risks. In order to perform this role with credibility, the Bank's Board comprises a majority of non-executive directors. Although I, as Governor, currently chair the Board, this will be changed next year to provide for a non-executive chair.

- An obligation to report publicly, on a regular basis, on the Bank's performance in meeting its statutory objectives. The Bank issues an *Annual Report* for this purpose. In addition, it issues quarterly *Monetary Policy Statements* to report on the Bank's performance in maintaining price stability and to explain its monetary policy stance. I also take it as axiomatic that I have an obligation to make myself available on a regular basis for direct cross examination by the news media.
- Clear disclosure of all regulatory requirements and policies promulgated by the Bank.
- An obligation to issue an annual set of financial statements, independently audited, that comply with New Zealand's accounting standards and practices, including information on accounting policies, off-balance sheet commitments and contingent liabilities.
- A culture of comprehensive planning and budgeting, and internal and external accountability for expenditure and performance. The Bank also maintains comprehensive risk management and internal audit arrangements.
- An obligation for the Governor and Deputy Chief Executive to sign publicly disclosed statements attesting to the maintenance of internal controls to promote the integrity and reliability of financial reporting.

- The Minister of Finance is empowered to appoint a person to audit the performance of the central bank in carrying out its functions.

Taken together, these policies provide a framework for encouraging effective corporate governance in the central bank and assist in encouraging the central bank to promote price stability and a sound and efficient financial system.

## Conclusion

Let me conclude by reinforcing some of my key themes:

- Financial crises are rarely caused by one factor. They are almost always the product of a number of contributing factors.
- This suggests the need for a broad-based approach to the promotion of financial stability, avoiding placing too much reliance on any one policy area.
- There are no single "right" policy solutions. And there are no silver bullets. Each country must find its own combination of policies that best meets the particular circumstances of the country, the nature of its economy and the structure of its financial system.
- But there is one policy issue that must be tackled by all countries – one way or another – in seeking to promote financial stability. And that is how best to encourage banks to identify, monitor and manage their own risks prudently. For that is the key to reducing the risk of future financial crises and promoting more robust financial systems. Although there are many ways to encourage prudent risk management, fostering a culture of sound corporate governance through increased focus on the responsibilities of bank directors and strengthened market discipline is undoubtedly a very important part of the solution.

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# Banking on Capital Punishment

An address by Roderick M Carr, Deputy Governor of the Reserve Bank of New Zealand to the New Zealand Association of Economists, Christchurch, 27 June 2001

## Introduction

It gives me great pleasure to address the annual gathering of the best and the brightest economists in the country. Today I am not going to talk to you about the state of the economy or its immediate prospects; these are matters on which you are well informed. Indeed the transparency which surrounds the conduct of monetary policy in this country leaves little private information in the hands of the central bank. Further, with both a single decision-maker structure and long-serving incumbent Governor, there is little new information to reveal about how the Bank goes about managing monetary policy. In fact as the Bank has served as training ground for many commentators and market economists, not only are we transparent but reassuringly predictable. I want to take my time today to stimulate your minds with a different set of issues.

At the heart of capitalism lies capital. Limited liability corporations have facilitated the accumulation and mobilisation of capital to rival church and state but as we will see the asymmetry of payoffs inherent in limited liability may induce excessive risk-taking. The provision of financial intermediation services, particularly banking, has given rise to an extensive theoretical and empirical literature in economics. By banking I mean the provision of two particular services, liquidity transformation and credit origination. The efficient provision of these services is essential to the growth and prosperity of market-based economies. Virtually all banking services are now provided through limited liability corporations and the question of how much capital should be held has become the subject of international debate.

Of all the interesting topics we could discuss, today I want to focus on the issue of bank regulation in general and, in particular, bank capital. I want to update you on recent international initiatives concerning bank regulation and outline both the case for capital regulation and the risks we take when regulators go too far. I want to highlight why it is essential to the efficient allocation of resources that providers of bank capital and even bank creditors must stand ready to take their punishment when things go wrong and the unexpected happens. I want to highlight the distinction

between economic capital, rating capital and regulatory capital. I want to promote an antidote to the moral hazard created by asymmetric payoffs, implicit or explicit deposit insurance and regulatory capture. Finally I want to summarise recent policy initiatives we have taken to enhance the value of disclosure and underpin market discipline.

## The New Zealand regime in brief

Let me briefly remind you of New Zealand's approach to banking supervision. Our regime relies on self discipline, market discipline, and regulatory discipline. Any organisation wishing to call itself a bank while carrying on business in New Zealand must obtain a registration from the Reserve Bank. Our conditions of registration prescribe minimum levels of capital in line with international standards known as the Basel Accord. We also require mandatory levels of public disclosure. Directors are required to provide regular public attestations as to the soundness of the bank, the robustness of its systems and its exposure to risk. We monitor these disclosures and meet with all registered banks annually to discuss strategy and any emerging issues. We rely on external auditors to verify financial statements. By year-end, all registered banks will be required to have and publish a credit rating from an approved rating agency. Where we depart somewhat from traditional supervisory approaches is in our reluctance to validate what the directors of the bank are accountable for. We weigh more heavily than most the moral hazard arising from the regulator approving specific actions of the board and management of the bank. It is the role of the board and depositors to be satisfied as to the condition and conduct of the bank, not to rely on the supervisor's ability to constrain bank risk-taking. But let me be clear – New Zealand does not deny there is a case for bank regulation. But as they say – the devil's in the detail.

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## Global trends in bank regulation

The draft proposals for the regulation of bank capital recently released by the Basel Committee on Banking Supervision, often referred to as Basel 2, run to nearly 800 pages. These must be one of the most extensive, most prescriptive, transnational regulatory proposals ever conceived. Yet in a recent extensive review of the academic literature Joao Santos of New York University's Solomon Center concluded:

“The justification for any regulation usually stems from a market failure such as externalities, market power or asymmetry of information between buyers and sellers. In the case of banking, there is still no consensus on whether banks need to be regulated and if so, how they should be regulated.”

While this conclusion would not go unchallenged, not least by the tens of thousands of people employed as bank regulators around the world, it serves to highlight the wide range of views which exist about the issue of bank regulation and the extent to which current problems are the result of past poor regulation. Let me explain.

## The 1988 Basel Accord and the new proposals

In 1988, G10 countries reached a consensus on minimum capital standards for internationally active banks. The Accord can be summarised in a couple of pages. In essence, it states that for every \$100 of loans, a bank should have at least \$8 of capital, of which at least \$4 must be permanent equity. Because loans secured over residential property were seen to be less risky than other loans, they only had to have 50% as much capital. Loans to banks from OECD countries were seen to be less risky still, so they only had to have 20% as much capital, and loans to governments denominated in their local currency 0%. There were several other categories and treatment for off-balance-sheet exposures.

In my view, the 1988 Basel Accord arose mainly from a desire to promote competitive neutrality and to avoid arbitrage between differing national capital requirements for banks, as it did not seek to determine a socially optimal level of bank capital. In the 1980s, highly leveraged Japanese banks

had been aggressive participants in the previously lucrative US municipal bond underwriting market. US banks responded to what they saw as unfair competition by pressing for an internationally agreed definition of capital standards for credit risk and a uniform methodology for the measurement of capital. While the 1988 agreement addressed the issue of minimum bank capital, it created a whole new industry in arbitraging between bank and non-bank capital requirements. Widespread securitisation of bank assets is perhaps the best example. Today the case is made that the 1988 Accord promotes regulatory arbitrage of this type, rewarding risk-shifting which may undermine the soundness of financial systems around the world. The solution, Basel 2, proposes to more closely align bank capital with the riskiness of the bank's assets and operations. Subject to signoff by bank regulators, banks may adopt their own models for determining how much capital to hold. In the absence of approval, a standardised, but more flexible than Basel 1, model is proposed. Market discipline is to be enlisted by requiring greater disclosure of risks facing a bank. While Basel 1 was a Capital Accord, Basel 2 is an accord having three pillars – capital requirements, regulatory validation and market discipline. The real question remains unanswered. Is the closer alignment of regulatory capital with economic capital good public policy? In validating a particular capital allocation model, do regulators let bank management, bank directors and bank creditors off the hook by, in essence, providing a warrant of fitness for the model and the bank? In order to evaluate the proposals, we should go back to first principles.

## The case for regulating bank capital

Is there a case for a country to specify minimum levels of capital which banks should hold? No such requirements exist for pharmaceutical companies, software vendors or telecommunications providers, where failure might impose externalities which would actually be life threatening. The fact that banks are risky ventures that go bust from time to time does not alone justify that minimum capital standards should be imposed.

The traditional case for regulating banks in order to reduce the probability that they might bust is that when depositors

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see a bank go bust they act in fear and ignorance as to the true condition of all other banks. They run to their own bank to be first in line to withdraw deposits and in so doing may force a perfectly sound bank to run out of liquid assets, sell sound assets at a discount and so become insolvent. The combination of asymmetric information about the credits created (depositors can not know the state of the bank's borrowers), the sequential service constraint (all on demand deposits can be withdrawn in full), and the liquidity transformation services provided by banks (short term deposits finance long term loans) makes banks inherently vulnerable to a loss of confidence. Further, banks often borrow from and lend to each other both in the short-term money markets and through the payment system. Thus, the failure of one bank may indeed pose a threat to the solvency of another, even absent a run by depositors.

Banks will hold liquid assets and capital at levels high enough to meet some subjective assessment of the probability of runs and counterparty failures.

An alternative argument used to justify bank regulation is that in a system where central banks are called on to provide lender of last resort facilities to solvent but illiquid banks, in order to distinguish solvent from insolvent banks the central bank should undertake on-site examinations to establish the state of each institution. The prospect of system-wide contagion, in which society is denied the liquidity transformation and credit origination services of the banking industry, provides the soundest basis for regulating banks and socialising the costs of individual bank failures. The objective in socialising losses is to preserve services for future savers, borrowers and transactors, but the consequence is to protect current depositors from facing losses and to allow bank shareholders to earn excess returns if the bank holds less than the socially-optimum level of capital.

So the model of public policy for banking in many countries is something like this. Protect the depositors to stop the run. Stop the run to stop the contagion. Stop the contagion to ensure society continues to get banking services.

However, once the probability of bank runs has been reduced, banks will hold less liquid assets and less capital than would otherwise be the case. Indeed capital ratios have been declining relentlessly during the past 150 years, from 35% in the 1860s to 4% by the mid 1980s. The banks became

more 'efficient' intermediaries but, to the extent the risk of failure has increased because of lack of depositor discipline on the banks and risk has been moved elsewhere (to taxpayers or deposit insurance funds), efficiency gains are more apparent than real. The predisposition of governments to bail-out the creditors of failed banks makes all the difference to both the sign and magnitude of the impact of regulation on the efficiency of liquidity transformation and credit origination in the economy.

## Bailing out banks

Perhaps the earliest recorded example of a government bail-out of bankers was the action by the Roman Emperor Tiberius Caesar who in 33 AD provided support to "reliable bankers" after fraud, defaults on foreign debt, liquidity draining government policies, sinking of uninsured cargoes, and a slave revolt precipitated a banking crisis. However, government safety nets were rare before the twentieth century.

In the era of free banking, market forces prevailed. Bank failures in the nineteenth century were relatively frequent but smaller in scale, and self-correcting in comparison to the experience in the twentieth century.

Banks today are playing a larger role in the economy than a century ago. Bank assets in New Zealand represent 180% of GDP. Payments made every day via the banking system amount to 35% of GDP. Virtually every adult member of society has a bank account, a credit card, and a debit card to facilitate non-cash payments. Many households rely on credit services to smooth consumption. Banks also provide working capital to small and medium size enterprises and facilitate payments both domestically and internationally. Arguably, the externalities associated with the failure of a single bank have increased in the last quarter century.

In the last quarter of the 20<sup>th</sup> century around the world there have been over 100 separate incidents of banking systems facing a crisis. In some cases, losses have exceeded 40% of annual GDP (Thailand) and losses of 10-20% of GDP have been common. It has been very rare for bank creditors to bear losses and in some cases even shareholders have been saved with public money. So what is going on?

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Has the market failed or simply not been allowed to operate? The international consensus, not without dissenters, is that markets have failed or could be expected to fail, that oversight by regulators and prescribed minimum levels of capital are essential if banking systems are to be sound. Some countries have concluded that, because depositors rightly perceive that banks will still fail and therefore depositors might run from solvent banks, deposit insurance is necessary to prevent runs. However, given the focus of deposit insurance on small deposits, and the extent of wholesale (uninsured) deposits in many banks today, deposit insurance is now often justified on the grounds it makes it politically acceptable to fail banks which should be failed and to limit the extent of taxpayer liability to insured deposits only.

The contemporary case for bank regulation runs something like this. Once the state is exposed to the underwriting risk and moral hazard of a deposit insurance scheme (implicit or explicit), it must monitor the banks to reduce the probability of failure. With an implicit guarantee or explicit deposit insurance scheme in place and the regulator deeply implicated with any bank failure, markets assess the probability of loss given default to be lower than otherwise, making them more willing to take risks with banks. This reduced risk aversion translates into holdings of lower levels of bank capital than would otherwise be required to underpin a portfolio of risky loans. In this, our current world, the privately optimal level of capital in banks could well diverge from the socially optimal level. I say "could" because we cannot rule out the possibility that at some very low probability of failure it may be efficient for society to underwrite banks rather than have them each carry the higher capital and liquidity levels necessary to withstand a once in a 500 year incident of general loss of confidence.

While some regulators agree there is a role for market discipline, many believe the market may not know what information to ask for, or banks may be reluctant to supply it. Consequently even advocates of market discipline agree there is a role for the regulator in prescribing what information should be provided. Proponents of market discipline believe it is then more efficient for bank creditors, through their agents, to monitor the bank rather than to rely on the judgement of a bureaucrat.

## Determining the optimal level of bank capital

Let us set aside the issues facing the solvent but illiquid bank by assuming a central bank has the capacity to act as lender of last resort. This presumes the central bank will be able to distinguish an illiquid but solvent bank from an illiquid and insolvent one.

Let us focus on:

- how banks might determine the privately optimal amount of capital to hold;
- some factors which might cause the socially optimal amount of bank capital to diverge from the private optimum; and
- strategies to cause convergence between the socially and the privately optimal level of capital.

Because bank management might have misjudged the quality of its borrowers, because economic circumstances may cause once sound borrowers to fail and because depositors might withdraw funds earlier than expected, necessitating asset liquidations at discount rates above expected yield to maturity, bank management (wishing to preserve their jobs) and bank shareholders (wishing to preserve the franchise value of their business), will find it optimal to hold some capital. That is, to retain within the bank assets with an expected net present value in excess of the net present value of liabilities. But by how much?

If too little capital is held, the probability of failure is too high; if too much capital is held, the rate of return on equity is less than it might be. Surely this is an equilibrating mechanism where depositors' interests are protected by shareholder and management incentives to preserve the bank? Those who advocate a return to free banking would argue so. And did not Modigliani and Miller show nearly 50 years ago that debt/equity ratios do not influence the value of the firm? Well at least in frictionless markets with complete information and no taxes.

Let us set aside the traditional argument in favour of bank regulation – that banks are opaque, depositors need agents to monitor the bank on their behalf, and regulators can do this cost effectively. Let us set aside the strongest argument for regulation – the prospect of contagion. Let us assume

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complete markets and symmetric information and that depositors, shareholders and bank management seek to maximise the expected value of their interests. In this world, let us assume there is an unnatural person with full contractual capacity and limited liability. That is, payoffs are asymmetric. This unnatural person is a bank and I contend it will seek to hold less than the socially optimal level of capital.

Depositors earn high rates of interest, shareholders earn high dividends and management takes high salaries in the good times when the net present value of claims owned by the bank exceeds the net present value of the obligations of the bank. In the bad times, depositors do not expect to face losses, shareholders liability is limited to the capital invested and management can withdraw and retire on prior period earnings or exit the industry.

Of course, this is a highly simplified model. To ensure its investment in people, processes and proprietary information is protected and because of the costs of bank failure in terms of reputation and potential litigation, owners and managers will choose to hold some capital.

The ability of the shareholders to put the bank to the bank's creditors arises from limited liability. The ability of the creditors to put the bank to the government (taxpayers) arises if the externalities associated with failing the bank are expected to exceed the cost of recapitalising the bank. This is most likely if the bank is assessed to be systemically or politically important. Each of the major banks operating in New Zealand has a significant share of system assets and hundreds of thousands of personal customers. They would seem to meet any reasonable threshold of systemic or political importance. While failing a bank might mean liquidation, it is almost certain to involve loss of credit origination capacity and disruption to the payment system.

"Too big to fail" (not failing a bank because of its size) need not mean all bank creditors should escape without loss. I would be the first to concede that our large banks are too big to liquidate or to indefinitely suspend withdrawals, but it would be foolish for bank creditors, including depositors, to assume that they will necessarily be made whole. Of course, bank shareholders would have lost all their investment before creditors suffer any loss.

Yes, this is another one of those occasions when the Reserve Bank takes the opportunity to state on the public record that neither the Bank, nor the government, guarantees any of the deposits of any registered bank.

Nevertheless, limited liability, systemic impact, and political voice underpin expectations of asymmetric payoffs for shareholders and bank creditors, and together these suggest that the privately optimal level of bank capital to cover expected losses might lie below the socially optimal level of capital required to meet both expected and unexpected losses. Let us call the former "economic capital" and the latter "regulatory capital".

Economic capital is optimal for shareholders; regulatory capital is optimal for taxpayers. There is also a level of capital necessary to sustain a given credit rating from an independent rating agent. Let us call "optimal rating capital" that level of capital optimal for depositors, given the premium over the risk-free rate paid by the bank to attract deposits allowing for the value of the option debt holders presume they have to put their deposits to the government.

Bank management has an interesting role. On the one hand, they want the shareholders to assess their expected rate of return to be high so the bank can access additional capital at the lowest marginal cost. On the other hand, bank management, on behalf of shareholders, want to convince the rating agency that their risks are well controlled so that they may be able to access deposits at the lowest possible cost for a given level of capital. Bank management face an incentive to convince regulators that the level of capital consistent with that demanded by depositors to protect them (rating capital) is also the socially optimal level of capital. Enter the so-called hybrid or innovative capital instruments that the market prices as debt and regulators often count as capital. This device seeks to provide regulatory capital at levels above economic capital. What makes capital "capital" is something we will come to shortly.

Let us return to consider the gap which, if it exists, should be of interest. That is, the gap between optimal economic (private) and optimal regulatory (social) capital.

The draft Basel 2 Accord is based on the assumption that under the 1988 Accord there was such a gap and that it was material. The implication in the draft Pillar one of the Basel 2

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Accord concerning bank capital is that the total amount of regulatory capital should remain unchanged and that economic capital was being eroded and should be augmented. More closely tying capital to the probability of default on loans and the expected loss given default, together with an explicit charge for operational risk and the retention of a charge for market risk on the trading book, are the essential elements of Pillar one of Basel 2, which seeks to better align economic and regulatory capital. The alignment of regulatory capital is seen as good and the complexity of the proposed calculation of regulatory capital is in part justified as a way of making regulatory capital mimic economic capital, which is presumed to be the level of capital the market would demand.

### **Optimal economic capital may fall short of optimal social capital**

Asymmetric payoffs to shareholders and depositors mean the privately optimal level of capital lies below the socially optimal level of capital given the full distribution of returns to all stakeholders from the portfolio of risky loans originated by the bank's management but underwritten by shareholders, depositors and ultimately taxpayers in the case of systemically significant banks. In my view, alignment of economic and regulatory capital leads to an inherently undercapitalised privately owned banking system. In the absence of market discipline, it would be a mistake for the regulator to go along with whatever capital banks determine to be privately optimal. But recall it may still be efficient to socially insure, rather than capitalise the banks to absorb the most extreme unexpected losses. However, most safety nets have been slung to underwrite much more common events yet fail to ensure the preservation of the credit origination, liquidity transformation, and payment service capability of the institution. The analysis is made more complicated if the shareholders, depositors and taxpayers come from different nation states. Any idea of a utility maximising objective function to determine socially optimal bank capital needs to recognise the segmentation which occurs when the three sets of stakeholders cannot be presumed to be in a continuing relationship after a bank failure.

But that is not the full extent of the gap. Economic capital is calculated on the basis of expected losses. To the extent minimum capital requirements are set consistent with economic capital, unexpected losses will not be borne by bank shareholders. Unexpected losses must be borne by bank creditors, a deposit insurance fund, an ex post levy on surviving banks or socialised via taxpayer support arising from implicit deposit insurance. Losses which are unexpected to an individual bank are not necessarily unexpected to a banking system. The question is to what extent should banks' shareholders put up capital to underpin not only each institution but also the banking system? Does not deposit insurance seek to do just that?

### **Deposit insurance, moral hazard and undercapitalised banks**

The arguments against deposit insurance (whether explicit or implicit) are well rehearsed. Depositors and banks take more risk (incur moral hazard). Banks make more risky loans, which crowd out safe loans. Small scale and inefficient banks are protected. Regulatory capture and regulatory forbearance increase the loss given default. Credible deposit insurance may reduce the probability of bank runs as a cause of bank failure and increase the political acceptability of failing insolvent banks, but it does so at the risk of increasing the probability of failure, risks increasing losses given failure and appears to increase fragmentation and inefficiency in the intermediation process. Increased competition may be associated with more participants and industry profitability may be reduced. However, it is more likely that profits are reduced because costs are higher than because fees and margins are lower. A less profitable banking industry may simply reflect a less efficient one.

To mitigate the moral hazard of insured depositors tolerating excessive risk-taking by bank management on behalf of shareholders, advocates of deposit insurance promote schemes with: (a) caps (only a small limited amount of deposits are insured for each depositor); (b) co-insurance (only pay a percentage of losses); and (c) deposit insurance premiums based on the riskiness of the bank. However, experience is that coverage provided by deposit insurance is

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extended over time and by circumstances. To the extent that deposit insurance makes credible the threat that some depositors may face some losses by making it clear that small retail depositors with political voice will be protected, but no others will be, the case is made that deposit insurance adds to market discipline. Of course, that presumes that the uninsured depositors will discipline the bank but what of the bank that raises only insured deposits, or of the systemically important bank with material externalities? There may be little market discipline on such banks and the deposit insurer or regulator must constrain the rationally excessive risk appetite of the bank. As the regulator becomes ever more prescriptive and fixed with knowledge (or blamed for the lack of it), so the chances of a bail-out increase, market discipline weakens further and regulators get drawn in further. In my opinion, public sector bureaucracies find risk management extremely difficult. Rarely are the payoffs for taking more risk commensurate with the incentives facing individual decision makers. Consequently bureaucrats are too risk averse most of the time and not risk averse enough when confronted with the high probability of a bad outcome becoming even worse.

Is there a better model – one in which there is a realistic prospect that shareholders, having put up something close to the socially optimal amount of capital, are at risk, and depositors, facing a credible threat of loss, insist on that level of capital being sustained? Capital needs to stand ready to take its punishment for being associated with risky ventures that go bad, whether expected or not.

For capital to be punished, it needs to be:

- permanent;
- available at the time of insolvency;
- accessible in the jurisdiction of the obligations of the bank; and
- under no obligations to its holders that rank ahead of any other obligations.

To constitute bank capital, rights accorded to owners must be capable of being irrevocably, completely, unilaterally, and immediately cancelled in the event all other obligations are not expected to be settled in full.

## An antidote to moral hazard

For bank creditors (all senior unsecured creditors) to have incentives to monitor the soundness of the bank, they must face the prospect of a loss of some or all of their investment. Such a loss must be:

- reasonably expected even if extremely improbable;
- politically acceptable;
- quickly determined; and
- promptly administered.

A “haircut” is a process involving a reduction in the face value of an obligation of the bank. The amount of the reduction may reflect the negative equity of an insolvent bank which has been liquidated (a dead haircut), or the amount necessary to recapitalise a bank in order for it to continue in business. It is the latter case I wish to focus on. It is the case where bank creditors recapitalise the bank. The creditor recapitalisation option is far from a done deal but we continue to explore the feasibility of adding it to the options for managing a bank crisis. In the bank creditor recapitalisation case, creditors may recover some or all of their haircut from the subsequent sale of the bank. To the extent bank creditors have become the shareholders of the recapitalised bank, they might have all the rights of ordinary shareholders and indeed might sell their shares at a profit. Of course, by taking more of the creditors’ money than is necessary to cover losses, creditors are being required to meet a social policy objective but they are the primary beneficiaries of that policy – gaining immediate access to a substantial proportion of their deposits, avoiding costly and drawn out liquidation proceedings and preserving access to the payment system. The alternative is most often the nationalisation of the bank at the expense of taxpayers.

In most parts of the world, regulators faced with a failing bank with a large number of depositors are confronted with advising governments to nationalise or liquidate the bank.

Confronted with this choice, liquidation is likely to be an unacceptable option for all but the smallest of banks. A credible regime to recapitalise the bank using depositors’ and other creditors’ money possibly offers a policy option that might be preferable to nationalisation.

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The key features of a bank creditor recapitalisation might include the rapid assessment of the rough order of magnitude of the negative equity, placing the bank into statutory management, freezing withdrawals for a short period, deduction of a proportion of all obligations of an immediate nature and recording deductions against the name of the obligatee in a memorandum account, guaranteeing the residual obligations of the institution, if not the entire institution, and reopening the institution. Over time, the application of partial equity conversions to other time obligations as they fall due and the conversion of creditor obligations into equity could take place. While avoiding the complexity, costs and moral hazard of deposit insurance, ex ante the prospect of bank creditor recapitalisations may provide creditors with an incentive to monitor their bank and insist on levels of capital closer to the socially optimal level. A credible creditor recapitalisation option may avoid the need for and inefficiency induced by a deposit insurance regime. It may avoid the need for intrusive regulatory oversight. It seeks to protect the taxpayers interest. It may significantly reduce the public subsidy to depositors and other bank creditors arising from the put option they have not paid for and reduce the excess returns to bank shareholders from running an undercapitalised bank. It would appear to impose few administrative costs on banks to counter what is perceived to be a very low probability event. Of course, it is possible to consider a world of deposit insurance for small depositors and haircuts for other bank creditors or for a bank creditor recapitalisation scheme that distinguished between small and large creditors. Of course, a deposit insurance scheme does not provide a solution to the question of how a systemically important bank should be recapitalised.

What is envisaged is a regime that requires pre-positioning of creditor recapitalisation capability within registered banks, and thereby offers the prospect of preserving the credit origination, liquidity transformation, and payment facilitation services while avoiding the worst liquidity impacts of a bank failure. By 'pre-positioning' I mean that as part of their Business Continuity Plans banks might be required to confirm they had the systems capability to implement a creditor recapitalisation within a specified number of business days and banks could confirm their ability to 'reconnect' with a bank which had been recapitalised with bank creditors' funds.

Politicians and regulators would no doubt wish to retain the flexibility to nationalise, recapitalise, or liquidate a failing bank.

## **Crisis management and organisational form**

For creditor recapitalisation to be a viable alternative to nationalisation or liquidation, it is essential that a bank's assets can quickly be identified. That requires legal certainty as to the owner of the claim to future cash flows. Such legal certainty does not exist if there is doubt as to the jurisdiction in which assets are located. In the absence of a global insolvency regime, at the point of failure of a transnational bank the world is destined to have a rerun of the BCCI fiasco when national regulators laid claim to assets in their jurisdiction. Years passed in some cases before rightful ownership was determined.

As the world moves to embrace first transnational and ultimately global retail banking, as banks seek efficiency from cross-border outsourcing, as competitive pressures drive aggregation and more countries play host to foreign banks which are systemically important, the more apparent it will become that not all depositors in a bank are equal. The location of assets is far from certain and outcomes on failure are unpredictable, arbitrary and potentially unfair. Predatory national regulatory practices, such as preferring home country depositors over foreign depositors within the same corporate entity or designing deposit insurance regimes as barriers to competition or as a device for unfair competition, may become a source of increasing friction. Both the USA and Australia have depositor preferences and the European Union is confronting potentially competitive national deposit insurance regimes given the flexibility allowed under the EU directive.

## **New Zealand bank regulation and organisational form**

Some of you may be aware that starting about eighteen months ago the Reserve Bank began to focus on managing a bank failure in a system dominated by foreign owned banks.

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To date, we have been agnostic about the matter of organisational form. We were relatively indifferent to whether a foreign bank branched into New Zealand or operated via a locally incorporated entity. In a banking regime in which public disclosure and market discipline play a central role, along with the accountability of bank directors for the sound operation of the bank, we became concerned about some aspects of the unincorporated or branch form of organisation.

Firstly, the notion of 'branch capital' in a world where assets can be moved cross border quickly and at low cost, where the very notion of a 'New Zealand' asset is losing definition and foreign depositors may be given priority in the event of liquidation, made the branch balance sheet increasingly meaningless as a guide to assets and liabilities which were likely to exist at a point of failure. In a regime based on disclosure, unexpected, unpredictable and arbitrary outcomes would not be seen as a 'fair game'. Further, the more we looked at the issues the more we, the regulator, became fixed with knowledge as to the inadequacies of branch-based disclosure.

Secondly, disclosure regimes differ markedly between countries. In some cases, the level of public disclosure by banks branching into New Zealand would be inadequate to found a presumption that depositors could be informed as to the condition of the bank. Indeed branch accounts built on the notion of branch capital can be inherently misleading.

Thirdly, the lack of local directors mitigates against the incentive effects of the full force of legal sanctions.

Finally, placing a branch into statutory management is inherently more complex, slower, and more uncertain than taking action against a locally incorporated entity.

For these reasons, the Reserve Bank concluded that in certain cases it was likely to require that retail banking business above NZ\$200 million of deposits should be conducted via a locally incorporated subsidiary. Where the bank is systemically important, or comes from a jurisdiction which prefers home country depositors or from a jurisdiction where the level of public disclosure is inadequate, local incorporation of retail deposit-taking may be required. We continue to discuss the implementation of the policy with the banks directly affected. It is worth noting that our concerns about organisational form were aroused well before our thinking on creditor

recapitalisation as a means of resolving a failed bank had been developed. The case for local incorporation stands irrespective of whether a failed bank is nationalised, recapitalised, or liquidated.

It is implausible to believe that New Zealand will never again face the prospect of a major bank in distress. Our banking system is presently one of the soundest in the world. On the basis of the weighted average credit rating of the banks operating in New Zealand today, Moody's Investor Services rates New Zealand as the third soundest banking system in the world. We also have one of the highest levels of foreign ownership and, among privately owned systems, one of the most concentrated. By their nature, banks are exposed to risks which they seek to manage. It is by absorbing and managing those risks that banks contribute to our economic growth and prosperity. They transform short-term liquid deposits into long term, difficult to monitor assets. Liquidity transformation and credit origination services have volatile expected future cash flows and changing discount rates. Bank capital is the buffer that enables a bank to meet its obligations to others even when its claims on others fail to materialise as expected. Bank management does not seek to break the bank but neither do motor vehicle drivers usually seek to have accidents.

## **New Zealand's position in respect of banking supervision**

So where does that leave New Zealand in terms of banking supervision? There is a case for regulating banks given the prospect of contagion. However, bank regulation and supervision taken too far, by which I mean supervision which displaces the paramount role of directors and depositors in monitoring the bank, run major risks of weakening market discipline by reducing the incentives for sound risk management, including the holding of liquid assets and adequate capital.

It is my belief that part of the reason why we have seen a fall in bank capital ratios over the last century has been because of a weakening of market discipline. While some reduction may have been a true gain in welfare to the community through more efficient risk transfer, carried too far,

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inadequate capital simply allows bank shareholders and depositors to earn excess rates of return at the expense of future taxpayers.

## So what?

It is therefore important to take all reasonable steps to strengthen self discipline and market discipline on the banking sector, including by:

- applying high standards of corporate governance;
- ensuring high standards of public disclosure;
- defining and applying accounting and auditing standards;
- having a credible crisis management strategy;
- avoiding deposit insurance if at all possible and in particular avoiding unlimited and inappropriately priced schemes;
- minimising the extent to which depositors, perceiving banks to be too big to fail, conclude they are not at risk at all; and
- minimising the amount of private information regulators hold or are believed to hold so as to limit the extent to which regulators and taxpayers are implicated in practices which are found to be unsound leading to taxpayer bail-outs.

Creditor recapitalisation is one possible mechanism for making credible a non-zero probability that bank creditors, even at the biggest banks, might not be made whole in the event of a bank failure.

We are currently working on the bank creditor recapitalisation proposal and would encourage other supervisors to do so. However, we acknowledge there may be circumstances where creditor recapitalisation is not feasible and, even if feasible, may not be optimal. So our case is one for exploring alternatives to ever more intrusive and prescriptive regulation of the risk management process which lies at the heart of financial intermediation.

The socially optimal level of capital in a national banking system will exceed the privately optimal level, being the aggregate of individual bank's assessed economic capital, if taxpayers in each national jurisdiction are **expected** to bear

losses which, although unexpected to each bank, are 'expected' across a portfolio of banks. This is because the expectation of the socialisation of losses changes the behaviour of banks ex ante. Whether taxpayers should in fact bear losses, given a failure, is a different issue. That is determined by the costs of the bail-out and future costs of moral hazard, including the cost to future taxpayers. These costs to future taxpayers include the dead-weight costs of the additional tax burden to finance future bail-outs. These expected costs must be weighed against the potential costs and losses taxpayers face from the loss of liquidity transformation and credit origination services that may accompany the loss of confidence associated with depositors taking losses.

## Conclusion

By making credible the policy option that the bank creditors in the national jurisdiction will bear losses, the expectation of a bail-out is reduced and the privately optimal level of bank capital held in the jurisdiction converges toward the level of capital which is socially optimal.

If banks operate in widely diverse international markets, if significant numbers of depositors are expected to bear losses and are treated *pari passu*, there is reason to hope that the privately optimal level of bank capital globally will converge to the socially optimal level. In such a world, shareholders bear expected losses while bank creditors bear unexpected losses. In such a world, the role of the regulator is to protect taxpayers, current and future, from being exploited by bank shareholders and depositors. This is a role not dissimilar to the role independent central banks have in protecting savers from unexpected losses arising from unexpected inflation. Time inconsistency, which explains politicians' predisposition to excessively easy monetary policy, also explains their readiness to bail-out failing financial institutions. Anchoring inflation expectations contributes greatly to the efficient allocation of resources, so does managing expectations about who bears the risks of associating with risky banking ventures.

The Reserve Bank is continuing its policy research and consultation on bank crisis management. Our banking supervision regime is based on the three disciplines – self-discipline, market discipline, and regulatory discipline. The

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credibility of our regime hinges in no small part on having a credible range of options as to how we would deal with a banking crisis. We are reluctant to engage in forms of regulation and supervision that undermine incentives for banks and markets to deliver socially optimal outcomes.

In summary, what we support is a regime in which banks face incentives to hold sufficient capital to ensure the probability of failure is reduced because bank management and shareholders are aware that imprudence by them will mean at-risk depositors might run. The capital willingly held by the bank should be sufficient to align incentives of shareholders with those of regulators by ensuring the put option depositors perceive they hold is a long way out of the money. The level of bank capital needs to go beyond that necessary merely to absorb expected losses. Bank capital needs to be sufficient to absorb all but the most improbable unexpected losses.

In my view, incentive-compatible regulation does not mean setting regulatory capital equal to economic capital. Even when depositors and shareholders bear all the costs of a bank failure via risk-based premiums paid to a deposit insurance scheme, unless there is agreement on when it is optimal to socialise the cost of systemic failure, economic capital and regulatory capital will diverge. This is even more likely to be the case when shareholders and taxpayers are in different national communities. It is my contention that bank shareholders and bank creditors should bear a very large

proportion of the systemic risk currently laid at the feet of future taxpayers. To shift this risk requires new instruments such as local incorporation and plans to recapitalise failing banks with creditors' money. It is necessary to ensure that capital is really available to absorb losses, and is of sufficient quality and held in sufficient quantity. Banks should face incentives to hold closer to the socially optimal level of capital.

## Bibliography

Baer, Herbert and Klingebiel, Daniela "Systemic Risk When Depositors Bear Losses. Five Case Studies." *Research in Financial Services Private and Public Policy*, Vol 7, pg 195-302. 1995 JAI Press Inc.

Caprio Jr, Gerard and Klingebiel, Daniela "Bank Insolvency: Bad Luck, Bad Policy or Bad Banking?" *Annual World Bank Conference on Development Economics 1996*. The International Bank for Reconstruction and Development/ The World Bank.

Dowd, Kevin "Does Asymmetric Information Justify Bank Capital Adequacy Regulation?" *Cato Journal*, Vol 19, Number 1, (Spring/Summer) 1999. Cato Institute.

Santos, Joao A C "Bank Capital Regulation in Contemporary Banking Theory: A Review of the Literature" *Financial Markets, Institution and Instruments*, Vol 10, number 2. May 2001. New York University Solomon Center.

## For the record: recent press releases

### **New Zealand's inter-bank settlement system to remain in New Zealand for the time being**

*18 April 2001*

The Reserve Bank today announced that its plan to move the hardware used for inter-bank settlements in New Zealand to Sydney will not proceed. Also terminated is the Bank's related plan to move to Sydney the hardware for the wholesale clearing and settlement of high-value debt securities and equities, known as "Austraclear".

Reserve Bank Deputy Governor Rod Carr commented: "This has occurred for one reason only, namely that the Reserve Bank and the new owner of Austraclear Limited, the Sydney Futures Exchange Limited, have been unable to agree to terms for the proposed move to Sydney, as foreshadowed in the earlier heads of agreement signed between the Bank and Austraclear Limited.

"The move would have involved the Reserve Bank transferring back to the Australia-based firm Austraclear Limited the licence to operate the current Austraclear system in New Zealand. As well, the hardware used for inter-bank settlements in New Zealand would have been operated from the same Sydney site.

"As a result of that no longer taking place, in New Zealand these services will continue to be provided by the Reserve Bank, at least in the meantime. Longer term, the Reserve Bank will reassess how best these services should be provided, acknowledging that in many jurisdictions depository services, such as those provided by Austraclear, are not provided by central banks.

"Our present expectations are that there will be no effect on the settlement system or Austraclear services at least until the end on December 2002, when existing software support and maintenance agreements are due to expire.

"This development solely reflects an inability to finalise a contract. The recent report *Protecting New Zealand's Infrastructure From Cyber-Threats* commissioned by the State Services Commission was not a factor," Dr Carr concluded.

### **Reserve Bank cuts OCR to 6 per cent**

*19 April 2001*

Reserve Bank Governor Don Brash today cut the Official Cash Rate from 6.25 per cent to 6 per cent, but in doing so he indicated that there were strong grounds for being cautious about further cuts. Dr Brash said: "The main reason for cutting the OCR again is slowing growth in New Zealand's main trading partners. This slowdown in global growth will have an adverse impact on demand for our exports, and is likely to reduce inflationary pressures in New Zealand.

"However, world prices for our commodities remain robust, and the exchange rate has fallen back since March. These unexpected developments, if they persist, could take much of the disinflationary sting out of weakening global demand.

"In addition, significant parts of the economy are operating near to capacity and the labour market is relatively tight.

"It is for these reasons that we are only cautiously moving the OCR in the same direction as official interest rates in other countries. We will be assessing the emerging data carefully and will next review the OCR at the May *Monetary Policy Statement* to be released on 16 May," Dr Brash concluded.

### **OCR reduced to 5.75 per cent**

*16 May 2001*

The Reserve Bank today reduced the Official Cash Rate (OCR) from 6.00 per cent to 5.75 per cent.

Commenting on the decision, Reserve Bank Governor Don Brash said: "Today's decision to reduce the OCR by 25 basis points reflects the balance of tensions between contradictory influences on the future path of inflation in New Zealand.

"Overseas, the economies of many of our major trading partners, and particularly Australia, the United States, Japan, and non-Japan Asia, have grown quite slowly in recent months.

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“ At home, business and consumer confidence have fallen, and investment spending has slowed. There is no sign of any widespread increase in asset prices, with the exception of the prices of some rural land, and growth in money and credit remains relatively weak. The drought may reduce next season's agricultural production, tempering growth in income and spending in the rural economy.

“ However, there are other factors relevant to the inflation outlook which are pointing in the other direction. Specifically, the current dip in the international economy is still expected to be reversed next year. As well, the world prices of some of our major commodity exports have so far been particularly strong despite the recent weakness in our trading partners' growth rates.

“ In addition, the low exchange rate is providing useful insulation against the slowing world economy. Unemployment is currently near 13-year lows, with many reports of employers having difficulty finding staff. Similarly, some measures of capacity utilisation suggest little scope to increase output substantially without an increase in inflation.

“ At this stage, if events unfold as described then we see inflation settling back near the middle of our target range with something close to the current interest rate settings. However, other outcomes that are less benign – in either direction – can be easily envisaged, which would require more vigorous monetary policy responses. Thus it is prudent to adjust policy cautiously, as we observe the evolving balance of those influences,” Dr Brash concluded.

## **Government's response to Monetary Policy Review**

### **Media Statement**

Hon Dr Michael Cullen

Minister of Finance

*30 May 2001*

Finance Minister Michael Cullen today released the Government's proposed response to the recommendations of the Independent Review of the Operation of Monetary Policy by Professor Lars Svensson.

“ I am now seeking feedback from the other political parties to achieve the highest level of cross-party consensus,” he said.

Letters setting out the Government's position were sent out earlier this month to the various finance spokespeople: Bill English [National], Winston Peters [New Zealand First], Rodney Hide [Act], Rod Donald [Greens] and Peter Dunne [United].

Dr Cullen will contact those people within the next couple of weeks to discuss their reaction.

“ It is important that any changes enjoy the broadest possible support to ensure policy stability in this area,” Dr Cullen said.

**Table 1**  
**Proposed responses to the Review's recommendations**

<b>Review's recommendations</b> <b><i>Governance</i></b>	<b>Government's</b> <b>Proposed response</b>	<b>Comment</b>
The Board of Directors should only consist of non-executive directors	The Governor should not be Chair of the Board but should continue to be on the Board.  The Deputy Governors should not be on the Board.	I consider the balance between the Board's independence and its access to the information necessary to enable effective monitoring can be best achieved by retaining the Governor on the Board.  Minor legislative amendments are required.
To ensure sufficient independence of the Board the chair of the Board should be selected by the non-executive directors among themselves and not by the Treasurer.	Support	An independent chairperson is important to the maintenance of a credible and unbiased system of accountability for the Bank and the Governor.  Minor legislative amendments are required.
The Board of Directors should publish an annual report with an evaluation of the Bank's monetary policy. This report could be separate or part of the Bank's <i>Annual Report</i> . The Board may appoint a panel of experts for its assistance.	Support	This proposal will raise the visibility of the Board and strengthen the accountability of the Bank.  The non-executive directors have indicated their support for this proposal, making legislation unnecessary.  Legislation may also restrict the ability to make future changes that would enhance the effectiveness of monitoring.
<b>Review's recommendations</b> <b><i>Decision-making</i></b>	<b>Government's</b> <b>Proposed response</b>	<b>Comment</b>
A formal Monetary Policy Committee of the Reserve Bank, responsible for monetary policy decisions, should be formed. The committee should have five members the Governor as chair (with the casting vote), the two Deputy Governors, and two other senior Bank staff. The Governor and Deputy Governors should be appointed in the same way as now.	Do not support.  I favour retaining the Governor's sole responsibility for monetary policy. I believe there may be some benefits to the decision-making process by exposing the Governor to a wider range of views when decisions are made.  This may be achieved by appointing external people with relevant skills, experience and knowledge of the economy, to advise the Governor on the state of the economy and on monetary policy decisions.	Consistent with the operational independence of the Bank, the Bank is responsible for deciding how best to incorporate external input into the decision-making process.
The MPC should only be responsible for decisions related to monetary policy. In all other respects the Governor should continue to be the single decision-maker of the Bank. A suitable time for this is at the beginning of the next term of Governor. The two senior staff should be appointed by the Board of Directors on the recommendation of the Governor.	I have invited the Bank to consider the best way to improve external input into the decision-making process, particularly from those with a practical knowledge of financial markets.	
Named votes and non-attributed minutes should be published with a lag of about two weeks.		

Review's recommendations <i>Accountability</i>	Government's Proposed response	Comment
<p>The Reserve Bank should fund an annual conference for the evaluation of monetary policy. The conference should be organised by an independent committee.</p>	<p>I agree there may be some merit in a regular conference, although it should be convened on either a biennial basis or at the request of the Bank's Board or its external advisors.</p>	
<p>Parliament's Finance and Expenditure Select Committee should, with the help of appointed experts, conduct thorough and detailed hearings of the Governor and other Reserve Bank officials. This may require additional resources for the Committee.</p>	<p>I am discussing with FEC the best way to meet their needs.</p>	
<p><b>Svensson's recommendations</b> <b><i>Policy Targets Agreement</i></b></p>		
<p>Section 2b (of the PTA) should be modified to read "...the policy target shall be 12-monthly increases in the CPI of 1.5% over the medium term".</p>	<p>I agree with the need to be explicit about the medium term orientation of monetary policy, but do not support the proposal for a point target.</p>	<p>The Bank already targets the mid-point of the 0-3% band making any gains from moving to a specific point small and potentially confusing the key message of flexibility.</p>
<p>This change to the PTA should be made at the beginning of a new term for the Governor.</p>	<p>The decision to renegotiate the PTA should lie with the Government of the day. I expect that in the future changes to the PTA will be less frequent than they have been in the last 10 years.</p>	<p>I will seek to clarify the flexible and medium-term orientation of monetary policy the next time the PTA is renegotiated.</p>
<p><b>Data Issues</b></p>		
<p>Statistics New Zealand should collect monthly data on the Consumer Price Index and industrial production.</p>	<p>Do not support</p>	<p>I have little confidence that monthly data would provide statistically meaningful data, rather they would be subject to a great deal of volatility. Continued progress on the other priorities for statistics (eg the timeliness of data releases) will yield better value for money.</p>

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