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Editor's Note

The two core objectives of most central banks are price stability and financial stability. In most advanced economies, the objective of monetary policy in one form or another is price stability (sometimes in combination with other economic objectives). Similarly, most central banks, sometimes in association with other government agencies, seek to promote financial stability through various policy instruments, typically by promoting strong banking and payment systems. These twin objectives – price stability and financial stability – are seen as the most effective way that central banks can contribute to the ultimate goal of creating the conditions required for sustainable economic growth. Price stability and financial stability are essential prerequisites for growth, given that they provide the conditions necessary for investor, consumer and producer confidence and assist in promoting efficient and productive investment and resource allocation.

This edition of the Bulletin focuses on different aspects of these two objectives. The first article discusses the relationship between inflation and economic growth and assesses the extent to which there is a trade-off between achieving and maintaining a low rate of inflation, on the one hand, and promoting economic growth on the other. It is an abbreviated version of a paper prepared by the Reserve Bank as part of the recent review of the Policy Targets Agreement. That paper, and the summarised article, were prepared in order to shed further light on the question of what effect, if any, might a change in the inflation target have on economic growth prospects.

The article reviews the economic literature on this subject, with a particular focus on whether there is a relationship between inflation and growth at very low rates of inflation. It concludes, not surprisingly, that high inflation (generally regarded as inflation above about 10 per cent per annum) has a significant detrimental effect on economic growth, but that below an inflation threshold point, the relationship between inflation and growth is much less clear. Although there is no clear evidence as to the level of this threshold, some research indicates that it might be in the order of 3 per cent. On this basis, some of the literature appears to suggest that, below an inflation rate of around 3 per cent, further declines in inflation are unlikely to have a material effect on growth. However, some literature also suggests

that there may be adverse effects on growth where inflation falls below zero – ie in situations of deflation. The literature therefore provides some evidence for concluding that aiming for a low positive inflation rate up to about 3 per cent per annum over the medium term, is the optimal range for economic growth.

The second article discusses aspects of financial stability and is the first of what is intended to be a regular series of articles on macro-prudential indicators for the New Zealand economy and financial system. In recognition that New Zealand's macro-financial stability is significantly influenced by what is happening in the world around us, the article discusses recent macro-financial developments in the United States, Europe, Latin America and Asia. Despite the considerable turbulence in international equity markets, uncertainty over the extent of recovery in the United States economy and continued structural and financial difficulties in Japan, the article concludes that New Zealand's macro-financial position remains relatively sound. An important aspect of this is the soundness of the New Zealand banking system, which continues to display good asset quality and capital adequacy, reflecting relatively conservative lending practices in recent years and sound risk management systems.

However, as noted in previous articles, there are points of potential vulnerability in the New Zealand economy, including the high level of external debt, our continued dependence on capital inflows and the relatively high leverage in the household sector. It is therefore essential, particularly in a world of considerable financial and economic volatility and uncertainty, that New Zealand maintains sound economic and financial policies, and that we keep a close eye on international developments and their potential impact on the New Zealand economy and financial system.

The third article explores a different aspect of financial stability. It is a slightly amended version of a paper summarising the conclusions of an APEC Policy Dialogue held recently on the theme of strengthening market disciplines in the financial sector. The Policy Dialogue was co-chaired by the Reserve Bank of New Zealand (which authored the paper) and the finance ministries of Chile and Thailand. The paper, and this article, discuss the role that market disciplines can play in encouraging sound risk management practices in financial institutions.

Market disciplines take many forms, but typically include the extent of risk premium that investors (including creditors and depositors) require in order to place funds with a financial institution, taking into account the risk profile of that institution. In addition, markets impose discipline on financial institutions through other channels, including the extent of market access and market share enjoyed by a financial institution and, ultimately, the potential threat of a sudden withdrawal of funds where market confidence in an institution falls sharply.

Although market disciplines can be a source of instability in periods of financial distress, in the longer term they are a vital element in strengthening the incentives for sound risk management. Unfortunately, various government interventions and policies can weaken the effectiveness of market disciplines, and have done so in many countries. In particular, government policies or market structures that insulate investors and creditors from the risk of loss tend to weaken the incentives for markets to monitor financial institutions and to respond to a deterioration in the risk profile of a financial institution. Government ownership of financial institutions, government guarantees, deposit insurance and the "too big to fail" syndrome are all factors that tend to weaken the effectiveness of market disciplines. Equally, inadequate disclosure by financial institutions and a lack of

contestable and competitive financial markets also weaken the extent to which markets can impose appropriate disciplines on financial institutions.

Ultimately, weak market disciplines will reduce the soundness of the financial system and increase the frequency and severity of financial crises. It is therefore essential that central banks and other government agencies take all reasonable steps to ensure that market disciplines are working effectively, while seeking to minimise the destabilising effects of excessive volatility sometimes associated with financial markets.

Finally, this edition of the Bulletin contains a summary of the results of the survey of Bulletin readers conducted earlier this year. We much appreciate the time and effort made by those who completed the survey questionnaire. The feedback we obtained has been very valuable to us and will greatly assist in the process of making further, ongoing improvements to the style, format and content of the Bulletin.

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An optimal inflation target for New Zealand: Lessons from the literature

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In this article we summarise the recent economic literature on the relationship between inflation and growth, to assess what inflation target might be most consistent with the fastest pace of sustainable economic growth. One conclusion is that the relationship between inflation and growth seems to be different at different rates of inflation. At very low rates of inflation, including the 0 – 3 per cent range, the growth rate seems to be independent of the inflation rate. But at higher rates of inflation, there is evidence that inflation does significant damage to growth. There is some theoretical literature which cautions central banks against deflation, and therefore against including zero in an inflation target range. As yet there is little data available with which to test this presumption. Based on the theoretical arguments, we conclude that the risks of New Zealand being caught in a deflationary trap are low. Overall, we conclude that average rates of inflation in New Zealand have been within the ‘optimal inflation range’ suggested by the literature. Interested readers may wish to consult a longer and more comprehensive version of this paper, contained in the Bank’s publication on PTA related issues.¹

1 Introduction

The Reserve Bank of New Zealand Act 1989 requires monetary policy to be directed at price stability so that monetary policy can make its maximum contribution to sustainable economic growth. As in some other countries, there has been ongoing debate within New Zealand about the extent to which pursuing a low inflation target may help or hinder growth, and what the nature of the trade-offs might be. This article has been motivated both by this debate and by the need for a new Policy Targets Agreement (PTA) to be negotiated between the Governor-designate and the Minister of Finance. The negotiation of a new PTA provides the opportunity to reassess the appropriateness of the current inflation target. The objective of this article is to summarise the recent economic literature on the relationship between inflation and growth to assess what inflation target would be most consistent with the objective of sustainable economic growth in New Zealand.

The economic literature provides evidence that high inflation rates are harmful for growth, and that for industrial countries at least, the adverse effects probably begin to apply at

relatively low single digit rates of inflation. At inflation rates below around 3 per cent per annum, the relationship between inflation and growth is less clear. As a result, most economists have concluded that other than keeping inflation below around 3 per cent per annum, and out of deflationary territory, it is very difficult to identify a more specific optimal inflation target. There is also a significant body of literature that warns about the risks of deflation, and provides some arguments against including zero in an inflation target range, although there are questions about the applicability of this literature to New Zealand.

The remainder of this article is organised as follows. Section 2 summarises the empirical literature on the relationship between inflation and economic growth, particularly at low rates of inflation. Section 3 discusses the costs of inflation, and some of the possible counterbalancing benefits of low positive rates of inflation in the presence of nominal rigidities. Section 4 covers the relationship between deflation and growth, and explains the reasons why New Zealand has less reason for concern about deflation than most other industrial economies. Section 5 concludes.

¹ See Brook, Karagedikli and Scrimgeour (2002). This paper also provides a more complete set of references to the economic literature.

2 Inflation and growth

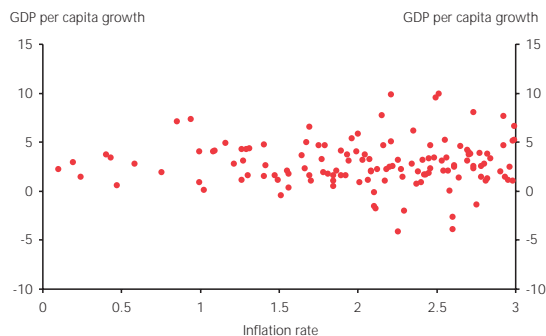
There is a significant body of macroeconomic literature that attempts to determine the relationship between inflation and growth. This literature can be broadly divided into two groups; the earlier studies which assumed that the relationship between inflation and growth is the same at all rates of inflation (ie linear); and the more recent literature which allows for the relationship between inflation and growth to be different at different rates of inflation (non-linear).

In the latter set of studies, the researcher usually aims to estimate the rate of inflation at which the nature of the relationship changes. This kink in the relationship is usually referred to as the inflation “threshold”. This concept postulates that inflation will have a harmful impact on growth above the threshold rate of inflation, but a more neutral effect below the threshold.

Both the earlier linear studies and the more recent non-linear studies agree unambiguously that high inflation harms growth. However, the second set of studies suggests that the harmful effects of inflation on growth may apply at relatively low single digit rates of inflation, rather than at 10 or 20 per cent inflation, as suggested by the earlier literature. At the same time, however, the non-linear studies also suggest that at very low rates of inflation (ie below the threshold) the relationship between inflation and growth is not very clear. Given the inconsistent results, the best summation is that at very low rates of inflation there is no strong or robust relationship between inflation and growth.

The conclusion that the growth rate seems to be relatively independent of the inflation rate at very low rates of inflation can be seen in figure 1. This figure plots, for 22 developed countries, annual inflation and per capita growth rates between 1963 and 1996.² The observations are limited to those with inflation rates between 0 and 3 per cent. Although there seems to be little trend relationship between inflation and growth, casual observation of figure 1 suggests that higher inflation may be correlated with higher growth variability. This is a potential cost of higher inflation, which we will discuss further in section 3.

Figure 1
Annual per capita growth and inflation rates
for OECD countries



“First generation” studies: a linear relationship

Extracting the relationship between growth and inflation is very difficult for a number of reasons, including the fact that a wide range of factors influence economic growth, many of them unrelated to inflation. Econometric techniques are limited in their ability to distinguish the respective contributions of different economic variables.

Despite this limitation, there are a large number of studies that have attempted to estimate the determinants of growth, and to identify the specific role of inflation. Typically, these studies use data across a large number of countries and over several decades of history (known as “panel data”).

A representative study is that by Barro (1995), who used data from around 100 countries from 1960 to 1990 to estimate the relationship between inflation and growth. After controlling for other determinants of growth that vary across countries, he found that higher inflation was statistically significantly associated with lower real per capita GDP growth.

Not surprisingly, however, the results from Barro and others have been found to vary considerably according to the sample of countries and time periods included. In particular, the results have often been sensitive to the inclusion of high inflation rates, which has raised questions about the applicability of the estimated relationships to economies with low and stable inflation.

One drawback of Barro's study is that it includes developing countries, which may differ systematically from industrial countries in ways not captured by Barro's other control variables. When high inflation observations (mainly from

² This is the data set from Ghosh and Phillips (1998). For some countries the observations may start from 1965.

developing countries) were excluded from Barro's sample, he found that there was no longer a statistically significant relationship between inflation and growth.

Other studies, such as Andres and Hernando (1997), conclude that the negative relationship between inflation and growth is robust even when the high inflation economies are excluded.³ Still other studies find it difficult to identify any robust relationship between inflation and growth (eg Levine and Zervos, 1993).

In summary, a number of cross-country studies have found a negative relationship between inflation and growth – especially at relatively high rates of inflation (say, above 10 or 20 per cent annual inflation). But when the high inflation countries and time periods are removed from the analysis, there is much less consensus about the nature of the relationship. As a result, it was difficult to draw from the first generation studies strong conclusions about the relationship between inflation and growth at low rates of inflation.

“Second generation” studies: is the relationship non-linear?

Given that the results from cross-country growth studies proved to be sensitive to the sample period used and to the inclusion of high inflation countries, some economists proposed that the relationship between inflation and growth may be non-linear. That is, they proposed that the effect of inflation on growth would depend on the rate of inflation.

In the remainder of this section we discuss the results of the non-linear studies, which find that, above some threshold level, inflation has a statistically and economically significant negative effect on growth. Although these studies disagree as to exactly where the threshold lies, they generally indicate that the negative effects of inflation may apply at much lower rates of inflation than was indicated by first generation studies. Indeed, whereas previous studies often found it hard to find a robust relationship between inflation and growth for inflation rates below 10 or 20 per cent, the non-linear analyses suggest that a negative effect may arise at relatively low single digit rates of inflation.⁴ Below that

Table 1
Summary of key threshold studies

Authors	Sample Period	Separate estimation for industrial countries?	Estimated threshold	Relationship between inflation and growth	
				Above threshold	Below threshold ⁵
Sarel (1995)	1970-1990	No	8 %	Negative	Zero or positive
Ghosh and Phillips (1998)	1960-1996	Yes	2-3 % ⁶	Negative	Zero or negative
Burdekin, Denzau, Keil, Sitthiyot and Willett (2000)	1967-1992	Yes	8 %	Negative	Zero or negative
Khan and Senhadji (2001)	1960-1998	Yes	1 % (five year average data) 3 % (annual data)	Negative Negative	Positive Positive

³ Andres and Hernando's results were found in the context of “convergence” theories. Convergence theories postulate that countries with lower initial income levels grow faster, allowing the income levels to converge. See Barro and Sala-i-Martin (1991, 1999) for a detailed analysis of convergence.

⁴ The specific thresholds that have been estimated include 8 per cent, 3 per cent, and even 1 per cent annual inflation rates.

⁵ Zero means that the coefficient is statistically insignificant, while ‘positive’ or ‘negative’ indicates the sign of the relationship.

⁶ Although the paper finds the threshold to be between 2-3 per cent, the estimated models report the thresholds as 2.5 per cent.

threshold rate of inflation, however, the non-linear studies are divided on whether there is any statistically significant relationship between inflation and growth, and if so what that relationship is.

Table 1 summarises the key results of the main papers that use non-linear estimation across a panel of countries to estimate the ‘threshold’.

The first of the empirical papers to identify a structural break in the relationship between inflation and growth was Sarel (1995). Sarel estimated that when inflation is above 8 per cent, a rise in inflation has a strong negative and statistically significant effect on growth. When inflation is below the 8 per cent threshold, Sarel’s results suggest that an increase in the inflation rate has a small positive (but not statistically significant) effect on the growth rate.

As mentioned earlier, one of the difficulties with many cross-country growth studies (including Sarel) is the pooling of both developing and industrial countries in the growth analysis. More recent threshold studies treat these groups of countries separately. Using industrial country samples only, and a similar methodology to that of Sarel, both Ghosh and Phillips (1998) and Khan and Senhadji (2001) estimate the threshold to be somewhere in the range of 1 to 3 per cent inflation. Khan and Senhadji find significantly higher thresholds for developing countries. This would be consistent with a “convergence” of developing country price levels to those in industrial countries. By contrast, Burdekin, Denzau, Keil, Sitthiyot and Willett (2000) estimate the threshold for developing countries to be *lower* (3 per cent) than the threshold for industrial countries (8 per cent).

Turning to the significance of the relationship between inflation and growth, we can make two observations. First, all of the studies find that above the threshold there is a clear and robust negative relationship between inflation and growth. In most cases this relationship is convex, so that the decline in growth associated with an increase from 10 per cent to 20 per cent inflation is much larger than that associated with moving from 40 per cent to 50 per cent.

Secondly, there is little consensus about the nature of the relationship between inflation and growth below the threshold, although most studies cannot reject the null hypothesis of no relationship. For example, Ghosh and

Phillips find that the relationship below the threshold is negative (ie inflation adversely affecting growth), but much less negative than above the threshold.⁷ Similarly, Burdekin et al (2000) find no statistically significant relationship between inflation and growth below the threshold, but with the additional conclusion that deflation is harmful for growth.⁸ However one needs to be very careful when drawing conclusions about deflation, as the number of observations with deflation is very low and may disproportionately reflect observations from Japan or other countries undergoing banking sector related problems.

In contrast, Khan and Senhadji (2001) find that below the threshold there is a statistically significant *positive* relationship between inflation and growth for industrial countries (ie inflation having a positive effect on growth). However, they also find that the relationship depends on whether they use annual or five yearly average data. Using annual data, they find a threshold at 3 per cent. With five yearly average data, their estimated threshold is at 1 per cent, and the positive relationship in this case is much more positive than in the case of the 3 per cent threshold. They find these results to be robust to a range of specifications.⁹ However, there are reasons to be very careful in our interpretation of these results. Importantly, in the sample using five yearly data, there are only 12 observations with an inflation rate of below 1 per cent, which is probably too few observations from which to draw reliable conclusions about the correlations below the threshold.

A significant drawback of all the growth-inflation studies is the difficulty in drawing inferences about the effects of inflation on *trend* growth (ie the average growth rate through the cycle). Trend growth is not directly observable: the growth figures we observe include both a trend as well as a cyclical

⁷ The authors do not report the joint significance of the dummy and the inflation variable, so we cannot be sure whether or not the negative relationship below the threshold is statistically significant (ie the “net effect” of the positive dummy variable combined with the normal negative effect of inflation).

⁸ Most of the other threshold studies do not consider deflation at all.

⁹ For example they use a number of different methodologies and robustness tests and test for the sensitivity of results to additional explanatory variables, including a human capital variable, a measure of financial development, and fixed effects for individual countries.

component (ie short-run Phillips curve effects). As a result, the positive relationship that Khan and Senhadji find between inflation and growth below the threshold using annual data could be due to business cycle or short-run Phillips Curve effects, involving a short-run trade-off between inflation and output.

Burdekin *et al* (2000) attempt to overcome this problem associated with distinguishing the trend growth from the short-run business cycle effect. They find a strong presence of the short-run effect in their regressions. Khan and Senhadji's five yearly average data is another way of addressing this problem, but this creates other complications; although averaging may diminish some of the business cycle effects, different choices for the beginning or the end of the five yearly intervals may change the results significantly. In addition, as we noted earlier, there are only 12 observations of inflation below 1 per cent. Thus, it is likely that we will have to wait for more data – particularly more data from credible low-inflation regimes, rather than isolated observations from temporary low-inflation periods – before we can draw strong conclusions about the relationship between inflation and growth at very low rates of inflation.

A related danger is the possibility that the positive relationship between inflation and growth at low rates of inflation may just be picking up on the cyclical growth upturns that occurred at the end of the disinflations of the 1980s and the 1990s. This argument has been made by Bruno and Easterly (1996).

Overall, the conclusions we draw from the growth-inflation literature are:

- High rates of inflation are detrimental to growth. The literature comes to no firm view as to what level of inflation qualifies as being 'high'. However, the more recent studies indicate that the threshold above which inflation has negative effects on growth may be in the low single digits for industrial countries.
- As yet there is only a handful of studies using non-linear estimation techniques, and the estimates of the threshold vary significantly across studies, ranging from 1 per cent at the low end to 8 per cent at the upper end.

- At very low rates of inflation (ie below the "threshold"), the sign and the size of the relationship is ambiguous, with many studies finding no correlation between inflation and growth.
- The research discussed here has weaknesses. These include the difficulty of separating cyclical growth from trend growth, the relative scarcity of low-inflation observations from credible monetary policy regimes, and the applicability of cross-country estimates to individual countries.

3 Why is there a weak inflation-growth relationship at very low rates of inflation?

The previous section concluded that at very low rates of inflation the relationship between inflation and growth is difficult to determine. This may be partly because of insufficient data. But it is probably also partly due to the counterbalancing of "grease" and "sand" effects of inflation. The sand effects refer to the negative effects of inflation, which get in the way of the smooth turning of the wheels of the economy. Counterbalancing that to some extent, inflation may sometimes serve not as sand, but rather as grease in the mechanism, allowing more efficient adjustment to shocks to the economy. This section reviews the literature on these "sand" and "grease" roles of inflation. We conclude that the specific costs and benefits of low rates of inflation will vary significantly across countries and over time. This suggests that the optimal inflation target, if one exists, will also vary between countries and over time within a country. In principle, the average aggregate impact of these various effects of inflation should be revealed by the cross-country empirical research discussed in the previous section. Unfortunately, as noted, that research has some limitations.

“Sand” effects of inflation

The costs of inflation have been widely discussed in the economic literature (for example Fischer (1981)). Here we provide only a very brief review of three of these costs. The combination of these effects can be significant and can lead to substantive welfare and growth losses.

One easily identifiable cost of inflation is the direct costs associated with changing prices (re-labelling products, recalculating wages etc). These costs are called menu costs (in reference to the costs associated with reprinting menus when the prices change). When inflation is very low, menu costs only occur with changes in relative prices. But higher inflation requires more frequent changes in all prices. Higher inflation also may lead to greater distortions in relative prices if different firms adjust their prices at different times. Given that the efficient functioning of modern market economies improves with the accuracy of the information received on relative prices, relative price distortions could lead to inefficient allocation of resources (Johnson (1993)).

Another cost of inflation arises from the interaction between inflation and the tax system. The underlying problem is that accounting systems assume a stable unit of measurement. As a result, taxes are paid not only on the real return but also on the component of the return that is required to maintain the real value of the asset. Thus, inflation in combination with taxation depresses the after-tax real interest rate on financial instruments and distorts price signals within the economy. In turn, this implies a transfer of wealth from financial savers to borrowers, and may have significant influence on the efficient allocation of investment and hence economic growth.

The cost of these inflation-tax interactions have been estimated for the United States by Feldstein (1997) and for New Zealand by Bonato (1998). Although there are significant uncertainties about the accuracy and relevance of any such estimates, there is a general agreement that the New Zealand tax system is less distortionary than the United States tax system in a number of ways.¹⁰ This means that

¹⁰ For example, the full imputation system in New Zealand eliminates the double taxation of dividends that characterises the United States system, and the tax advantage of owner-occupied housing in New Zealand is reduced by the fact that mortgage payments are not tax deductible.

the tax-related costs of inflation in New Zealand are likely to be lower than the costs of inflation in the United States.

A third important cost of inflation stems from the uncertainty it creates for businesses and households. High and moderate rates of inflation are typically more volatile, making investment plans more risky. In other words, high inflation variability can also be harmful to economic growth. Judson and Orphanides (1999) incorporated inflation volatility into a model examining the relationship between inflation and growth. Generally speaking their results were consistent with the non-linear inflation growth studies discussed in section 2. But they also found inflation *volatility* to be negatively and robustly related to income growth for all countries and levels of inflation. This result is also consistent with the data presented in figure 1.

If inflation had only “sand” effects on the economy, then the optimal rate of inflation would be zero. However, the following section discusses the literature that suggests a little bit of inflation may sometimes be a good thing.

“Grease” effects of inflation

In his presidential address to the American Economics Association in 1972, James Tobin argued that the optimal rate of inflation was greater than zero. Essentially, the rationale of his argument was that some positive inflation is necessary to grease the wheels of the labour market. This argument in favour of small positive rates of inflation and the counter-arguments are summarised here.

Real wage flexibility has an important role in facilitating the allocation of labour following shocks to the economy. If a particular industry faces a sudden decrease in demand, and if there is inflation, then real wage decreases can be achieved with the nominal wage rate rising less rapidly than prices. Because reduced real wages allow firms in the industry to maintain employment, such an adjustment process may mitigate the impact of the shock on unemployment. But this adjustment process may break down in a low-inflation regime if nominal wages are rigid downward – that is, if people are unwilling to accept a cut in their take-home pay packets.

The existence of downward rigidity in nominal wages raises the question of why workers might accept declining real

wages imposed by inflation, but not accept declining real wages imposed by nominal wage cuts. This phenomenon has traditionally been attributed to money wage illusion, a notion that economists are reluctant to incorporate into their models because it seems to presume that employees are irrational or easily fooled. However, Akerlof, Dickens and Perry ((2000), ADP hereafter) provide a new perspective on the role that inflation expectations play in price and wage setting. Essentially, ADP draw on the psychology literature that suggests people make decisions using simplified abstractions rather than the full information that is available to them. ADP assume not that people are unable to form rational expectations of inflation, but rather that when inflation is low, people choose not to take it fully into account.

This assumption has been criticised by several economists, who argue that the formation of inflation expectations may change in an environment of persistently low inflation.¹¹ That is, once people become accustomed to very low persistent rates of inflation, they may become less willing to accept lower real wages, and ADP's assumption may no longer be valid. Unfortunately, the literature to date has predominantly been concerned with measuring the extent of rigidities at alternative inflation rates, rather than with the question of how rigidities might change over time *given a low inflation environment*. This would be a useful field for future research.

A large literature on nominal wage behaviour in the United States produces a general agreement that nominal wage rigidity is prevalent, but little consensus about the extent to which such wage rigidity has significant implications for economic growth more generally. A similar conclusion is reached for New Zealand. Cassino (1995) and Chapple (1996) both found a clear asymmetry in the distribution of wage changes in New Zealand, with a spike at zero, relatively few instances of decreases in nominal wage rates, and tentative evidence that the rigidities become more pronounced at lower inflation rates.

¹¹ For example, Svensson (2001) and Bank of Canada (2001). In addition, Svensson (2001) has argued that one of the objectives of monetary policy should be to help people to avoid monetary illusion and to make informed decisions.

A weakness of the New Zealand studies is that they are based predominantly on average wage data, rather than on the hourly cost of employing constant-quality labour to perform a given job.¹² However, Dwyer & Leong (2000), using a superior dataset (for Australia) and a longer data sample of 1987 to 1999, also find that downward rigidity increases as inflation falls.

Despite reasonably robust evidence of nominal wage rigidities, there is little consensus about whether these rigidities do, in fact, adversely impact the real economy. On the one hand, ADP argue that these rigidities do have significant employment effects, with their results stemming from the premise that people do not take inflation fully into account. Overall, they agree with the conventional finding that there is no trade-off between inflation and growth at moderate rates of inflation. But at *very low* rates of inflation, they find that this particular factor means that small increases in inflation (say from 1 per cent inflation to 2 per cent) go in the direction of producing a higher level of output and employment. Whether this "grease" role of inflation outweighs the "sand" effects that may depress output and employment is not something that ADP evaluate. They also disregard the possibility that the formation of inflation and wage expectations may change under a transparent and credible low inflation policy.

On the other hand, the majority of other United States studies suggest that downward nominal wage rigidities have only a minor impact on the real economy. For example, although Card and Hyslop (1997) find evidence that downward wage rigidity increases as inflation falls, their analysis using macro data produces only weak evidence that low inflation increases unemployment in the face of economic shocks.¹³

¹² Unfortunately, the Labour Cost Index series for New Zealand (which is a constant-quality measure of labour costs) commences in the fourth quarter of 1992, which is after the achievement of price stability and therefore limits analysis of how the relationship between inflation and nominal wage rigidity has evolved.

¹³ One reason for the lack of evidence that nominal rigidities adversely affect the real economy is simply that the impact may just be very difficult to measure. For example, Card and Hyslop's coefficient estimates imply that inflation does help to "grease the wheels", but their coefficients are imprecisely estimated so that the researchers cannot reject the null hypothesis of 'no effects'.

Overall, there seems to be a consensus in the literature that nominal wages are rigid downwards, and tentative evidence that variations in non-wage remunerations will only partly offset the effects of wage rigidity. There is more mixed evidence regarding the extent to which the nominal frictions will lead to sub-optimal macroeconomic outcomes. Overall, we conclude that it is possible that a very low inflation rate, in combination with wage rates that are downwardly rigid, could magnify nominal wage rigidities sufficiently to increase aggregate unemployment, although to date there is little hard evidence suggesting that this is in fact the case.

Finally, it is also worth keeping in mind that the majority of the literature discussed above is for the United States economy. But institutional labour market frameworks vary greatly around the world, and there is some evidence that a slightly higher average rate of inflation may be justified in countries with high employment protection legislation, low labour mobility, and low productivity growth.

There is significantly less academic literature on the topic of whether nominal rigidities in the goods and services markets may have similar effects to rigidities in the labour market. Goods and services prices are generally thought to be quite flexible, as evidenced by the prevalence of the words “sale” and “discount”, particularly in a deregulated and open economy. Inflation may, of course, have played a more important role in facilitating real relative price changes in the past, when there were more price controls, and when competitive forces were weaker, than is the case today.

Of course, some of the “sand” effects of inflation – particularly menu costs - may be relevant for goods prices. However, there is some tentative evidence that relative price rigidities created by menu costs may fall when inflation is lower (Buckle and Carlson (1996)).

Overall, we conclude that it is not possible to quantify all the “sand” and “grease” effects of inflation, and it is not therefore possible to identify from the bottom up the optimal inflation target, where the “sand” effects fully counterbalance the “grease” effects. It is likely that the ‘optimal’ rate of inflation, if one exists, would be different in New Zealand from other countries, and would vary over time, as a function of many aspects of regulatory policy and institutional frameworks. For example, the relationship between inflation and employment will depend on labour

productivity growth and the extent to which the institutional labour market framework allows nominal wage flexibility in response to adverse shocks. Generally speaking, the New Zealand labour market is often characterised as more flexible than labour markets in Europe, but less flexible than labour markets in the United States.

4 Deflation

Deflation was largely a non-issue in the 1970s and 1980s. Since then, many countries have stabilised inflation at low rates, with Japan slipping into an alarming deflationary recession during the past decade, leading to increased concerns about the risk of deflation. Deflation is harmful for many of the reasons that inflation is harmful (such as menu costs, search costs and the effect of uncertainty), and because of problems specific to deflation, such as the risk that monetary policy will become ineffective (see below).

Three reasons are proposed as to why deflation itself may contribute to low growth (over and above the harmful effects of the shock that may cause deflation in the first place):

- contractionary redistributive effects of deflation in a debt-deflation scenario;
- expected price falls resulting in deferrals of demand, and thus production; and
- nominal interest rates being bounded at zero so that, with sufficiently material deflation, real interest rates can be contractionary.

The first of these, the debt-deflation hypothesis, was set out by Fisher (1934) to explain the Great Depression. The essence of Fisher’s argument is that deflation redistributes wealth from borrowers to lenders, as the real value of a debt rises with deflation. If lenders have a lower marginal propensity to consume out of wealth than do borrowers, this redistribution lowers overall consumption spending. In this way, a redistribution can be contractionary.

The second argument is that if people expect prices to fall, then they are likely to defer some of their spending. If deflation is widely expected, then the fall in demand could result in production being curtailed and the economy going into a recession.

The third argument stems from the fact that nominal interest rates cannot fall below zero. Thus, a material deflation will lead to contractionary real interest rates; that is, real interest rates will be positive even if nominal interest rates are at zero. Summers (1991) analysed the post-war US data and found that real interest rates were negative about one third of the time. He presented this as evidence that the ability to engender negative real interest rates is important. Hence targeting a positive rate of inflation may help the central bank to avoid the potential problem of hitting the zero bound on nominal interest rates and ending up with positive real interest rates in a deflation period.

However, in the case of New Zealand, the risk of a deflationary recession, such as that in Japan, is reduced by two factors. First, by international standards, we have a relatively high equilibrium or "neutral" real interest rate (see Archibald and Hunter (2001)).¹⁴ The higher neutral rate implies a higher nominal interest rate, which reduces the probability of the nominal interest rate falling as low as zero. This point is reinforced by the fact that the lowest short-term nominal interest rate that New Zealand has experienced in the last 20 years or so is around 4.5 per cent.

Secondly, New Zealand is a small open economy with a strong exchange rate channel. This allows more scope for non-interest rate channels through which monetary policy can influence the economy. For example, Svensson (2000) has proposed what he describes as a "foolproof" method for extracting an economy from a deflationary liquidity trap. His proposal involves the combination of exchange rate depreciation and an increasing price level target to raise inflation expectations. The fact that the New Zealand economy is relatively open suggests that this approach could be significantly more effective for New Zealand than for a country such as Japan.¹⁵

Nonetheless, even if there are other channels for stimulating inflation, deflationary episodes may be operationally difficult to manage (see Mishkin (2001)). Once interest rates hit a

floor of zero, most of the usual guides to conducting monetary policy are no longer relevant, leaving central bankers in uncharted territory. In addition, too low a target may result in the central bank being *perceived* as overly obsessed with controlling inflation, even if there is no strong economic rationale for such perceptions.

Finally, it is important to distinguish between trend and temporary deflations. The negative effects of deflation on growth postulated above are unlikely to be observed unless deflation is sufficiently large or sustained. If prices fall once, but then remain stable (or revert to a low inflation path), then the adverse side-effects of deflationary expectations would most likely not emerge. Furthermore, such temporary deflation would have only a small impact on nominal debt, suggesting that debt-deflation problems would probably not emerge. However, if deflation is sustained, then expectations of further price falls will influence spending patterns, and debt holders will find their liabilities increasing in real terms. Therefore, we should guard against allowing prices to fall persistently, but should not be unduly concerned by occasional price level falls.

In summary, sustained deflation can be regarded as a low probability but potentially high cost event. We have argued that New Zealand is less likely than many other countries to encounter the zero bound on nominal interest rates. In turn, this means that deflationary concerns provide little reason for New Zealand to bias the choice of the inflation target upwards. However, there may be other reasons not to include zero within the target range. For example, a very low inflation target may increase the risks of the Reserve Bank being perceived as excessively zealous in its approach to controlling inflation. Moreover, the tendency for price indices (including the CPI) to over-state the "true" level of inflation (eg by not fully adjusting for quality improvements) may suggest the desirability of not having zero as the lower bound in an inflation target.

5 Conclusion

The economics literature presents evidence that both persistent deflation and moderate to high rates of inflation are associated with lower economic growth than when

¹⁴ Although the reasons for our relatively high neutral rate are poorly understood, it is probably related to a New Zealand-specific risk premium and a significant appetite for debt.

¹⁵ Other solutions to the zero bound problem have also been suggested (eg Orphanides and Wieland (1998)).

inflation is low and stable. The literature comes to no firm view as to precisely at what level inflation begins to have an adverse impact on economic growth. But, for industrial countries at least, there is mounting evidence that the “threshold” at which inflation has negative consequences for growth may be somewhere around 3 per cent. In other words, it seems that it is around this level of inflation that the negative “sand” effects of inflation begin to dominate the beneficial “grease” effects of inflation.

At low rates of inflation – that is, below the “threshold” – the majority of studies find no correlation between inflation and growth. In other words, the “sand” and “grease” effects are more difficult to compare. As a result, most economists have concluded that it would be difficult to distinguish between alternative average inflation rates in the range of around 1 to 3 per cent. One per cent is typically chosen as a lower bound in the inflation target range, not because there is robust evidence to suggest that average inflation rates between 0 and 1 per cent are detrimental to growth, but rather for political economy reasons, and in recognition of the increased risks of persistent deflation when inflation is very low.

There are two reasons why the macroeconomic literature has found it difficult to come to a consensus on the relationship between low rates of inflation and growth. First, there are still too few observations from countries with low inflation and credible monetary policy regimes to draw conclusions on the basis of empirical research. In addition, the disinflation era may have caused some “artificial observations” in favour of a positive relationship between inflation and growth (given that, during a disinflation episode, output and inflation decline together). In other words, there still remain significant uncertainties about the “true” nature of the relationship between inflation and growth at very low rates of inflation. With more observations, future research may be able to shed more light on the relationship between inflation and growth at very low rates of inflation.

Secondly, it is likely that any ‘optimal’ rate of inflation, if one exists, would vary across countries and over time, as a function of many aspects of broader economic policy and institutional frameworks.

Drawing on the microeconomic literature, there are some very general rules of thumb that can be applied to New Zealand:

- New Zealand’s tax system is probably a little less distortionary than the US tax regime. All else being equal, this would suggest that the tax-based costs of inflation may be relatively lower for New Zealand than for the United States.
- The less flexible a country’s labour market institutions, the greater the ‘grease’ benefits of small positive rates of inflation. Broadly speaking, New Zealand’s labour markets are often characterised as less flexible than those of the United States, but more flexible than those of many European countries.
- The ‘grease’ benefits of inflation may also be greater for countries with relatively low labour productivity growth.
- New Zealand’s exchange rate channel and relatively high neutral real interest rate suggest that New Zealand has fewer reasons to fear a deflationary liquidity trap than other countries.

Of course, to the extent that the inflation distortions stem from the *interaction* between taxes and inflation, rather than stemming from inflation alone, it is unclear *a priori* whether monetary or fiscal policy is best suited to minimising these inefficiencies. Likewise, rigidities in the labour market might be better addressed through specific institutional arrangements in the labour market. This article takes these institutional frameworks as given.

Overall, we conclude that average rates of inflation in New Zealand have been within the “optimal inflation range” suggested by the literature. There is little compelling evidence in the literature to suggest that slightly higher or lower average rates of inflation would imply any significant change for sustainable economic growth in New Zealand.

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Recent developments in New Zealand's financial stability

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This article assesses the current state of, and threats to, financial stability in New Zealand. It does this against the backdrop of a particularly uncertain external environment. It concludes that, despite the current slowdown in global activity, substantial falls in international share prices, and high profile corporate failures, there do not appear to be any immediate concerns for financial stability locally: banks are well capitalised, corporate balance sheets appear healthy, and although household leverage is high by international standards, it has been stable recently.

1 Introduction

This article discusses recent developments in international and domestic markets, and the implications that these developments have for financial stability in New Zealand. The article is the first in a series of annual articles that will assess the current state of New Zealand's financial stability, emerging points of vulnerability, and future prospects, by using a variety of macroprudential indicators.²

The article:

- briefly discusses developments in international markets and their possible impact on New Zealand. The focus is on the current downturn in the United States and Europe, with an emphasis on growing vulnerabilities in the telecommunications sector, the deteriorating prospects for the major Latin American economies, and a brief overview of the state of the international banking system;
- assesses New Zealand financial market developments in the light of global trends;
- examines the composition of New Zealand aggregate household indebtedness, much of which is related to housing consumption and investment, and compares house prices across several countries. It also draws attention to the more disaggregated data available on

households' indebtedness from the new Statistics New Zealand "Household Savings Survey";

- examines corporate credit quality, with an emphasis on sectoral leverage and liquidity of New Zealand firms, and compares these measures across countries; and
- assesses the condition of banks in New Zealand against the backdrop of external market turbulence and some high profile failures in the United States and Australia, but continued solid performance domestically (and in export markets).³

The developments in financial markets and sectoral balance sheets that are discussed in this article, collectively, and in the context of the longer-term trends, reflect a period of heightened uncertainty. On one level the uncertainty relates to questions about the state of, and prospects for, economic conditions in the United States, Europe, and more seriously, Latin America.

On another level, however, there are broader uncertainties that relate to longer-term trends and positions in global financial markets and the world economy that go beyond mere cyclical macroeconomic trends. Indeed, one of the distinguishing features of the current downturn abroad is the continued 'leveraging up' of already highly-g geared household balance sheets, facilitated in part by the record low interest rates in many countries. While the associated consumption and housing investment helps underpin growth

¹ We would like to thank David Archer, Geof Mortlock, and Michael Reddell for comments.

² In an article one year ago, Woolford (2001) discussed the rationale for, and history behind, the establishment of the Macro-Financial Stability section in the Reserve Bank, described macroprudential indicators relevant for New Zealand, and the role that macroprudential analysis plays at the Reserve Bank of New Zealand.

³ Two important dimensions of financial stability analysis not covered in detail in this article are those of New Zealand's external debt position and capital flows. These issues have been covered in detail in a recent *Bulletin* article and in a speech – see, respectively, Woolford, Reddell, and Comber (2001) and Brash (2002).

in New Zealand, just as it is does in the United States and elsewhere, it is an open question as to whether household indebtedness may have overshot, especially if the downturn is sustained.

At the same time, other factors have contributed to the unusually uncertain situation. Over much of the 1990s, the global tolerance for risk grew, and with it the pursuit of higher yielding instruments at a time when interest rates on core government bonds were much lower than they had been in the previous decade. Lower rated corporates, in particular, benefited from this during the upswing, although many now find access to capital difficult (especially those that had embedded rating clauses in their credit contracts). The tolerance for risk, and the development of financial (derivative) instruments, helped facilitate the transformation of risk and greater leverage. Of course, not only corporates benefited as capital account liberalisation in many emerging market countries opened new markets to capital flows. Similarly, countries such as Australia and New Zealand funded their current account deficits with relative ease. Taking all of these developments together, as noted above, the current situation looks somewhat different from earlier economic cycles.

Notwithstanding these pressures and shocks, the world financial system has proved remarkably resilient. This is particularly so in New Zealand, where our assessment is that the financial system remains in good health, with few dark clouds on the horizon. However, there is a risk that the unwinding in some of the positions and the reduction in some of the imbalances may not adjust in a smooth, orderly fashion. History has often shown, unfortunately, that in the aftermath of bubbles, markets can over-correct for quite some time, and this can have an adverse impact on the real economy and financial stability. It is therefore useful, in monitoring financial stability developments, to assess the longer-term trends and vulnerabilities in global financial markets and possible implications for New Zealand.

2 Global financial market developments

The state of international financial markets can heavily influence the economic performance of, and the financial system in, an economy as small, open, and heavily dependent on foreign capital as New Zealand's. The increasing integration of global markets has led to an increase in the co-movement of both interest rates and equity prices across different countries. This directly affects the cost of capital for the individual firms that rely on capital market financing. Furthermore, as New Zealand is highly indebted, and we continue to run current account deficits and borrow from abroad, international financial market conditions directly affect our financing and hedging costs. They can also influence banks' willingness to participate in international lending, with flow-on effects to the quantity and price of the international capital flows occurring in the form of bank loans – a channel of capital inflows on which New Zealand currently relies.⁴

Besides direct financial market channels, global market conditions also reflect – and influence – the underlying real activity of the world economy. Through these indirect channels, global market conditions can have an impact on international trade, which in turn may influence the demand for New Zealand's exports and the financial health of the exporting firms.

United States and global financial market trends

After the prolonged period of optimism and growth in market valuations over the 1990s, by the middle of 2000 several congruent factors resulted in the beginning of a trend decline

⁴ Although capital inflows through banks play an important role in financing New Zealand's persistent current account deficit, it is by no means the exclusive source of capital. New Zealand has a good track record of accessing international capital through various channels, which suggests the ability to source foreign funds by using other sources than bank borrowing, if needed. See Woolford, Reddell, and Comber (2001) for more detail on the channels of foreign funding and the potential vulnerabilities associated with them.

in many equity markets. The sharp unwinding of the 'technology bubble', and the perception that there had been a permanent shift in the pace of productivity growth in the American economy, led investors to question valuations in other sectors as well. Around the same time, macroeconomic data suggested a slowdown in economic growth, and by the second quarter of 2001 the United States entered into a recession.

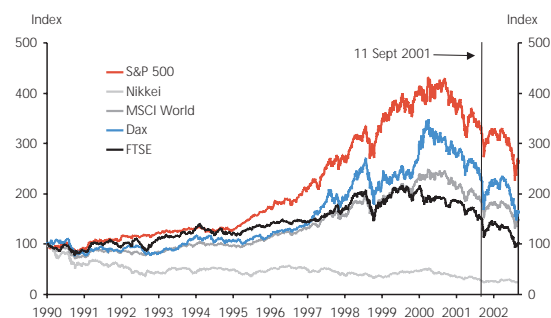
The world's financial markets recovered quickly from the large shock caused by the terrorist attacks against United States targets on 11 September 2001. After an initial average fall of 12 per cent, equity prices in the United States climbed above the pre-attack level by the end of the year. The pattern followed by the corporate bond markets was similar: after the increase induced by the attacks, bond spreads fell back to a significantly lower level by January 2002. However, the trend decline from the peak in equity markets in 2000 is still evident (see figure 1), and there is considerable uncertainty about the short- to medium-term prospects for share prices.

The quick reversal was somewhat surprising in the light of the series of negative events unfolding over the last quarter of 2001. Argentina, a major international borrower, defaulted on its government bonds worth USD 95 billion. Enron, the Texas-based energy trading giant, filed the largest corporate bankruptcy of United States history (since surpassed by WorldCom), bringing corporate governance problems and dubious financial reporting practices into focus. Despite these developments, however, the consensus view of the markets at that time was characterised by cautious optimism, and expectations about the world economy were leaning towards a fast recovery from the recession.

From the beginning of 2002, actual market developments and economic forecasts became increasingly incongruent. Despite the optimism about the global economic recovery, equity prices slowly started to decline again. More major corporations, such as Global Crossing, KPNQwest, and WorldCom defaulted on their debt obligations, while a significant set of other companies were involved in reporting scandals, further eroding the investors' confidence in published corporate earnings. Highly leveraged telecommunications companies both in Europe and the United States reported severe losses and doubts emerged

about their ability to meet their debt obligations. Also, the market's optimistic expectations about the pick-up in corporate earnings have not been met. From June, the decline in equity prices became more pronounced, and by mid-July 2002 major global stock indices were 10 per cent below their post-September 11 trough, although most have rebounded slightly since then (see figure 1).

Figure 1
Equity markets
(January 1990 = 100)



Source: Datastream

Alongside the deterioration in financial markets, recent data about economic activity also indicate a loss of momentum in the United States economy. Consumer confidence fell sharply in July, raising fears about a potential slowdown in households' spending – the main driver of economic activity in the last year. Similarly, there is little evidence of renewed growth in capital expenditure, which would give an additional boost to the economy, as corporates are still running with significant excess capacity and are able to delay investment plans. At the same time, there are concerns about the extent of the over-valuation of the United States dollar, the size of the United States current account deficit, and the growth in the fiscal deficit.

All in all, the tentative optimism of the beginning of the year has waned, and more observers raise the possibility of a further economic downturn (a "double-dip" recession) - or even extended stagnation, although the latter is seen as less likely. As a consequence of the deteriorating economic conditions, expectations of a monetary policy tightening by the United States Federal Reserve have dissipated, leaving the economy with unusually low interest rates, while overall business activity remains weak. Despite the low level of policy interest rates, however, corporate credit is contracting, partly as a consequence of the rising spreads between low-risk

Box 1 Monetary policy and financial stability

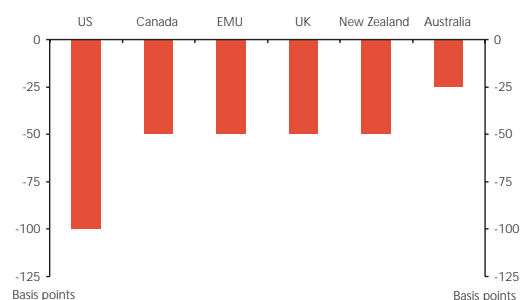
The terrorist attack against the World Trade Center on 11 September 2001 initiated an acute challenge for the stability of, and confidence in, the international financial system – a challenge that was met swiftly and decisively. The attack struck at the heart of the United States financial system, and therefore also the backbone of the global financial infrastructure. Much has been written about the event, and the actions the United States authorities undertook to ensure that the financial market could function despite the damage.⁵

To minimise risks to confidence and the global economy the Federal Reserve and other central banks around the world eased the stance of their monetary policies immediately after the attacks (see chart below), and many also made available additional short-term liquidity to their banking systems.

Over recent years there has been an ongoing discussion among academics and practitioners about defining the way in which, and the extent to which, monetary policy-makers should react to signs of financial instability.⁶ Some have argued that on rare occasions monetary policy may

be unable to deliver on the two simultaneous objectives of price stability and financial stability, and that at times contradictory policy reactions may be appropriate. For example, inflation concerns may suggest monetary policy should be tightened, at a time when higher interest rates may place corporate and household balance sheets under stress. This will not be the case more generally, and in the aftermath of the September 11 attack monetary policy-makers in a number of developed countries judged that swift and extensive policy action was required to preserve financial stability and to re-establish confidence in financial markets.

Monetary policy after 11 September



Source: Datastream

⁵ The Federal Reserve responded in several ways. A large amount of additional liquidity was injected into the banking system, allowing the federal funds rate to fall well below the target, and the restrictions on lending against certain securities were relaxed. These measures proved to be highly effective in mitigating the liquidity shortage caused by the infrastructural damage. By the end of September, the Fed had lent USD70 billion by taking less liquid securities as collateral. To alleviate the shortage of US dollars available for financial institutions

offshore, the Federal Reserve arranged special swap agreements with monetary authorities in other countries. For a more detailed discussion of the actions undertaken see Board of Governors of the Federal Reserve System (2002) and BIS (2002).

⁶ This is analytically distinct from the issue of whether monetary policy should respond to various asset price movements (equity markets, housing or commercial property price booms and so on) for the purposes of controlling inflation – although it is, of course, related.

government bonds and corporate debt. In contrast, even though households' wealth has been eroded by the equity market corrections, continued demand for credit by the household sector means that the overall indebtedness of the United States economy keeps rising. At some stage however, it is probable that the loss of wealth caused by the fall in equity prices will cause households to moderate their consumption and saving decisions.

Europe: vulnerable telecommunications sector

Equity markets in Europe have also been heavily affected by the global market trends: the decline in German stock prices, for example, has been more severe than the fall in US

equities.⁷ As in the United States, a slowdown in the pace of European economic activity seems possible despite the pick-up in the first half of 2002. Exacerbating the mediocre external and internal demand for consumption and investment goods, the appreciation of the euro is weakening the competitiveness of European exports, with consequential flow-on effects to domestic demand conditions.

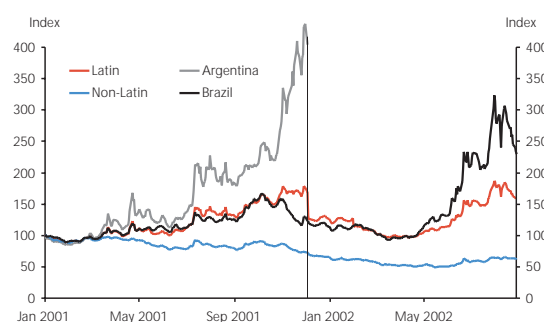
One particular source of financial vulnerability in Europe is the media and telecommunications industry. After being the fastest growing sector in recent years, the telecom industry is experiencing increasing financial difficulties, as the heavily leveraged companies face rising financing costs in a time of weak earnings. The weakness of the sector is reflected in corporate credit ratings.⁸ A recent study by the rating agency Standard and Poor's revealed that telecommunications and media companies account for about 44 per cent of the list of weakest debt and equity issuers, which include companies with ratings below CCC and a negative credit outlook.⁹ Besides media and telecommunications, some concerns have been raised about the financial performance of the European banking and insurance sectors as well. These concerns are reflected in their share prices significantly underperforming in the already weak continental equity market indices.

Growing concerns about Latin America

Although Argentina's default on its sovereign debt and the subsequent depreciation of the Argentine peso did not lead to regional financial contagion similar to that seen during the Asian crisis in 1998, there has been some spill-over, and market analysts are increasingly concerned about other Latin American economies. Sovereign bond spreads – yields relative to those on US government bonds – for some in the region have been steadily increasing from mid-April this year, compared to other emerging market countries.

Despite the relatively favourable macroeconomic data for Brazil, fears about sovereign default have led many investors to withdraw from Brazilian financial markets. The capital outflows resulted in a steep increase in Brazil's sovereign spreads (figure 2). In response, the Brazilian government drew down USD 10 billion from its augmented International Monetary Fund (IMF) programme to buy back its obligations, in an attempt to calm markets. Notwithstanding these actions, the largest Latin American economy is likely to continue to be a point of vulnerability, at least until the presidential elections in October. In August, a new IMF stand-by credit facility of USD 30 billion was provided to Brazil, which, as the largest ever IMF programme, highlights the international concern about the potential for crisis contagion. The IMF programme appears to have settled market nervousness somewhat, although considerable uncertainty persists.

Figure 2
Emerging market sovereign spreads
(relative to US government bonds, Jan 2001 = 100)



Source: J P Morgan

Mexico, the second largest economy in the region, has been relatively resilient in the face of the deteriorating economic conditions in the United States, Argentina, and Brazil. This provides some measure of comfort, as several analysts have highlighted the important role Mexico plays in underpinning stability for the Latin American region as a whole. However, markets are increasingly uneasy about the economic and financial prospects of other Latin American economies. Venezuela is suffering from political turmoil, and falling economic activity and tax revenues. Taken together, these developments suggest the possibility of debt servicing problems in the future. Uruguay has been in a difficult situation since 1999, which has recently deteriorated into a

⁷ See box 1 in the August 2002 *Monetary Policy Statement* for a cross-country and historical comparison of the significance of recent equity market movements.

⁸ See box 2 in this article for more information about ratings.

⁹ See Standard and Poor's (2002a).

severe banking crisis – partly as a consequence of the collapse of the Argentine banking system.

Asia-Pacific region: relatively robust market performance

Overall, it appears that the Asia-Pacific region, and Australia in particular, has been relatively resilient in the face of the global slowdown, despite the fragile condition of some countries in the region such as Japan, where the banking system has been struggling with its accumulated bad loans for more than a decade now. The deterioration in export receipts in the region as a result of, amongst other things, the United States slowdown, was somewhat offset by strong domestic demand, and the region recorded a pick-up in economic growth from around the beginning of 2002. Financial conditions in these countries have been relatively stable. Local equity markets, having recovered from the 1997-98 crisis, have substantially out-performed United States and European markets, and the increase of sovereign spreads observed in Latin America left Asian sovereign bonds mainly unaffected.

Despite Australia's robust performance relative to the rest of the world, a recent report by Standard and Poor's notes some deterioration of credit quality across the Tasman.¹⁰ They found that from June 2001 to April 2002 the number of companies being downgraded exceeded the credit rating upgrades by more than five times in both Australia and New Zealand. Also, some high-profile companies, such as HIH, Pasmenco, and Ansett collapsed, leaving a number of creditors in difficult positions. Nevertheless, besides these particular events, the solid overall economic performance of the region, and particularly of Australia, has been crucial for New Zealand. With a large proportion of our trading partners performing relatively well compared to the rest of the world, New Zealand has been partially shielded from the global shocks.

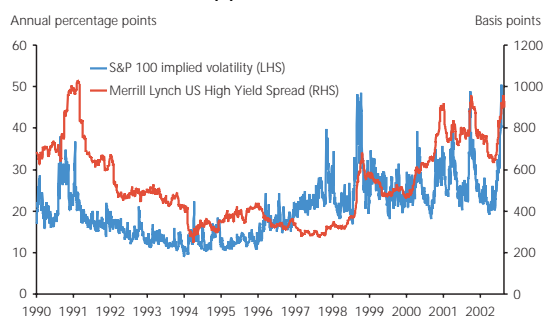
Declining appetite for risk

The overall negative sentiment of global financial markets is reflected in commonly used indicators of market uncertainty,

¹⁰ See Standard and Poor's (2002b).

such as options-implied stock market volatility, and high-yield corporate bond spreads.¹¹ An increase in these indicators is generally considered to be a sign of investors becoming more cautious about potential sharp movements in financial market prices, a phenomenon often referred to as a decline in the "appetite for risk".

Figure 3
Measures of risk appetite



Source: Datastream and Chicago Board Options Exchange

Over the longer term, both indicators have been rising since the second half of the 1990s relative to their previous levels, which may be a sign of investors' gradually increasing concerns about the sustainability of the market bubble. Since last June, volatility increased in corporate spreads and implied equity prices, reaching levels similar to those seen during the Russian-LTCM crisis and the 11 September attack (see figure 3).

In periods characterised by such low levels of risk appetite, companies usually find it harder to raise funds, both through equity or debt, as preferences shift from high-risk investments (such as equities, corporate bonds and emerging market debt securities) to low-risk assets (such as highly rated government bonds). Decreasing risk appetite will also usually cause a shift from foreign to domestic investment opportunities, as investors try to minimise their exposure to exchange rate fluctuations. The capital outflows that result – or the expectations of such outflows – can lead to the currencies of net debtor countries depreciating.

¹¹ Corporate bond spreads are yields on corporate bonds relative to yields on United States government debt instruments. For more detail on implied volatility and other indicators derived from option prices see Gereben (2002).

International banking system

The international banking system, as a whole, has been relatively sound in the face of the corporate sector and the financial market turmoil in the major economies – at least to date. However, there are some banking systems in a less favourable condition. For example, banks in Japan, China, and elsewhere in the region continue to operate under the weight of poor quality assets, non-performing loans, and under-capitalisation. While the Japanese government had proposed a plan to remove the full government insurance on bank deposits, in order to create a stronger incentive for banks to tackle the problem of non-performing loans, it has recently delayed the implementation of the plan. In Argentina and Uruguay, the banking systems have become almost completely dysfunctional in the face of severe currency and credit losses, and the collapse in public confidence in the banking system (in the face of frozen accounts, weekly limits on withdrawals, forced bank holidays and the like).

Although most banking systems are in relatively good health on the whole, the global adjustment does not appear to be over yet, and there are signs that highlight possible further stress points for the United States and European banking systems. The large number of corporate bankruptcies inevitably led to a deterioration in the quality of banks' credit portfolios, which increased the risk of lending operations and caused a decline in profits. Moreover, a large number of international banks have significant, potentially vulnerable exposures towards Latin America. The vulnerability of the banks is probably more pronounced in Europe than in the United States, as European corporates rely on bank financing quite heavily, whereas their United States counterparts tend to borrow more extensively from financial markets directly. Also, some European financial institutions have significant holdings of corporate equities.

New Zealand financial markets

Despite our openness in trade and strong reliance on overseas borrowing, the current weak performance of global financial markets has had only limited impact on New Zealand so far. The domestic banking system has remained healthy and continues to be well placed to meet the credit needs of the business and household sectors – we have not seen any

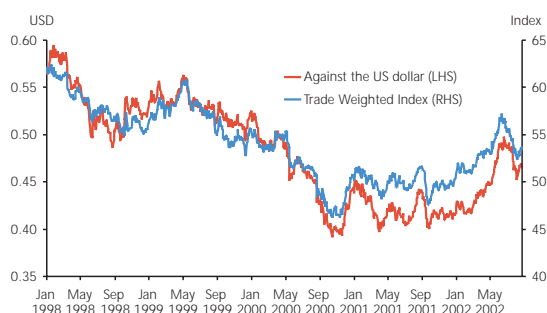
significant credit constraints or material tightening in credit standards recently. The channels of international capital flows to (and from) New Zealand have been relatively stable, and most market indicators, such as equity prices and swap spreads, have not reflected the global market turmoil to any great extent. Similarly, there haven't been any noticeable problems in either financing our current account deficit or hedging the exchange rate exposure on foreign liabilities. While this suggests that foreign investors continue to be comfortable with holding New Zealand dollar investments, and they are also willing to take the associated exchange rate exposure, this does not necessarily mean that New Zealand is invulnerable to future external market turbulence.

As things stand now, however, on the asset side of our international investment position, our domestic financial system appears to have little direct exposure to those regions and markets most affected by financial stresses over the last few quarters. Several factors, such as the weak exchange rate and the relatively high commodity export prices experienced until recently, have protected the New Zealand economy from the slowdown in economic activity in the rest of the world. Furthermore, the flow of immigrants during the last year helped maintain reasonably strong domestic demand, as did the robust growth in export earnings.

From January to June 2002, the New Zealand dollar strengthened by 20 per cent relative to the US dollar, and gained significant ground against other developed country currencies as well (see figure 4). The appreciation was partly a reflection of our good economic performance relative to the rest of the world, and was partly a result of some unwinding in the over-valuation of the US dollar relative to other currencies all over the world. Since July, measured global risk appetite has been falling, and consequently the exchange rate has depreciated somewhat.

Exchange rate fluctuations relevant to New Zealand have been relatively more pronounced in recent months: over this year we have experienced two of the most volatile quarters since the exchange rate was floated in the mid-1980s. In itself, exchange rate volatility is unlikely to adversely affect the stability of the New Zealand financial system, as most of the foreign exchange exposures of the banks and corporate

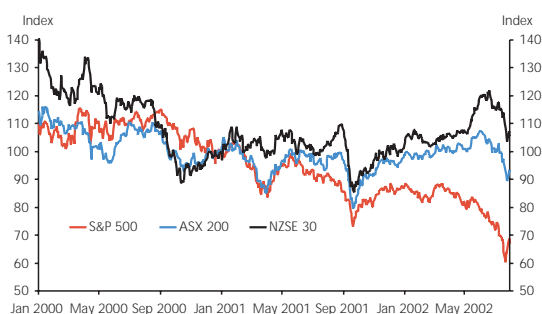
Figure 4
The New Zealand dollar exchange rate



Source: RBNZ

sectors are hedged against foreign currency risk. However, an appreciating exchange rate may affect the competitive position of exporting companies, which may, in turn, cause a decline in these companies' profitability and their ability to meet debt obligations. In our view, it is unlikely to be a source of fragility over the near term: New Zealand's real exchange rate is still below the long-term average, and it would take a substantial appreciation before declining export competitiveness would start to affect significantly the credit quality of most New Zealand exporters. Nonetheless, should external demand continue to weaken, and along with it export prices and the terms of trade, the export sector could come under more pressure.

Figure 5
NZ, US, and Australian equity prices
(January 2001 = 100, USD value)



Source: Datastream

The New Zealand equity market has been performing comparatively well: the US dollar value of the NZSE30 increased by 5 per cent between January and August, while world equity prices declined by almost 20 per cent over the same period (see figure 5). The good relative performance partly reflects the fact that share prices in New Zealand had

not appreciated strongly like those in the United States and Europe over the late nineties, but also that domestic corporate profitability has remained robust.

3 Households

Households play a large role in the economy, and, therefore, it is important to monitor this sector for growing imbalances or signs of instability. Household consumption, investment, and saving decisions together account for a significant proportion of the New Zealand economy. Consumption alone represents roughly 60 per cent of gross domestic product (GDP), and residential investment, which largely comprises the purchase and construction of houses, makes up an additional 5 per cent of GDP.

Households are an important part of the financial sector as well. Over the last couple of years M3 data suggest that households provide approximately only one quarter of banks' total funding through deposits, but account for over 40 per cent of bank claims.

Table 1 shows that the household share of bank funding declined over the decade, while the household share of total bank claims increased. The banks have met the shortfall between household funding and claims by borrowing offshore (meaning that the household sector is also a contributor to New Zealand's external debt position). Moreover, deterioration in the household sector's financial position can have a detrimental effect on banks' asset quality. As a result, the Reserve Bank takes an interest in developments in the housing sector, especially the saving rate, the extent of leverage, the debt servicing capacity of the household sector, and the composition of household assets.

New Zealand's household saving rate declined over the 1990s, from around 3 per cent in 1990 to around minus 4 per cent (ie dissaving) in 1995, and has stabilised around this rate. While a similar trend was observed in other developed economies (often following periods of financial liberalisation), this is not necessarily a source of comfort. For example, the fall in household saving rates in the United States was accompanied by large equity market gains that added to households' perceived wealth. As the equity market

Table 1
Households' share in bank funding and claims (%)

	December 1991	December 2001
Funding	39.7	27.2
Claims	35.3	41.3

Source: RBNZ

weakness continues, it is probable that United States households will moderate their consumption and increase their rate of saving. In the New Zealand case, saving rates fell even without the wealth effects of growing financial assets.

In the current global slowdown a number of other central banks have raised concerns about household balance sheets in the wake of house price booms, or the 'tech boom'.¹² Unlike some other countries, New Zealand households have not invested heavily in equities (thereby avoiding the subsequent collapse in values), nor have we seen problematic house price inflation.¹³ However, years of low or negative saving mean balance sheets may be weaker than desired in the current environment, exposing households to greater vulnerability to a fall in asset prices or income.

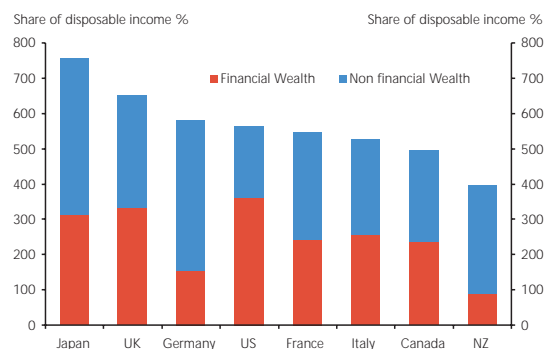
Compared to other developed countries, New Zealand households tend to be less financially diversified, and hold the bulk of their assets in housing – with debt typically held in the form of bank mortgages – with far fewer assets held in the form of equities or bank deposits (see figure 6).

The global phenomenon of high and increasing household indebtedness in recent decades is largely without precedent, so it is difficult to draw firm conclusions about its implications. However, increased leverage makes households more vulnerable in economic downturns. If consumers are fully leveraged, their ability to tap into savings in the event of, for example, a job loss will be significantly reduced. They also may face difficulties in making repayments on their high level of debt. Moreover, households who take on more debt when interest rates are low, face increasing loan repayments when rates rise in the future.

¹² See, for example, the Bank of England's *Financial Stability Review*, the Swedish Riksbank *Financial Stability Report* and the Bank for International Settlements *Annual Report* (2002).

¹³ See Brash (2002) "An Indebted People" for a cross-country comparison of household financial wealth estimates.

Figure 6
Household net wealth in New Zealand and G7 countries (1995-2000 average, Italy and Japan 1995-1999 average)



Source: OECD, RBNZ

High household leverage can also lead to vulnerabilities in the banking system. House prices determine the amount of equity available to homeowners, and increasing house prices enable homeowners to access additional equity. If the increase in house prices was temporary, such that house prices subsequently decline (often in the environment of a slowing economy and concerns about income and employment), this can put pressure on households' willingness and capacity to service higher debt levels. As banks must maintain a reasonable degree of capital adequacy, in a situation such as this, the banks may deem it prudent to increase their provisioning against the prospect of higher rates of default.¹⁴ This may also mean that banks will contract lending in order to restore capital adequacy. Moreover, if households do default, banks may face large losses as the collateral value of houses may not cover the loans outstanding. In extreme cases, banking crises have been precipitated by real estate booms and busts. The Asian crisis was exacerbated by loans secured on overvalued real estate. When the real estate bubble burst, banks were left with collateral that didn't cover the value of the outstanding loan.

New Zealand house prices have not risen in real terms in the last few years, and hence the vulnerability arising from a house price bubble is less in New Zealand than in the United States, the United Kingdom and Australia. It is widely

¹⁴ Provisioning for loan defaults leads to a reduction in banks' assets. When banks are faced with an unexpected deterioration in credit quality that leads them to expect a higher rate of default they hold more capital to provide a cushion for the loss provision.

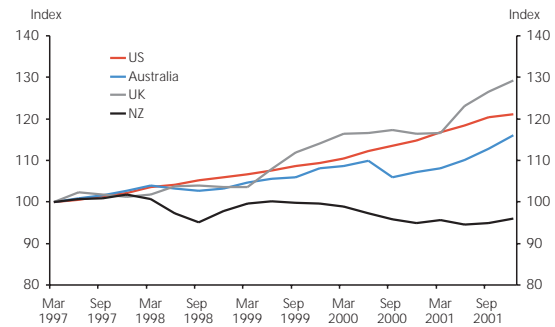
believed that the housing market in the United Kingdom is over-valued, and there has been strong growth in United States house prices as well. The real United Kingdom house price index increased year-on-year at an average of 5 per cent from the second quarter of 1996 to the first quarter of 2002. Real United States house prices were fairly flat through the 1990s but began to pick up in the third quarter of 1997. Since then, real house prices have increased year-on-year at an average rate of 4 per cent.

Real house price increases in Australia have also been strong over recent years, in part as a result of a surge in demand before the introduction of GST, in part because of the tax credit scheme, as well as because of generally favourable economic conditions and low interest rates. House prices in some of the main urban areas in particular – Sydney, Melbourne and Brisbane – have been noted as a potential source of concern in recent times. Figure 7 clearly shows that New Zealand's housing market has not experienced the strong growth that the United States and the United Kingdom, and Australia to a lesser extent, have experienced. On the contrary, since the mid-1990s house price increases have not kept up with inflation, so real house prices have fallen a little.

Of course, house prices in isolation don't tell the whole story. Strong growth in household incomes can be a fundamental factor driving house prices. Moreover, household income figures indicate the ability for households to service their debt. Over the past three years, annual household disposable income growth has been broadly similar between New Zealand, Australia, the United States and the United Kingdom, so divergent income growth does not explain the difference in house price performance. In the United States and the United Kingdom, house price increases have outpaced increases in disposable income. Overall, New Zealand's house prices have not performed as strongly as those of other countries. Thus, the risk of a rapid decline in house prices, causing the collateral value of loans to decline significantly, does not appear to be a risk for the New Zealand economy at this time.

Despite flat real house prices, household indebtedness has continued to increase. From 1989, the ratio of household financial liabilities to disposable income has more than

Figure 7
Real house price index

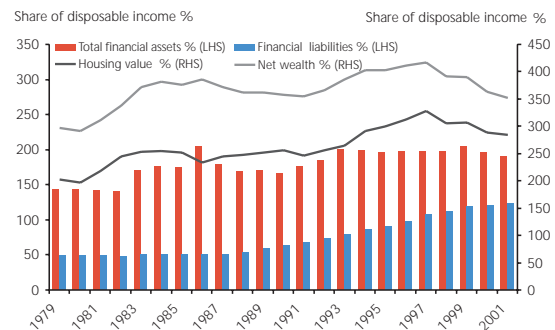


Source: Datastream, OFHEO, QNZ

doubled, reaching over 100 per cent in 1997 and 123 per cent in 2001. The growth rate in household liabilities has fallen significantly over the last three years, however. The sharp increase in household liabilities could reflect a decade-long adjustment to financial deregulation and new products in the finance industry making access to wealth easier. In addition, some proportion of the liabilities can be attributed to small business lending.

Household net wealth as a share of disposable income declined from over 400 per cent in 1997 to just over 350 per cent in 2001. Both the asset side and the liability side of the balance sheet drove this decline. The ratio of household liabilities to disposable income increased by almost 20 per cent over the period, while the ratio of housing value to

Figure 8
Household net wealth



Source: RBNZ

Box 2 Household net worth

Between August and November 2001, Statistics New Zealand conducted a detailed survey of household saving, indebtedness, and assets for 5,374 households. It was a one-off survey commissioned by the Retirement Commission. The Household Savings Survey differentiates between couples (married and de facto) and individuals (where both individuals and couples may be responsible for children) and asks a range of questions relating to assets and liabilities of household units.

While aggregate household balance sheet data (such as that contained in figure 8) gives us a perspective of the indebtedness of the household sector as a whole, the distribution of indebtedness over various income and net worth levels can identify points of vulnerability at more disaggregated levels.

Couples follow a similar trend. Couples in quartile one generally have net worth that ranges from negative to \$20,000, with the majority of these couples earning between \$15,000 and \$50,000 per year. Debt ratios for these couples are much higher than the overall average for couples. Like individuals, couples in net worth quartile one also have a large share of unsecured liabilities, such as credit card debt and bank loans. However, couples have a much smaller degree of student debt than individuals and a larger share of mortgage debt. Fourteen per cent of couples have student loans and the median value is \$8000, and 14 per cent have mortgages, as compared with 6 per

cent of individuals. As in the case of individuals, a bank deposit is the most common asset for couples, and balances are quite low. Home ownership is moderate, with 16 per cent of couples in the lowest net worth quartile owning property.

High-income households have much lower debt ratios, as few have unsecured debt liabilities, and those that do generally have lower balances than do low-income households. In addition, they have relatively highly valued property assets (the median value for the top quartile is \$331,000) as well as other highly valued assets, such as businesses and trusts. Thus, higher income households tend to be better placed in times of stress.

The composition of indebtedness is expected to change as demographics change, with, for example, ageing in the New Zealand population. Also, there is a life-cycle pattern to saving and indebtedness, with younger adults taking on a higher level of debt relative to assets, in the form of student loan debt. From a financial stability perspective, it is external and private sector debt that is important. Therefore, student loan debt – which is owed to the government – is not as much a concern as bank borrowing and external debt. Moreover, as younger people subsequently enter the workforce, they will build up financial assets. Indeed, both individuals and couples in the 18-24 age group have a much higher debt-to-assets ratio than the overall average.¹⁵ The debt ratio declines with age – people aged 65 years and older have very low debt ratios. Therefore, indebtedness tends to fall over an individual's lifecycle.

Debt ratio – Debt as a percentage of assets, 2001¹⁶

Net Worth quartiles	Individuals	Couples
1 (<i>lowest</i>)	234	85
2	62 *	41
3	40	17
4 (<i>highest</i>)	7	6
Total	17	15

* Moderate degree of sampling error.

¹⁵ People in the younger age group have more debt *relative* to assets, but higher income earners in older age groups have much more debt in an absolute sense.

¹⁶ Assets include all financial, property, business, farm, and Maori assets, as well as motor vehicles, collectibles, and any other assets valued over \$1,000.

disposable income fell by about 13 per cent.¹⁷ More recently, however, house prices have been rising quite strongly, which will help to increase net worth in the coming year.

While not a quantitatively significant part of the increasing indebtedness story, changes in credit card use are a good illustration of financial innovation affecting behaviour through air mileage reward schemes. The annual percentage change in credit card advances outstanding peaked in early 2001 at 22 per cent per annum and the latest growth rate was 12.9 per cent per annum. While advances outstanding have declined significantly over the last year, they are still growing much faster than disposable income, thereby adding to household indebtedness. This increase doesn't appear to be driven solely by convenience or rewards use. Reserve Bank data on personal credit cards show that on average over the past 21 months for which we have data, non-interest bearing balances increased 1.2 per cent per month, while interest-bearing balances increased 1.7 per cent, possibly suggesting a slight decrease in debt servicing ability.

The table in box 2 illustrates that debt ratios range widely between individuals and couples with different net worth. However, net worth figures alone do not give the full picture – income is also very important. For individuals in net worth quartiles one (who generally have negative net worth – ie more debt than assets) and two (with net worth between zero and \$20,000), about 45 per cent make between zero and \$15,000 per year and about 45 per cent make between \$15,000 and \$50,000 per year. These individuals have very high debt ratios and the composition of their debt is heavily weighted towards unsecured loans, such as credit cards and hire purchase, and to a large degree, student loans. In fact, 62 per cent of individuals in quartile one have student loans and the median balance outstanding is \$10,000. Bank deposits are the most widely held asset for this group of individuals, but the median value of their deposits is only about \$300. There is some ownership of superannuation and property, but relative to those in the top half of net worth, ownership rates for these categories is very low.

¹⁷ See Thorp and Ung (2000, 2001) and Thorp (2002) for detailed discussions about household liabilities, investment, and financial deregulation.

4 Corporates

Instability in the corporate sector can result in a decline in output, higher unemployment and corporate defaults on debt (with an associated impact on bank balance sheets), and may be reflected in equity market weakness.¹⁸ In New Zealand and Australia – where many New Zealand firms trade and have branches and other affiliations, as well as head offices - corporate credit quality deteriorated in 2001. In a recent report, Standard and Poor's concluded that despite the relatively difficult credit conditions, the corporate sector has been resilient (despite some high profile failures), the negative pressures will moderate over the coming year, and credit quality in the corporate sector should improve.¹⁹ Weak global demand, a high degree of leverage, and liquidity pressures contributed to the 23 ratings downgrades over the year, while there were only four upgrades for the 120 rated firms. Standard and Poor's pointed to an increased appetite for risk by corporates in the late 1990s, which contributed to corporate sector weakness as they expanded into non-core business areas. Also, some companies appear to have had highly optimistic growth plans, and have taken on a high degree of debt as a result.

This analysis appears to be focused mainly on the situation in Australia, as the situation in New Zealand is somewhat more comfortable. While there have been several high profile corporate failures in New Zealand also, company liquidations for 2001 were, at 521, the lowest level in over a decade, and were well down from the 831 liquidations initiated in 2000.²⁰

Because of significant trade and economic linkages with Australia, financial instability that arises in Australia could spill over to New Zealand. New Zealand relies on Australia as a significant destination for its exports. Moreover, four of the five major banks in New Zealand are Australian-owned:

¹⁸ In the following analysis, information about the corporate sector is drawn from several sources, which include publicly listed firms as well as a broad range of corporate entities of varying sizes surveyed by Statistics New Zealand.

¹⁹ See Standard and Poor's (2002b) for more detail.

²⁰ See the Ministry of Economic Development website www.med.govt.nz for details.

Box 3 Credit ratings

A credit rating is an opinion on the creditworthiness of a company or other entity. Ratings are designed to measure the risk of default: they indicate the likelihood of the company becoming unable to meet its debt obligations. Corporate credit ratings are provided by specialised private agencies – such as Moody's, Fitch, and Standard and Poor's – who use a standardised methodology to assess the risks associated with lending to a particular company or sovereign.

The most important factors that rating agencies consider during the rating process are:

- the risks associated with the country where the company is domiciled;
- the specific features of the industry or the sector;
- the company's size;
- the skills of the management;
- profitability; and
- indebtedness and other financial ratios.

Moody's uses a scale of nine rating categories from Aaa (the most creditworthy) to C (the lowest), while Standard and Poor's uses ten categories from AAA to D. Besides private companies, credit rating agencies also provide ratings for debt issued by public sector entities, such as sovereign states or local municipalities and for special purpose financial entities.²¹

The credit rating heavily affects a company's cost of capital. Entities with a high credit standing have low risk associated with their debt, and therefore they are eligible for relatively low interest rates. Investors, however, ask for a higher reward when they invest in low-rated issuers' debt to compensate for the higher default risk, which manifests in higher interest rates. As the rating is an assessment of credit standing, it is a very important determinant of the level of interest rates a company is obliged to pay on its debt.

Credit ratings also influence a company's ability to access external capital. Banks usually limit the amount they are willing to lend to a particular debtor, and the limits are often linked to the credit rating. Also, if a company issues debt securities, such as bonds or commercial paper, a higher credit rating helps to access a wider range of potential investors. Major institutional investors, such as insurance companies or superannuation funds, usually have rules that specify that the debt securities they hold must be above a certain rating limit – as indeed the Reserve Bank does in its own dealings. Companies below those rating limits are unable to raise capital on these markets. Hence the credit rating influences the quantity and the structure of a company's capital. A deterioration of its credit rating, therefore, may undermine a company's access to certain credit sources; downgraded entities often have to rethink and reformulate their debt structure.

Besides the cost, quantity, and structure of debt, ratings may also influence a company's access to financial services. Banks generally require a specific credit rating before they are willing to engage in certain transactions with a counterparty. This is a widespread practice for derivative transactions, such as swaps or currency derivatives. As a consequence, an entity with an insufficient rating may not be able to hedge its exposures to market risk properly, or may do it only at a higher cost.

When a company's credit rating is downgraded, it may lose access to certain markets and instruments, and this may involve significant restructuring and costs. A downgrade can be particularly damaging if the company's existing contracts include "rating triggers". Rating triggers are clauses in debt and hedging contracts that make the contract subject to a certain rating level. If the company's rating falls below this pre-specified level, the triggers come into action. Rating trigger clauses may be relatively harmless – sometimes they simply increase the cost of the particular debt or hedging contract – but in some cases they are much more damaging: they may require the immediate repayment of the existing debt or they may cancel the hedge. The most important risk associated with rating triggers is that they may significantly accelerate the decline in the creditworthiness of a company, at a

²¹ For a more detailed discussion of credit ratings see Motadel (1996).

time when accessing new capital is particularly hard.

Rating triggers came into focus recently, as such clauses in debt, derivative and other agreements played an important role in the fall of Enron Corp., and have been a key issue in other corporate defaults since then. In August 2002, Standard and Poor's published a report about rating triggers in Australia and New Zealand, as a part of a global initiative aiming to increase the awareness of these potentially harmful clauses in financial contracts.²² The survey found that rating triggers are prevalent in our region, and they represent a cause for concern in five per cent of the surveyed investment grade companies.

The Reserve Bank also carried out an assessment of such triggers, aiming to identify their prevalence in the practice of the major New Zealand banks. Our inquiry found that

banks often use contingent clauses in corporate lending contracts that are linked to the borrowers' credit rating or other indicators of financial soundness. When triggered, these clauses may affect the charged interest rate, the amount of collateral required, or the overall availability of credit. As these clauses represent a contingent claim on the borrowers, not the banks, they are not a cause of direct concern from the point of view of the bank regulator and supervisor. Triggers that may represent a claim on the banks themselves appear to be relatively rare in New Zealand. They are occasionally present in derivative contracts, such as generic swap agreements. However, as the amounts involved appear to be minor, they seem unlikely to influence either the stability of the individual banks or the banking system as a whole.

the credit ratings of the New Zealand subsidiaries are highly dependent on the credit ratings of the parents, and New Zealand banks rely on their parents for funding. A downgrade in a parent bank's credit rating will therefore have negative implications for New Zealand's access to capital and the cost of borrowing,²³ as it can be more difficult or costly to raise capital internationally and can therefore inhibit investments that require funding.

Corporate balance sheet data can provide us with a perspective on the health of New Zealand corporates. Two measures of importance are liquidity and leverage. Liquidity measures indicate the ability of corporates to service outstanding liabilities. Leverage provides a measure of the overall indebtedness of the corporate sector.²⁴

Liquidity

A common measure of liquidity is the 'quick ratio', which is defined as the ratio of current assets (less closing stocks) to current liabilities. Current assets are liquid assets and include cash, accounts receivable, marketable securities, and other assets that are easily converted to cash. A higher quick ratio implies a more liquid firm, and a more liquid firm – subject to good, efficient, financial management practices – means a firm less reliant on external financing and credit conditions. An individual firm may find that, in times of stress, credit conditions can tighten for reasons not directly related to their specific circumstances, but that nevertheless affect them adversely. Tighter conditions may manifest in any of the markets in which firms normally access resources – the commercial paper market, the share market, or through bank borrowing.

The aggregate quick ratio for all New Zealand firms captured by the SNZ survey, ranged between 62 per cent and 71 per cent between 1995 and 2000, and was 66.1 per cent for 2000. Naturally, there is a lot of variation in the quick ratio by sector. Some sectors (finance, manufacturing, and construction) have a large share of current assets in total assets, but these are offset by a high share of current liabilities. Other sectors, such as wholesale and retail trade, also have

²² See Ward (2002).

²³ See Hull (2002) for more details on this issue.

²⁴ Statistics New Zealand provides this information in aggregate and by sector in the Annual Enterprise Survey (AES) which is an annual survey of over 200,000 economically significant businesses in New Zealand. Data for 2000 is provisional.

Table 2
Quick ratios by country
as at 2 September 2002

	Quick Ratio	Coverage (%)
NZSE 40	0.67	92
Australian ASX 200	0.70	56
S & P 500	1.05	79
MSCI Europe	0.63	74

Source: Bloomberg

a large share of current assets, while current liabilities are relatively low, resulting in a high liquidity measure. However, because firms involved in retail trade typically carry more inventory than those in wholesale trade, liquidity for retail trade is lower.

Fixed assets are not included in current assets, so sectors with a high share of fixed assets relative to liquid assets (including mining, electricity, water and gas supply, accommodation, cafes and restaurants, and transport, storage and communications) would generally have a lower liquidity ratio. However, a mitigating factor is the low level of inventory carried by some of these sectors (such as electricity and transportation). The quick ratio for agriculture is currently quite high, reflecting a high degree of current assets arising from high agricultural prices, particularly in livestock and cropping farming, and dairy cattle farming sectors.

As expected, we see disparate rates of liquidity across industries. However, it is also useful to compare the aggregate liquidity ratio of New Zealand firms against other countries.²⁵ Table 2 provides aggregate quick ratios for firms in share markets in New Zealand (NZSE40), Australia (ASX200), the United States (S&P500), and Europe - including the United Kingdom - (MSCI Europe) respectively, as at August, 2002. The figure is calculated by individually weighting a firm's quick ratio by the share of the firm's market capitalisation in the total market capitalisation of all firms for which data is available. Data was not available for firms in the financial sector, and because of the high share of financial firms in the share markets, overall coverage was somewhat restricted. Following these adjustments, the final

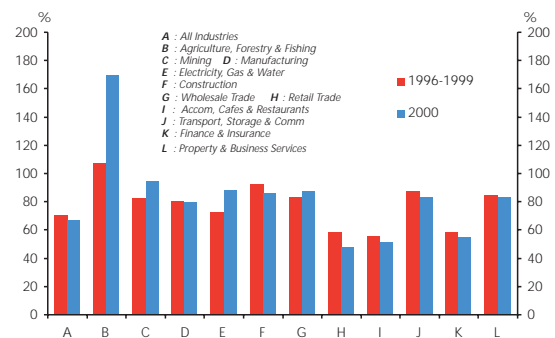
share market coverage is given in the third column of the table.

Aside from the firms represented in the S&P500, which display a high level of aggregate liquidity, New Zealand corporates are generally as liquid as those in Australia and Europe. This is in part due to the compositional nature of listed firms. Table 3 gives a sectoral comparison of liquidity across countries, as at August, 2002. Industries are categorised according to the Global Industry Classification Standards and the figures reported are weighted-median quick ratios.²⁶ There are some very large outliers in some industries, and weighted-median values give a better overall picture of leverage than do industry averages.

The size of our market throws up some analytical differences – we are, of course, comparing 40 of New Zealand's largest firms against the 500 in the S&P 500. In addition to the lack of coverage of financial firms, the NZSE 40 does not have any firms categorised as Energy or Utilities.

As the financial sector is not included, after the re-weighting, the already significant communications sector encompasses a very large share (33.8 per cent) of the NZSE 40 and hence

Figure 9
Quick ratio for New Zealand business sectors



Source: SNZ

²⁵ For the cross-country comparisons of liquidity and leverage and price earning ratios, a number of assumptions were made - for example, on how to handle missing data observations. Contact the authors for further details.

²⁶ The liquidity figure for each firm is weighted by the firm's relative weight within the sector based on market valuation of firms with data available.

Table 3
Liquidity ratios by market and sector
as at 28 August 2002

	New Zealand	Australia	USA	Europe
Materials	0.87	0.56	0.72	0.63
Communications	0.31	1.10	0.58	0.48
Consumer Cyclicals	0.40	0.33	0.50	0.40
Consumer Non-cyclicals	0.56	0.71	0.74	0.55
Energy	n/a	0.58	0.87	0.60
Industrials	0.54	0.67	0.60	0.58
Technology	n/a	1.01	2.15	1.08
Utilities	0.93	0.40	0.37	0.52

Source: Bloomberg

the aggregate liquidity figure for New Zealand. This sector is significantly less liquid than that of the other countries. One explanation may be that three firms comprise the sector, all with a very high degree of fixed assets relative to total assets. In the remaining sectors, New Zealand firms' liquidity ratios are comparable, with a high degree of liquidity in utilities compared with the other countries primarily due to one highly liquid firm that represents more than half of the market capitalisation in New Zealand's utilities sector.

Leverage

Leverage shows a firm's relative indebtedness, and is usually calculated as debt relative to equity, or sometimes as debt relative to assets. From a financial stability perspective, a high degree of leverage can be perceived as relatively risky, given that debt financing usually requires fixed repayment irrespective of economic conditions and income flows, whereas equity investors receive residual profits. Thus, if a

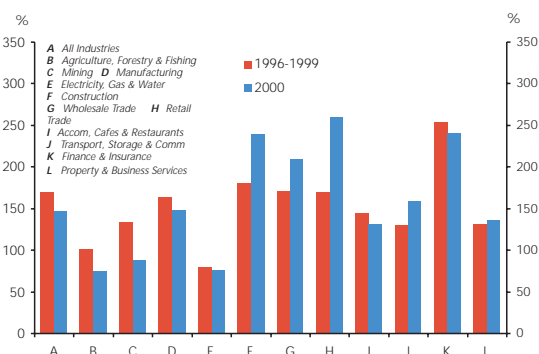
firm faces financial difficulties, a high degree of debt may increase the likelihood of default.

Figure 10 shows leverage across industries in New Zealand. Aggregate leverage in New Zealand for 2000 was about 150 per cent, and as with measures of liquidity, varies significantly by industry. The increase in leverage in the construction industry is due to both a steady increase in liabilities (averaging an 8 per cent increase per annum since 1996), and a higher than usual decline in owners' equity.

In order to see how New Zealand firms compare with other countries, leverage (as measured by total debt to common equity) was calculated for Australia, Europe, and the United States. As with liquidity, the figures were calculated by weighting firm-specific leverage by each firm's market capitalisation share in the total capitalisation of all firms for which data was available.

The banking and telecommunications industries have both a high degree of leverage and a high share in the share market indices. As a result, their inclusion increases the overall leverage calculations by a large extent. Removing these sectors does not change the relative degree of leverage. New Zealand's leverage ratio is 132 while the US ratio is 115, Australia's is 92 and Europe's is 99. The compositional nature of the share market indices have a large effect on the aggregate numbers. Therefore, an industry comparison gives a clearer picture of the sectoral nature of New Zealand's leverage compared with other countries. Table 4 shows weighted-median leverage by industry categorised by the Global Industry Classification Standards, as at August, 2002.

Figure 10
Leverage (debt as a percentage of shareholder funds or owners equity)



Source: SNZ

Table 4
Leverage (debt as a percentage of equity) by market and sector
as at 28 August 2002

	New Zealand %	Australia %	USA %	Europe %
Materials	38.3	65.7	79.8	59.5
Communications	274.5	65.9	67.5	119.7
Consumer Cyclicals	88.8	56.7	62.3	233.1
Consumer Non-cyclicals	14.7	89.6	48.5	99.8
Energy	n/a	65.1	43.4	43.4
Finance	111.4	217.1	324.9	787.9
Industrials	59.5	71.2	113.3	53.0
Technology	n/a	49.6	4.9	15.2
Utilities	47.5	140.7	177.9	113.2

Source: Bloomberg

One feature of the data is New Zealand's relatively high degree of leverage in the communications sector. Communications represent 29.3 per cent of the value of the NZSE40 for which leverage data is available and, as a result, this sector plays a large role in the overall leverage figures. New Zealand's communications sector is dominated by large networks that have high leverage, whereas in other countries, such as the United States, this category includes 'dot-coms', which generally carry very little debt, as well as newspapers that are not highly leveraged.

New Zealand's materials and utilities sectors have lower leverage than the corresponding sectors in the other indices. In each case, one firm with low leverage dominates the sector for New Zealand, resulting in a low measure of leverage. This is also the case for the United States industrial sector. Europe's consumer cyclical sector has a very high leverage measure that is driven by a large share of automotive and airline companies relative to the other indices. Similarly, a large share of banks in that sector causes Europe's high leverage in the financial sector. Banks generally have higher leverage than insurance and funds management firms do. Overall, these figures show that New Zealand's corporate sector (as characterised by listed firms) is no more highly leveraged than corporates in other countries. On the basis of this indicator alone, therefore, New Zealand firms do not appear any more vulnerable to economic downturns than those in Australia, the United States or Europe.²⁷

²⁷ **The figures for New Zealand are less representative than for the other countries. One reason for this is that the share market capitalisation relative to GDP is much lower for New Zealand, reflecting the high direct foreign ownership and economic activity that is not represented in the NZSE 40 (including New Zealand's largest company, Fonterra).**

Over the last year in New Zealand, there have been several specific examples of how high levels of indebtedness played a role in the deterioration of corporate credit quality. The government rescued Air New Zealand after instability arising from the purchase of Ansett Airlines. Telecom's credit rating was downgraded after several ratings agencies were concerned about the debt taken on to finance expansion into Australia. Tranz Rail, whose credit rating was placed on negative credit watch by Standard and Poor's in July and downgraded by Moody's in August, is subject to two different ratings triggers. One is in the form of a \$250 million bank credit facility and another, in excess of \$100 million, on its lease of a ferry.

Australia has had several high profile corporate failures. These failures include most prominently Ansett Airlines with A\$2 billion in liabilities, Pasmenco with liabilities of A\$2.9 billion, HIH Insurance Ltd. who had liabilities of around A\$5 billion, and telecommunications company One.Tel Ltd. with about A\$800 million in liabilities. While not an apparent threat to financial stability *per se*, these nonetheless represent financing constraints that tend not to be an issue in a boom period when the appetite for risk is strong, asset values are rising, and economic optimism is high.

Market valuations

While corporate indebtedness has implications for financial stability, the state of equity markets is important as well. Over-valued share markets can result in a reduction in market scrutiny and prudent management by shareholders and other market participants. Moreover, a large correction in share market prices may result in firm failures, which can result in

Table 5
Price to earnings ratios by country (percentage distribution)
as at 31 July 2002

PE Ratio	NZSE40 %	AORD %	S&P 500 %
Less than 10	6.3	19.3	7.6
10-15	25.0	27.5	24.6
16-20	25.0	18.5	23.3
21-25	9.4	13.3	17.2
26-30	9.4	5.8	8.7
Over 30	25.0	15.7	18.6

Source: Bloomberg

negative real effects such as higher unemployment and a contraction in investment and output. The associated negative wealth effects can hurt consumer and investor confidence as well.

The recent decline in the United States sharemarket came after a large run-up of share prices. Price to earnings ratios (PE ratios) rose to extraordinary highs, indicating a largely over-valued share market. PE ratios between 15 and 20 per cent are generally considered to be indicative of a sustainable valuation on the basis of historical norms. Table 5 shows the distribution of PE ratios for the NZSE40, Australian All Ordinaries Index, and the S&P 500 as of the end of July 2002. The figures represent the share of firms (in total) with PE ratios in the respective ranges. One caveat is that these figures are based on 2001 earnings, some of which, for the United States, have been revised downwards, which would result in increased PE ratios.

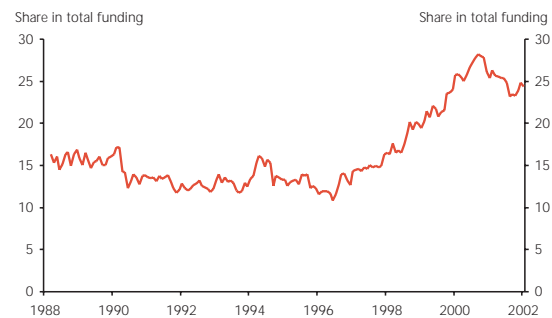
Since July, the distribution of New Zealand firms' PE ratios is similar to that of the United States, now that share prices in United States sharemarkets have fallen, by around 25 per cent in the case of the S&P 500 index. Corporate profitability in New Zealand has, of course, been particularly strong recently, in contrast to the United States. While real effects from the United States sharemarket decline could spill over to New Zealand through trade and wealth linkages and through consumer and business confidence, there are no indicators of impending problems on the basis of our earnings ratios alone. That is, there is little to suggest an inherent over-valuation of New Zealand's sharemarket at this stage that could precipitate a large decline here, although in uncertain times, assessments about equity market valuations are difficult. Also, asset price bubbles aren't usually followed by a smooth return to equilibrium, but rather by over-

shooting on the downside, so there remains some uncertainty regarding United States equity markets going forward.

5 New Zealand banks

The banking system in New Zealand has remained sound despite global weaknesses over the last year.²⁸ Profitability is robust, as is capital adequacy and asset quality. However, foreign currency funding rose at a rapid pace between 1997 and 2000, with its share relative to New Zealand dollar funding rising from 10.9 per cent in June 1996 to 28.0 per cent in November 2000.

Figure 11
Foreign currency funding of banks in
New Zealand



Source: RBNZ

While foreign currency denominated debt has increased significantly, 99 per cent of banks' foreign currency denominated debt is hedged against currency risk. Hedging these exposures insulates the banks from exchange rate fluctuations, but the continuing ability to hedge requires investors that are willing to hold New Zealand dollar risk. Should a shift in preferences reduce the appetite for New

²⁸ See Bruce (2002) for a discussion of developments in the New Zealand banking sector.

Zealand dollar risk, the banks would most likely shift to rely more on local funding, given that banks tend to be conservative risk managers. In such a case, we would expect a contraction in lending, as New Zealand's low saving rate makes it difficult to raise local funding at prevailing interest rates.²⁹

The ability to hedge efficiently requires liquid derivatives markets. Markets with a very small number of dealers potentially face inter-dealer liquidity problems, as there are fewer counterparties with whom to make a trade. In Australia and New Zealand, 40 banks book New Zealand dollar foreign exchange derivative contracts. The five most active banks hold about 70 per cent of the notional amounts outstanding and 13 banks hold 90 per cent of the notional amounts outstanding. A lower degree of concentration should mean that markets are relatively more robust. Still though, the New Zealand dollar market is very small and liquidity can be an issue.³⁰ Moreover, the broader issue of why foreign and domestic entities choose to hold New Zealand dollar risk, and what might happen should that risk appetite change or diminish, remains.³¹

Australian parent banks own four of the five major banks in New Zealand. Foreign bank ownership generally provides benefits such as a high degree of diversification of banking system assets and improved accessibility to international capital. While it is preferable to have strong parents located in well-regulated economies, foreign bank ownership also provides additional linkages by which instability in Australia can spill over to New Zealand's economy.³² Specifically, because a significant amount of New Zealand banks' funding is sourced through the parent, any shock to the parent that inhibits its ability to access funds could result in a reduction of funds available for lending in New Zealand. A large increase in impaired assets arising from exposures to

corporate defaults will force banks to provision capital for the impaired assets.

The capital adequacy of both New Zealand and Australian banks has been strong and stable in recent years, and in our assessment, will remain so in the near future.

As highlighted in the previous section, corporate quality in Australia, and to a lesser extent New Zealand, did deteriorate over 2001. There were also, of course, large failures elsewhere in the world, such as the bankruptcies of Enron and Worldcom, and these exposures were felt to some degree in the banking sector. Each of the Australian parents of New Zealand banks had exposures to Enron. National Australia Bank's (NAB) exposure was approximately A\$200 million, Australia and New Zealand Banking Group's (ANZ) was A\$138 million, Commonwealth Bank of Australia's (CBA) was below A\$150 million and Westpac Banking Corporation's (WBC) was A\$102 million. In addition to Enron, Australian banks had exposures to other corporate defaults. A few examples are listed in table 6.³³

Table 6
Australian banks' exposures to selected defaults

Bank	Debtor	AUD millions	% of bank's total assets
ANZ	Marconi	262	0.14
CBA	Pasminco	340	0.15
NAB	Ansett	70	0.02
WBC	Worldcom	50	0.03

Source: Fitch, National Australia Bank, and Commonwealth Bank of Australia.

Table 7
Australian banks' assets

Bank	AUD billions
ANZ	186
CBA	230
NAB	375
WBC	190

Source: 2001 Annual Reports.

These exposures do not threaten the viability of any of the banks, as the sums involved are small viewed against the total assets of the four major Australian banks (see table 7).

²⁹ See Brash (2002), Woolford, Reddell and Comber (2001) and Thorp (2002) for recent discussions about the role and significance of external debt in the New Zealand context.

³⁰ See Rosborough (2001) for a discussion of liquidity issues.

³¹ See Woolford, Reddell, and Comber (2001) for a more detailed discussion of this issue.

³² See Hull (2002) for a more detailed discussion of the link between foreign bank ownership and financial stability.

³³ See Bruce (2002), for a discussion of New Zealand banks' exposures to corporate credit quality deteriorations.

Each of the individual exposures listed above represents a small part of each bank's assets. For example, CBA's exposure to Pasmenco represents less than 0.2 per cent of total assets, and these banks employ dynamic provisioning³⁴ so that reserves for problem loans are built up over time. Moreover, loan portfolios are diversified across many industries to minimise industry-specific risk. Strong capital adequacy and diversified portfolios have meant that banks have weathered financial pressures well thus far.

Like other countries, the New Zealand corporate sector is facing pressures from the global economic downturn. Global equity market weaknesses can affect New Zealand firms through wealth effects of consumers exposed to foreign share markets as well as through declines in business and consumer confidence. The New Zealand corporate sector, however, does not appear particularly vulnerable at present, and is not experiencing the deterioration in credit quality that is seen in other countries. New Zealand banks, and their Australian parents (and head office in the case of Westpac) remain in good health, despite some exposures to corporate defaults. Because of household borrowing behaviour, it is increasingly the case that the health of Australasian banks depends on the health of the housing market.

6 Conclusion

This paper has discussed the current state of financial stability in New Zealand, and concluded that there are no immediate signs of financial instability.

However, the external situation is particularly uncertain. Concerns over recent months about a 'double-dip' recession in the United States remain, Europe is not currently acting as an engine of global growth, and the situation in Latin America is deteriorating (although New Zealand is less exposed, directly and indirectly, to developments in that region). In the aftermath of a decade of strong growth and buoyant asset prices there are some risks to financial institutions internationally with credit quality deteriorating.

Notwithstanding the external situation, New Zealand financial stability does not appear to be under pressure at this stage. While we do not anticipate that the current downturn abroad will turn into a sustained economic malaise, were that to happen, households in particular may find themselves under somewhat more pressure, given their high levels of indebtedness. For the Australasian banks, and the two financial systems more generally, the health of the household sector is likely to remain one of the most important considerations in the years ahead.

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³⁴ Firms that dynamically provision, supplement bad debt provisions according to changes in expected future losses, thereby avoiding deterioration in capital adequacy in economic downturns.

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Strengthening market disciplines in the financial sector

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This article discusses the role of market disciplines in the financial sector. It is a slightly amended version of a paper prepared recently under the auspices of the APEC Finance Ministers' forum, summarising the key points to emerge from an APEC conference on market disciplines and the role they can play in promoting financial stability.

Market disciplines are an important element in promoting sound and efficient financial systems. In a well-functioning market, financial institutions with poorly developed risk management structures tend to be penalised by the market through higher funding costs, while those with prudent risk management structures tend to be rewarded. In the longer term, weaker financial institutions will be weeded from the system, leading to a healthier and more dynamic financial system that is better able to meet the needs of the wider economy.

Unfortunately, many government interventions and policies tend to impede the effectiveness of market disciplines, such as widespread government ownership of banks, government guarantees of bank deposits, a presumption that insolvent banks will be rescued by the government, and poorly functioning financial markets. Weak market disciplines have been a major cause of financial crises in recent years in many countries, resulting in severe economic and social costs.

This article discusses these issues and assesses the types of policies required to strengthen market disciplines. It also discusses the need to strike a sensible balance between promoting effective market disciplines on the one hand, while seeking to avoid the dangers associated with market over-reaction or extreme market volatility, on the other.

1 Introduction

This article is an amended version of a paper that summarises the main points arising from an APEC Policy Dialogue on the theme of Strengthening Market Disciplines in the Financial Sector. The Policy Dialogue was held in Hong Kong in July this year as part of APEC's ongoing efforts to promote greater understanding of the policies needed to strengthen financial systems in the APEC region. The Policy Dialogue was co-chaired by the Reserve Bank of New Zealand and the finance ministries from Thailand and Chile.

The article has the following structure:

- Section 2 discusses some background issues as to why the theme of market disciplines is considered important.
- Section 3 explains what is meant by the term "market disciplines" in the context of the paper.
- Section 4 discusses the channels by which market disciplines operate.

- Section 5 discusses the factors that influence the effectiveness of market disciplines in the financial sector.
- Section 6 contains a summary of the policies that can be implemented to promote more effective market disciplines in the financial sector.
- Section 7 discusses the potential for markets to over-react or to become extremely volatile and identifies some of the policies that can be adopted to reduce these risks.

An appendix to the article describes the factors that influence market disciplines in the New Zealand financial system.

2 Background – why the interest in market disciplines?

The theme of market disciplines was chosen for the Policy Dialogue in recognition that market disciplines can play a major role in promoting sound risk management in the financial sector. Poor risk management and excessive levels of risk tend to be penalised by a well-functioning financial market, while sound risk management and prudent levels of risk tend to be rewarded. Unfortunately, market disciplines tend to be relatively weak in many economies, for a range of reasons, including because of the nature of government interventions in the financial system. The absence of effective market discipline has been a major cause of financial crises around the world in the last 20 years or so, resulting in severe economic and social costs for many countries. Therefore, there is much to be gained by implementing reforms to strengthen market disciplines in our financial systems.

However, as discussed later in this article, market disciplines need to be seen as part of a broader range of tools to promote financial stability. The other tools include an effective system of regulating and supervising financial institutions, a sound legal framework, effective enforcement structures, robust accounting practices and sound corporate governance. Although each of these can be viewed as separate tools, they are closely inter-related. Relying on only one tool is unlikely to produce a sound and efficient financial system, and may actually contribute to financial instability. It is the use of the different tools together that offers the best prospects for financial stability.

3 What is meant by the term “market disciplines”?

For the purpose of the Policy Dialogue, “market disciplines” were interpreted to mean the role of participants in the financial market in monitoring the risk profile, and the financial performance and position, of financial institutions, and in influencing their behaviour (especially risk-related behaviour). Market participants can play an important role in encouraging financial institutions to maintain systems to

identify, measure, monitor and control their risks. This can occur through a number of channels, including by influencing a financial institution’s cost of funds (and therefore profitability), access to liquidity and market share.

There are many different categories of financial market participants, each with their own objectives and interests, and each capable of exerting different influences on financial institutions. The main categories include: retail depositors; wholesale depositors; senior unsecured bondholders; subordinated creditors; shareholders; retail borrowers; corporate borrowers; counterparties to derivative contracts; and other financial institutions (such as correspondent banks or settlement banks). Although these different groups often have similar sets of objectives and interests in their dealings with financial institutions, there are some areas where the objectives of the different categories are not perfectly aligned or may even be in conflict.

For example, depositors generally wish to achieve the highest return on their funds, subject to their funds being safe at all times and readily available on demand. They generally prefer their financial institution to err on the side of having a low risk profile, with strong buffers to absorb shocks to the balance sheet. In contrast, shareholders could be expected to be more tolerant of risk-taking by the financial institution in which they hold shares. They are generally prepared to accept a somewhat higher risk strategy in return for greater prospects of capital gain and higher dividends. Those borrowing from a financial institution place emphasis on minimising the cost of their borrowing and maximising the flexibility of the terms of repayment, and are generally unconcerned about the risks to the financial institution and its profitability.

These different objectives create an array of incentives for financial institutions, some of which are mutually reinforcing, while some pose varying degrees of potential conflict. For example, financial institutions face incentives from borrowers and shareholders to minimise their costs of funds, yet must also pay a sufficient rate of return to depositors and bondholders to attract funds. They face incentives from depositors to take a cautious approach to risk management and to ensure that they can repay funds on demand, yet also need to structure their balance sheet to meet the needs of longer-term borrowers and to deliver an acceptable rate

of return to shareholders. They face incentives to maintain profitability at a level that compares well with their competitors or they risk a lower market capitalisation and increase the probability of becoming a takeover target. In a situation of falling profitability and mounting asset quality problems, financial institutions can face incentives from shareholders to take additional risks to “bet the bank” to raise profitability, whereas depositors would strongly prefer the bank to become more cautious and ensure that it maintains high levels of liquidity.

Although the different objectives of different categories of financial market participants do create mixed incentives for financial institutions, there is one ultimate objective that straddles all market participants – and that is the overriding desire for the financial institution to remain sound. By and large, none of the counterparties to a financial institution gain from that institution becoming unstable. Therefore, the on-balance incentives for a financial institution’s directors and management are to manage the institution’s risks such that it remains sound and retains investor and creditor confidence in the longer term.

4 How do market disciplines work?

Market disciplines operate through a number of channels, including a financial institution’s cost of funds, access to liquidity, market share and, ultimately, the level of confidence they enjoy in the markets. The main channels for market disciplines are summarised below:

Risk premium on interest rates – cost of funds, profitability. One of the most potent channels for market disciplines is via interest rates on a financial institution’s funding – including on its deposits, wholesale funds and subordinated debt. The level of risk premium built into interest rates will be influenced by the market’s perception of the risk profile of the institution, the risk management capacity of the institution and the buffers it has created (primarily capital) to absorb risks. The higher the risk profile and the weaker the risk management capacity of a financial institution, the higher the risk premium could be expected to be. In this way, high risk and poor risk management will be penalised by the market through higher funding costs,

and low risk and sound risk management will be rewarded through lower funding costs. In turn, funding costs will have a significant bearing on the financial institution’s profitability and ability to compete effectively in the market.

Effects on remuneration for senior management. The cost of funding, being a major influence on a financial institution’s profitability and market value, could also be expected to have a significant bearing on the remuneration outcomes for senior management. A lower level of profit or profitability, and market value, could be expected to filter through to reduced remuneration levels (or lower growth in remuneration) than would otherwise be the case. If the remuneration arrangements are well constructed, based on maximising the long-term risk-adjusted return to the financial institution, then an increase in risk premium that leads to a contraction in risk-adjusted earnings for the institution could be expected to strengthen the incentives for lowering risks and strengthening risk buffers. (Unfortunately, as noted later, remuneration structures in financial institutions and other corporations sometimes have a bias towards short-term profit or share price maximisation, with relatively little weight placed on longer-term risk. This can lead to excessive risk-taking by financial institutions, to the detriment of financial stability.)

Risk premium on dividends – cost of capital. The cost of capital is another channel through which market disciplines can influence risk management practices. The higher the risk premium built into dividends (and other forms of return to equity holders) the more expensive and difficult it is for the financial institution to raise and service capital.

Signalling effects of risk premiums. In addition to the effects of risk premiums on the cost of funds, risk premiums also signal the market’s perception of the relative riskiness and risk management capacity of a financial institution. Risk premiums are studied by market observers, such as credit rating agencies and financial analysts, as well as by wholesale creditors, and provide a basis for forming decisions as to whether an investor or creditor will continue to hold funds in a particular institution. A high and rising risk premium has the potential to lower confidence in a financial institution, potentially leading to a withdrawal of funds.

Credit ratings. Credit ratings are a major source of market discipline for many financial institutions. Ratings are commonly used not only by wholesale counterparties in their pricing of exposures to a financial institution, but also by smaller creditors in deciding where to place their funds. Ratings are also often used as a benchmark for investment decisions by institutional investors, and some investors are prohibited from holding investments below a specified rating level. Moreover, a change in a rating can be a potent trigger for market confidence in a particular financial institution, exerting a significant influence on investors' disposition towards that institution. Financial institutions therefore have strong incentives to manage their affairs in ways that maintain a sound credit rating.

Market share. Market disciplines also operate through a financial institution's share of the market and the consequential effects on revenue. For example, a higher cost of funds arising from a higher risk premium may force a financial institution to raise its lending rates to above-market levels, potentially reducing its share of the lending market or forcing it into higher risk lending, with adverse consequences for its profit and market value.

Market capitalisation and threat of takeover. A lower level of profitability and a higher cost of capital could be expected to lower the market capitalisation of a financial institution. The shareholder discontent that results from a poorly performing share price could be expected to exert considerable pressure on directors and managers of the financial institution to improve its performance. And a lower market capitalisation could be expected to increase the probability of a takeover bid for the financial institution. This threat could be expected to sharpen the incentives for directors and management to take the required steps to improve the risk-adjusted performance of the financial institution, including through better attention to the way risks are managed.

Access to markets. If the market develops serious concerns about the risk profile of a financial institution, this may affect its ability to access funding or to obtain risk hedges, regardless of the price it is willing to pay. At a certain point, the risk premium will become so large relative to other financial institutions that investors and creditors will be reluctant to

make funds available at any price, and may even withdraw funds and cut credit lines in an attempt to reduce their exposure to the financial institution.

Liquidity pressures. In extreme situations, the difficulty in accessing funding, and the withdrawal of funds or cutting of credit lines, can impose potentially severe liquidity pressures on a financial institution. In some cases, a financial institution may be forced to sell non-liquid assets at penal prices in order to meet its liquidity needs, with implications for its profitability and ultimately solvency. If a financial institution's liquidity difficulties become particularly severe, then market confidence in the institution, already (by definition) being in a weakened state, could become so critical that the institution's survival is under serious threat.

Collapse of confidence – run on a financial institution. At the most extreme end of the spectrum, market disciplines can be acute and fatal in their effects. A rapid deterioration in confidence in a financial institution is likely to lead to a rapid withdrawal of funds – both retail and wholesale – effectively forcing the closure of the institution. Closure can be avoided in some cases, such as where the central bank/supervisory agency is satisfied that the institution is sound and publicly expresses this view and provides liquidity. However, where there are material doubts as to a financial institution's solvency, a crisis of confidence is likely to result in the institution's closure, at least temporarily.

Through these types of channels, markets can exert considerable influence on the risk appetite and risk management practices of financial institutions, encouraging more prudent risk management. However, the extent to which market disciplines are effective in producing this outcome depends on a number of factors. These are discussed in the next section.

5 What are the factors that influence the effectiveness of market disciplines?

A number of factors will influence the extent to which market disciplines can play an effective role in promoting sound risk management in the financial system. The main factors are discussed below.

Market disciplines require the existence of a well-functioning market. A basic precondition for effective market disciplines is the existence of a well-functioning financial market. Investors, creditors, borrowers and others will be unable to exert influence on the risk management practices of financial institutions in the absence of a functioning market. For a market to function effectively, it requires a number of attributes. First, it requires “critical mass” on the demand and supply sides of the market for competitive forces to operate – ie sufficient suppliers of financial services, operating competitively, and sufficient individuals and corporate entities in need of financial services. A well-functioning market also requires a number of other ingredients, including a clear and well-structured legal framework for conducting transactions; a reliable system for efficiently and effectively enforcing rights and obligations; a reliable system for exchanging and settling obligations between parties; an efficient and reliable dissemination of information to enable market participants to be well informed on matters relevant to their transactions; and relatively low “friction” in the movement of capital from one entity or part of the market to another.

As discussed later in this paper, where a well-functioning market does not exist, and cannot readily be developed, then other steps may have to be taken to “simulate” market disciplines, so as to create the appropriate incentives for sound risk management, including by way of robust corporate governance and supervisory measures.

Competitiveness in the financial markets. For market disciplines to be effective, the financial market needs to be competitive, enabling consumers of financial services to choose between different providers, and encouraging suppliers of financial services to compete among each other

to meet market demands. The extent of competitiveness will depend on how contestable the financial system is – ie the nature of the barriers to entry into the financial system. It will also depend on the extent to which market participants can compete on an equal footing, including as to whether the regulatory framework is a level playing field. Unfortunately, in many financial systems, barriers to entry are set at high levels, restricting the contestability of the financial system. And there is a tendency for uneven regulation and other regulatory distortions to impede the ability of financial institutions to compete on broadly equal terms.

Interest rates and other financial market prices. Effective market disciplines also rely on interest rates and other financial market prices being able to move with least friction in response to changing demand and supply conditions. Market disciplines are less effective where interest rates and other financial market prices are constrained by regulation or where tax structures impose distortions.

Mobility of capital flows. For the market to be able to reward prudent risk management and penalise poor risk management, capital must be able to move relatively freely from one part of the financial market or institution to another. Although there will inevitably be some friction impeding the movement of funds, including transaction costs and contractual limitations on the withdrawal of funds from a particular institution or investment product, friction can be kept to a minimum by avoiding tax structures based on capital movements (such as stamp duty or capital transfer taxes) and by minimising regulatory constraints on capital flows. In some economies, however, regulatory and tax structures create significant impediments to the flow of capital, thereby restricting the ability of the market to respond to shifting tolerance for risk.

Ownership of financial institutions. The potency of market disciplines will also be influenced by the nature of financial institution ownership. For example, where banks are owned by central or regional government, it is likely that investors and creditors will have weak incentives to monitor and exert discipline on such banks, given the presumption that government would not allow its own bank(s) to fail (provided, of course, that the government itself is viewed as

stable and fiscally viable). Similarly, where a bank is solely or majority owned by a large parent entity of high repute, market disciplines could also be expected to be somewhat muted. The incentives for investors and creditors to be vigilant in monitoring a financial institution and responding to shifting perceptions of risk are generally greatest when the institution has a widely dispersed ownership structure.

Nature of risk insulation – deposit insurance and government guarantees. Another significant influence on the incentives for investors and creditors to monitor and exert discipline on financial institutions is the extent to which they are insulated from risk. For example, the existence of deposit insurance could be expected to weaken the incentives for protected depositors to monitor their bank, particularly if the deposit insurance scheme is relatively generous and is seen as fiscally viable. Similarly, the existence of government guarantees of bank liabilities, including implicit guarantees, is likely to weaken the effectiveness of market disciplines. In this regard, if the market perceives that a financial institution is “too big/too complex to fail”, such that the government would rescue it were it to get into difficulty, then market disciplines on that institution would be relatively weak. The market is likely to be at its most vigilant in monitoring financial institutions and responding to concerns when there is little or no protection for investors and creditors.

Nature of transparency. The effectiveness of market disciplines is also dependent on the quality of transparency in financial markets. Market participants require regular, high quality disclosures of financial institutions’ balance sheets, income statements, off-balance sheet positions and risk positions, as well as information on risk management structures, in order to make well-informed investment decisions. Inadequate transparency reduces the effectiveness of market disciplines and increases the risk of market over-reaction based on misinformation or uncertainty. In many economies, financial transparency in the financial sector is relatively weak, due to a combination of inadequately developed accounting standards or principles, poor enforcement of the standards that do exist, deficiencies in actual accounting practices, and weaknesses in external audit arrangements.

Corporate governance. The extent to which market forces can induce desirable risk management behaviour by financial institutions depends in part on how responsive the directors and management of financial institutions are to market pressures. This will be influenced to some extent by the quality of corporate governance arrangements in the financial sector – and particularly the clarity of director duties for overseeing the management of risks in their institution, and the effectiveness of corporate governance enforcement. If the directors and senior managers of financial institutions have a clear set of responsibilities at law for ensuring that risks are well identified, measured, monitored and controlled, and for ensuring that financial and risk positions are comprehensively disclosed, and these responsibilities are well enforced, then market disciplines are likely to be more effective in encouraging sound risk management behaviour by financial institutions. Unfortunately, corporate governance arrangements in some financial systems are relatively weak, due to inadequate law, inadequate enforcement of the law, insufficient disclosure and a corporate culture that places insufficient stress on the duties and accountability of directors and senior management.

The nature of the supervision framework. Another important influence on the effectiveness of market disciplines is the nature of the framework for licensing and supervising financial institutions. If the supervisory framework sets high hurdles for the licensing of new financial institutions, this is likely to reduce the contestability and competitiveness of the financial system, to the detriment of market disciplines. Similarly, an intensive supervisory process involving close scrutiny of financial institutions can reduce the incentives for the market to exercise their own scrutiny of financial institutions, particularly if the market believes that the supervisors are taking effective responsibility for the management of risks in the financial system. A less intensive (but still effective) supervisory regime could be expected to lessen the risk of the market relying predominantly on the supervisor to scrutinise the financial system.

6 What are the policies that can strengthen the effectiveness of market disciplines in the financial sector?

For the reasons identified above, market disciplines are not as effective as they could be in promoting sound risk management in financial systems in many economies. This is particularly the case in economies with poorly developed financial markets, uncompetitive financial systems, substantial state ownership of the banking system, explicit or implicit government protection of financial institution liabilities, and intensive regulation of the financial system. This section of the paper sets out some of the policies that can be considered in order to strengthen the effectiveness of the market's role in promoting financial stability. It focuses on four areas:

- developing efficiently functioning markets;
- strengthening the incentives for investors and creditors to monitor and exert disciplines on financial institutions;
- strengthening the capacity of market participants to assess the risk profile and soundness of financial institutions; and
- increasing the responsiveness of financial institutions to market pressures.

Developing efficiently functioning markets

A fundamental pre-requisite for effective market disciplines is the development of well-functioning financial markets – ie markets with sufficient numbers of participants on the “demand” and “supply” sides to provide for a competitive bidding of market prices for financial services, a system of relative prices that respond efficiently to changing demand and supply conditions, relatively low “friction” in the movement of capital from one entity to another, and high quality information. This requires a number of ingredients, including:

- Competition policy that facilitates relatively open entry into the financial system and that enables market

participants to compete in a broadly level playing field. This requires careful consideration of the level at which the hurdle for entry to the banking system and wider financial system should be set in order to facilitate the dual objectives of facilitating a competitive financial market and maintaining a sound financial system. It also requires consideration of the balance to be struck between quantitative hurdles, such as minimum capital requirements, and qualitative hurdles, such as the need for new entrants to demonstrate sound risk management practices and to have appropriately qualified and experienced directors and senior management. A competitive financial system also requires consideration of the effect of regulation and supervision on different financial institutions' ability to compete with each other, with the aim of achieving a regulatory framework that minimises distinctions between the regulatory treatment of different categories of financial institution.

- Well developed commercial and securities law, enabling parties to contract reliably with one another and enabling securities to be bought and sold in a reliable manner.
- Mechanisms to facilitate enforcement of commercial law, including a well resourced judiciary and legal system, and a system of transparency and accountability for the enforcement of commercial and securities law.
- The need to minimise transaction costs and other frictions in financial markets, so that markets can relatively quickly and cost effectively transfer funds from one institution to another and from one part of the market to another. This suggests, for example, that taxes on capital transactions should be kept to a minimum and applied in a least distortionary manner. It also suggests that regulatory barriers to the movement of capital – such as controls on cross-border capital flows or restrictions on the movement of funds between different parts of a domestic financial system – should be kept to a minimum and applied in a competitively neutral manner where feasible.
- A reliable and efficient means to transfer securities from seller to buyer and to settle the associated financial obligations. Settlement systems and other aspects of

market infrastructure should be governed by clear rules and procedures that are effectively enforced.

In some developing economies, financial markets are relatively under-developed, thereby constraining the extent to which market disciplines can play an effective role in promoting sound risk management. Although the implementation of the types of policies discussed above will help to foster deeper and more efficient financial markets, substantial development generally only occurs once the real economy has itself advanced to a level that requires a more sophisticated financial market. For example, an efficiently functioning market is unlikely to develop in an economy with a very small population or where the vast majority of the economy operates on a subsistence basis. Similarly, deep financial markets at a domestic level are unlikely to evolve in an environment where the vast majority of people have very low incomes and where most transactions occur using cash or barter.

In these types of economies, the development of financial markets must occur in step with broader economic development. In the transition period (which can last many years), there may be a need for more intensive reliance on other tools for the promotion of risk management in the financial sector, such as a closer degree of regulation and supervision of financial institutions, and greater official monitoring and enforcement of corporate governance in financial institutions. As financial markets develop, and as market disciplines gain greater potency, there may be scope (and indeed, a need) to reduce the intensity of financial sector regulation and supervision.

In relatively under-developed financial markets, governments can also consider the possibility of “simulating” market disciplines until such time as real disciplines begin to emerge. For example, one option may be for the government to charge financial institutions a fee for the implicit guarantee that is presumed to exist in a heavily government-owned financial system, with the fee being based on an assessment of the risk profile of each institution and its risk management capacity. The fee could be based on the supervisory authority's assessment of risk or through external credit rating agencies.

Measures to strengthen the incentives for investors and creditors to monitor and exert disciplines on financial institutions

There are various ways to increase the incentives for financial market participants to monitor and exert disciplines on financial institutions. Fundamentally, these include the need to carefully assess, and reduce or eliminate where feasible, the government interventions that protect investors and creditors from the risks associated with holding funds in a financial institution. Possible policy options include the following:

Privatising government-owned financial institutions. The privatisation of government-owned financial institutions offers a number of potential benefits. These include: reduced fiscal risk associated with government ownership of financial institutions, strengthened market disciplines on the institution in question, sharper incentives for sound risk management within the institution and the likelihood of more effective shareholder surveillance of corporate governance and risk management structures.

In considering the privatisation of government-owned financial institutions, a number of factors need to be taken into account. One consideration is the pre-requisites for successful privatisation, including the importance of implementing sound risk management structures and corporate governance arrangements and seeking to ensure that the institution's balance sheet and risk positions are in a commercially viable state before privatisation occurs. It is also important to ensure that financial system reforms have been undertaken to strengthen the risk management capacity of the financial system, including through the introduction of effective supervisory arrangements, corporate governance, financial disclosure and external audit arrangements.

There is a need to ensure that the new ownership arrangements are conducive to prudent ongoing management of the institution – hence the importance of a careful screening of the potential owners, including in respect of their reputation in the market, the experience and skills of the proposed directors and senior management team, the nature of the business strategy for the institution, the extent of parental support for the institution and the nature of separation between the institution and shareholders

(including in respect of connected exposures). The authorities also need to assess the possible benefits of privatising through widespread ownership versus privatising by selling all or most shares to a controlling shareholder.

In those cases where privatisation is not a feasible or attractive option, market disciplines on the financial institution are likely to remain muted so long as the market believes that ownership equates to unlimited support for the institution and so long as investors have faith in the fiscal viability of the government. In order to compensate for this, governments need to ensure that government-owned financial institutions are subject to strong corporate governance and risk management structures, including clear commercial objectives, well specified and enforced director duties, appointment of well qualified and experienced directors and strong reporting requirements. There may also be merit in separating the commercial and public policy functions of government-owned financial institutions, with clear accountabilities for the two areas.

Market disciplines can be partially simulated for government-owned financial institutions through a number of mechanisms, including charging the institution for implicit government support (using a risk-based pricing structure), requiring risk considerations to be factored into remuneration arrangements for the senior executives of the financial institutions, and creating subordinated debt with an explicit risk-based pricing structure.

Separating the ownership and management of government-owned financial institutions may also provide a partial response to the market discipline problem. For example, the government could retain ownership of a financial institution, but arrange for the management of the institution to be contracted to an appropriate private sector entity under a performance contract. Provided that the private sector party has the appropriate skills, experience and market standing, and provided that the performance contract specifies clear, commercial objectives and accountability structures, this arrangement could strengthen the management of the institution in question and reduce some of the problems associated with government ownership. Such an arrangement could facilitate the simulation of market disciplines by designing the performance contract to create incentives for sound risk management and by basing the

remuneration arrangements and termination provisions for the managing entity on the market's assessment of the institution's risk – such as credit ratings of the institution.

Remove or reduce government support for banks.

Another option for reducing moral hazard risks and strengthening market disciplines on the financial sector is to remove or limit government guarantees or implicit support arrangements for financial institutions. As with privatisation, however, the removal of government guarantees needs to occur at a time when the banking system is in a sound condition and when structures have been bedded down to promote robust risk management. Once this has been achieved, the removal of government guarantees and minimisation of implicit support arrangements will assist in sharpening the disciplines on the banking system and thereby encourage the maintenance of effective governance arrangements. In the interim, explicit or implicit government support can be charged for using a risk-based pricing structure, so as to encourage sound risk management practices in guaranteed financial institutions.

Deposit insurance. Where deposit insurance is in place or being considered, it is important to minimise the associated moral hazard risks. A number of options can be considered in this context. One option is to place a sufficiently low cap on insured deposits and to apply it on a consolidated basis (to prevent deposit splitting by an individual depositor) so as to ensure that depositors remain exposed to the possibility of loss for deposits of a relatively substantial amount. Co-insurance may also be an effective way of preserving market discipline, by ensuring that depositors remain exposed on a proportion of insured deposits. The use of risk-based pricing structures can also be a potentially useful mechanism for maintaining disciplines on bank management, including the possibility of disclosing the risk premium on deposit insurance as a market signal. However, in all of these areas, there is a need to carefully weigh the competing objectives of trying to preserve market disciplines while also ensuring that the insurance scheme is effective in maintaining depositor confidence and reducing contagion in a period of financial system distress.

Overcoming the “too big or too complex to fail” problem. One of the most important ways of strengthening the incentives for investors and creditors to exert disciplines

on financial institutions is to address, where feasible, the common (and well founded) belief that a government is unlikely to allow a major financial institution to fail or will insulate creditors from loss. This view has arisen in the context of a long history of governments and central banks rescuing banks and other financial institutions – large and small – rather than letting them fail. It is also based on the general tendency for governments to insulate depositors from the full extent of losses arising from a bank distress event – often going well beyond the theoretical cap provided under a deposit insurance scheme. As a result, depositors and other senior creditors of financial institutions (especially major financial institutions) have developed a strong expectation of government-funded bail-outs.

If this problem is to be tackled, it suggests the need to devise failure management options to ensure that shareholders, subordinated creditors and senior creditors (including depositors) of the failed bank bear the full extent of losses attributable to them, while still seeking to minimise damage to the financial system arising from a bank failure. This is a particularly important objective in situations of isolated bank failures, where the financial system as a whole remains sound (and is seen as such by the market). In such circumstances, managing the failure in ways that leave creditors exposed to loss may be a viable option for responding to the failure, without undermining confidence in the financial system as a whole.

It is therefore important for governments to give serious consideration to the legal frameworks required for efficiently exiting insolvent or distressed financial institutions from the financial system. Similarly, there is a need to develop the options and techniques required to resolve distress events in ways that avoid government guarantees or other forms of government support.

There is also a need to ensure that there are legal and regulatory frameworks that efficiently facilitate the merger and acquisition of financial institutions. Regulatory impediments to takeover or merger tend to weaken the capacity to deal with under-capitalised financial institutions and impede the effectiveness of market disciplines. It is therefore desirable to create the necessary frameworks to enable financial institutions to be merged or acquired

relatively quickly and with a minimum of transaction and compliance cost (subject to ensuring that market concentration and integrity concerns are adequately addressed).

Use of subordinated debt. Another potential option for strengthening the incentives for creditors to exert disciplines on a financial institution is to encourage or require institutions to issue subordinated debt to investors. The effectiveness of this option will depend on a number of factors, including the extent of subordination of the debt (such that it is only repaid if senior creditors receive 100 per cent of the amounts owing to them in a failure situation), whether the debt is held by wholesale or retail investors, the nature of the pricing of the debt and the depth of secondary markets. Subordinated debt is more likely to be an effective source of market discipline where it is fully subordinated to senior unsecured debt, is held by wholesale creditors, is priced according to the perceived risk of the financial institution and is traded in relatively deep secondary markets. In these circumstances, subordinated debt can enhance market disciplines through the cost of funds, the signalling effects of risk premiums, and the capacity of subordinated creditors to pursue remedial action where specified trigger points have been breached (such as a financial institution's credit rating or the risk premium relative to a defined benchmark).

Strengthening the capacity of market participants to monitor financial institutions and exert disciplines

Although strengthening the incentives for investors and creditors to monitor and exert disciplines on financial institutions is essential, it is equally important to provide them with the means to do so. This involves a number of measures, possibly including the following.

High quality financial disclosure. Financial disclosure is essential if market participants and observers – particularly the larger investors in and creditors of banks, financial news media, financial analysts and rating agencies – are to monitor the performance and soundness of financial institutions effectively and exercise appropriate disciplines on those institutions which do not perform well or fail to meet

acceptable prudential standards. Although the nature of financial disclosure and accounting standards will vary from country to country depending on institutional and legal arrangements, some broad principles can be identified.

- **Disclosure must be based on sound accounting standards and practices.** An effective set of disclosure requirements will need to be underpinned by robust accounting standards and practices. These standards should desirably conform to international standards, although national modifications may well be appropriate. In particular, it is essential for accounting standards to set out meaningful frameworks for measuring credit exposures and earnings. In general, accounting standards should require the disclosure of financial information on the basis of economic substance rather than on the basis of accounting or legal contrivances.
- **Effective external audit.** Financial disclosures should be subject to rigorous external auditing requirements, based on a set of auditing guidelines promulgated by an appropriately qualified standard-setting body. External audit should be conducted by a fully independent auditor, whose business connections with their client should not be such as to compromise the auditor's objectivity and independence. In order to promote greater auditor objectivity and independence, a number of options can be considered, including requiring the periodic rotation of the audit firm or audit partner, limiting the ability of auditors to undertake non-auditing business with the audit client, and ensuring a credible degree of separation between the audit function and the non-auditing functions of the auditor. Consideration can also be given to the appropriate level of legal duties of auditors and the legal tests and defenses that should be applied in assessing whether their duties have been adequately discharged.
- **Special audit requirements for financial institutions.** In some cases, banking supervisory authorities may supplement the standard auditing requirements with requirements for unique application to financial institutions. Modifications can sometimes include:
 - a requirement for financial institutions to undergo more frequent external audit than is normally required of public companies (eg six monthly or quarterly);
 - a requirement that particular prudential disclosures are audited (in addition to the usual financial disclosures) – eg capital adequacy, exposure concentration, connected lending, market risk disclosures, etc;
 - a requirement that a bank's risk management systems are periodically subject to external audit or some other external review, possibly under the overview of the supervisory authority; and
 - a requirement that the appointment of a bank's auditor is subject to the approval of the supervisory authority.
- **Consolidated disclosure.** Disclosure of financial and risk-related information by financial institutions should generally be in respect of the financial institution and the consolidated group. Consolidation needs to be comprehensive so as to include not only subsidiaries but also "in-substance" subsidiaries and other entities that are under the effective control of the parent entity. In some cases, holding company disclosures may also be appropriate.
- **Types of information disclosed.** The information required to be disclosed will vary depending on the type of entity making the disclosures and the particular needs of the jurisdiction. As a general rule, however, banks (and some other types of financial institution) could be expected to disclose:
 - capital, disaggregated by type of capital, and the percentage of capital relative to credit exposures, possibly using the Basel Capital Accord as the measurement framework (or a credible alternative);
 - the bank's credit rating and any recent changes to the rating;
 - comprehensive and detailed information on the balance sheet, income statement and off-balance sheet obligations;

- exposure concentration, in terms of exposures to individual counterparties, and exposures to particular economic sectors or industries;
- information on asset quality, including the amount of non-performing and restructured loans and the level of specific provisioning in relation to such loans;
- information on market risk;
- information on related party exposures (based on comprehensive definitions of related parties and credit exposures, and including information on the terms on which exposures to related parties have been entered into);
- information on the bank's systems for managing its business risks, including information on the nature of its internal control systems, internal audit arrangements and any other arrangements it has for an external review of the adequacy of its risk management systems and internal controls; and
- disclosure of the names, qualifications and experience of directors and senior management.

Frequency of disclosure. For information to be useful to the market, it needs to be disclosed on a relatively frequent basis – at least six monthly, and perhaps quarterly. In some countries, there is also a requirement for the directors of a financial institution (or other entity accessing funds from the public) to issue updated financial disclosures intra-period where there has been a material adverse development since the issuance of the current disclosure statements. This has the advantage of making financial disclosures more reliable (provided that the directors of the financial institution comply with the requirement to issue amended disclosures). However, it also increases the risk of adverse market reaction – especially if the institution is forced to disclose the bad news before it has had time to implement an appropriate response. Again, this is where a sensible balance needs to be struck between the obligation to ensure that disclosures are not misleading or false, while giving the directors of a financial institution sufficient time to take corrective action.

Enforcement of disclosure. Disclosure requirements must be monitored and enforced by a competent and well resourced agency, where the agency itself is subject to

effective accountability arrangements for doing its job. The directors and senior officers of financial institutions should be held accountable for the accuracy, completeness and relevance of the information disclosed, and should be subject to appropriate penalties where these duties are breached.

Educating investors, creditors and the financial news media. Disclosure will be more effective if investors, creditors and the financial news media understand what is being disclosed and know what to look for in a financial institution's disclosure statement. Therefore, an important element in strengthening market disciplines is to educate investors, creditors (including depositors) and the financial news media on what to look for when reading a financial institution's disclosure statement. This can be done in a number of ways. One option is for the relevant regulatory agencies to provide explanatory material to smaller investors and creditors, or to require or encourage financial institutions to provide such information. Regulatory agencies can also work with educational institutions to develop programmes for secondary school and tertiary students to raise their awareness of investment risk and the factors to take into account when making investment decisions. In addition, there may be value in regulatory agencies holding seminars or other educational programmes for the financial news media and other agents of investors and creditors.

Providing investors and creditors with “consumer choice”. Another important ingredient in strengthening the capacity of investors and creditors to exert disciplines on financial institutions is to provide them with “consumer choice” by creating a competitive financial market place. All else being equal, the more financial institutions there are, the greater is the scope for investors and creditors to “shop around” for the best investment products and to discern between different institutions' risk profiles and quality of risk management.

Providing the mechanisms for investor/consumer choices to be made. In addition to creating a competitive financial system, so that investors and creditors have a choice as to where they place their funds, it is also essential that investors and creditors have the capacity to make those choices – through financial market prices (such as interest rates) and the movement of capital. To the extent feasible

(and consistent with other economic policy objectives), interest rates and other financial market prices should be free to move in line with demand and supply, with a minimum of regulatory or tax-induced distortion. Similarly, capital should ideally be free to move from entity to entity, from one part of the financial system to another, and from the financial system of one country to that of another, with a minimum of friction.

Increasing the responsiveness of financial institutions to market disciplines

Although it is essential to create the incentives and capacity for investors and creditors to monitor and exert discipline on financial institutions, it is equally important to maintain strong incentives for financial institutions to respond to investor and creditor pressures. Many of the measures already discussed in this paper could be expected to encourage financial institutions to be more responsive to market pressures. In addition to these measures, the directors and managers of financial institutions can be encouraged to respond to market disciplines through a number of other mechanisms, including the following.

Corporate governance. Robust corporate governance is an important element in encouraging financial institutions to respond to market pressures. For the law to be effective, it must be monitored and enforced by a competent authority that is itself subject to robust governance and accountability. There is also a need for public disclosures by financial institutions to provide information on aspects of corporate governance, such as the qualifications and experience of directors, any business connections they may have, any potential conflicts of interest they may have, the nature of their remuneration arrangements, the policies of the board for managing conflicts of interest, etc.

One of the most important aspects of corporate governance is the specification of the duties of directors at law – ie what should the law require of the directors of a financial institution. One possibility is to require directors to ensure that the risks of their financial institution are well identified, understood and controlled at all times, and that systems are in place, and are being applied at all times, to achieve this. Another possibility is to require directors to satisfy themselves

that their financial institution's affairs are being managed prudently at all times. The nature of the duties, and the clarity of their disclosure in the law, will play a major part in influencing the performance and incentive structures of directors.

The law should also specify the penalties for failure to comply with the duties of being a director, including criminal sanctions (such as fines and imprisonment) and the capacity for affected parties, such as shareholders and creditors of the financial institution, to pursue civil claims against directors.

Another important consideration is the specification of the legal tests for assessing whether a director's duties have been honoured or breached, and the defences available to a director in seeking to establish that he or she has complied with their legal duties. For example, one such defence may be the right of a director to rely on the advice of experts in order to form a view on risk management issues or financial disclosure issues. And a countervailing test may be that, in placing reliance on experts, the director has made sufficient enquiry of them and has satisfied him/herself as to the adequacy of the expert's qualifications and experience.

Here, as in other policy areas, there is a need to get the balance "right". On the one hand, the specification of the duties of directors (and senior managers) of financial institutions should be sufficient to create strong incentives for the appointment of suitably qualified directors and for the prudent oversight of the financial institution's affairs. On the other hand, if the duties are set too high, and the penalties too great, it may be difficult to find anyone willing to take on the role of director. The duties, penalties, and associated legal tests and defences therefore need to strike a sensible balance.

Ensuring that directors and managers are not sheltered from the consequences of mismanagement. The incentives for directors and managers of financial institutions to manage their risks prudently will be stronger where they are not sheltered from the legal and financial consequences associated with mismanagement. Therefore, where a financial institution gets into difficulty, it is important to ensure that any response to its predicament (be it a restructuring of the institution, liquidation or some form of

rescue) does not insulate the directors and managers from criminal sanctions, civil litigation or reputational consequences.

Incentive structures for senior management. Another consideration that needs to be borne in mind when considering the responsiveness of senior management to market disciplines is the incentive structures for the senior managers of financial institutions. In some cases, the remuneration arrangements for senior and middle management create incentives that are biased towards the maximisation of profit, revenue or market share in the short term, with insufficient regard to the longer-term risk implications of business decisions. This can occur, for example, where performance payments are linked to profit or share price outcomes on a year-by-year basis, with little emphasis being given to the nature of the risks embedded in the institution's financial position over a longer time period. Similarly, the use of share price options in executive remuneration arrangements can induce a bias to strategies that are likely to boost the share price of the institution in the short term, at the possible expense of longer-term consequences. Therefore, it is important that the directors of financial institutions satisfy themselves that the remuneration arrangements for their key officers create an appropriate set of incentives, aimed at maximising the present value of the financial institution over the long term.

Supervisors should not take responsibility for managing institutions' risks. If the directors and managers of financial institutions are to have strong incentives for managing their institutions' risks prudently, it is important that the supervisory authorities do not dilute those incentives through excessively intensive supervision and regulation. A supervisory framework that involves heavy regulation of financial institutions' risk positions, and intensive on-site and off-site examination by supervisors, could be expected to weaken the incentives for directors and managers to take responsibility for their institutions' affairs. It is therefore important that supervisory authorities structure any regulatory and supervisory interventions in ways that preserve the incentives for the directors and managers of financial institutions to take full responsibility for managing risks. This may suggest the need for supervisors to place greater emphasis on encouraging sound corporate governance

practices in financial institutions, with more focus on the responsibilities of directors for overseeing risk management practices. And it might suggest progressively moving away from a heavy-handed regulation of risks and supervision of financial institutions, to a less intrusive form of regulation and supervision, as corporate governance and market disciplines become more effective.

7 Are market disciplines always beneficial?

It is generally agreed that robust market disciplines in the financial sector are an essential element in promoting sound and efficient financial systems and in reducing the risk of financial instability. A financial system with weak market disciplines is more likely to experience instability and to be less efficient in meeting the needs of the real economy and community than one where market disciplines are robust. But it is equally acknowledged that market pressures have the potential to be destructive, particularly where markets over-react to adverse events. It is widely recognised that markets do have a tendency to over-react to adverse developments or changing market sentiment, as is not infrequently seen in exchange rate over-shoots, multiple bank runs and sharp volatility in equity markets.

The tendency for markets to occasionally over-react, or for acute volatility in financial markets (even where the volatility may reflect an appropriate market reaction to events) is probably attributable to a number of factors. Some of these factors reflect deficiencies in the policy environment within which markets operate. For example, poor transparency arrangements increase the risk of ill-informed market reaction. Similarly, regulatory distortions to interest rates and asset prices can contribute to distorted capital flows, leading to asset price bubbles and subsequent rapid asset price deflation. Regulatory constraints on capital flows, or the anticipation that they may be introduced, can result in unstable funding structures and, in some circumstances, can increase the risk of sudden capital withdrawal. Government interventions to support an exchange rate or influence the level of interest rates can lead to unsustainable financial market prices, potentially resulting in a sharper market

correction when the market no longer regards the policy interventions as credible or sustainable.

The partial or poorly sequenced deregulation of the financial sector can also sow the seeds for subsequent turbulence in financial markets, such as when liberalisation occurs with insufficient attention being given to measures to strengthen risk management structures in the financial system. The regulation of interest rates can also exacerbate volatility in financial markets in some circumstances, by constraining the ability of interest rates to adjust to changes in market sentiment and perceptions of risk. Where interest rates are constrained in this way, there is a greater likelihood that market concerns over increasing risk will be reflected in sharp withdrawals of capital – ie the more constrained the “price mechanism” is, the more volatile the “quantity response” is likely to be.

There are no simple or full-proof policies for avoiding occasional market over-reaction or sharp volatility in financial markets. But a number of policies can go a long way to reduce these risks. In brief, the policies are likely to include:

- the adoption and maintenance of stable and credible government at central and regional levels, with policies to assure investors that governments operate transparently, predictably and with integrity, and are subject to robust governance and accountability mechanisms;
- the promotion and maintenance of sound, credible and sustainable monetary, fiscal and exchange rate policy;
- the implementation of microeconomic policy that seeks to promote efficient and productive resource allocation in the economy, on the basis of flexible relative prices that reflect underlying demand and supply conditions, and resource mobility within and between sectors of the economy;
- robust transparency arrangements for economic policy, both in respect of the objectives and modality of policies and the performance of policy against objectives;
- high quality financial disclosure in the financial and corporate sectors of the economy, based on sound accounting standards and practices;

- effective corporate governance arrangements, including effective enforcement of corporate governance requirements;
- a carefully sequenced process of financial sector liberalisation, where liberalisation is preceded or accompanied by measures to promote strong riskmanagement practices;
- an effective system of financial sector regulation and supervision. The extent of regulation and supervision will much depend on the stage of development of financial markets and the extent to which reliance can be placed on sound self discipline within financial institutions and robust market disciplines. In general, it could be expected that there will be a need for greater regulation and supervision of the financial sector where institutional self discipline and market disciplines are relatively under-developed. Conversely, there may be scope to reduce the intensity of regulation and supervision where self discipline and market disciplines are relatively well developed; and
- a well developed framework for identifying emerging financial distress situations and for responding effectively to them, including the legal and operational capacity to respond to bank failure events in ways that satisfy investors and creditors that the distress event will not pose a threat to the financial system as a whole.

These types of measures, tailored to meet the specific circumstances of an economy, can go a long way towards reducing the risk of market over-reaction and extreme volatility in financial markets.

8 Conclusion

Effective market disciplines are an essential element in promoting sound and efficient financial markets. They provide the key to sound risk management in the financial system. Most financial crises in the last 20 years or so are attributable, at least in part, to inadequate market-based incentives for financial institutions to identify, monitor and control their risks.

The cost of failing to foster an environment conducive to strong market discipline can be severe indeed; not only in

terms of the direct costs of poor resource allocation, dislocation to the real economy and the costs of restoring the banking system to solvency, but also the longer-term costs associated with financial instability – costs that can be felt for many years after the actual crisis has passed.

It is therefore imperative that governments take the steps required to build effective market disciplines in their financial systems, so as to create the incentives for financial institutions to better manage their risks. This needs to be done in conjunction with other measures to promote sound risk management practices, including strengthening corporate governance and maintaining an effective system of regulation and supervision. Getting the balance right is crucial. The successful promotion of financial stability requires a careful balancing of market discipline, institutional “self discipline” and regulatory oversight. Placing too much reliance on any one of these “legs of the stool” is likely to sow the seeds of instability.

The right balance will vary depending on an economy’s stage of development and circumstances, and the nature of its financial system. There is no single “best” policy framework. However, regardless of an economy’s circumstances and stage of development, it is important for governments, in close liaison with the private sector, to move steadily towards promoting the structures for greater reliance to be placed on market disciplines if serious progress is to be made towards achieving greater financial stability.

Appendix - Market disciplines in the New Zealand financial sector

This appendix summarises the approach taken by the Reserve Bank of New Zealand to promote effective market disciplines in the New Zealand financial system.

Background - banking supervision in New Zealand

In New Zealand, the Reserve Bank has responsibility for registering and supervising banks. Under the relevant

legislation, bank registration and supervision must be conducted for the purposes of:

- the maintenance of a sound and efficient financial system; and
- the avoidance of significant damage to the financial system that could result from the failure of a registered bank.

Unlike the supervisory regimes in many countries, banking supervision in New Zealand does not seek to protect depositors *per se*. Nor does it seek to protect individual banks or their shareholders from the consequences of poor risk management or adverse events. Rather, it is focused on protecting the banking system as a whole by encouraging the effective identification, measurement, monitoring and control of risks within banks. The Reserve Bank only supervises registered banks; it has no jurisdiction over other financial institutions.

Three-pronged approach to the promotion of a sound banking system. The Reserve Bank tries to promote a sound and efficient banking system in three inter-related ways:

- by promoting effective self discipline in banks through sound corporate governance and risk management;
- by promoting robust market disciplines in the banking system, thereby enhancing the incentives for banks to prudently manage their risks; and
- by ensuring an appropriate degree of supervisory discipline over banks, but in ways that do not dilute the responsibility of banks’ directors and managers for ensuring that their banks are well managed.

Market disciplines

Considerable importance is attached to the role played by market disciplines in fostering sound risk management practices in the New Zealand financial sector. The Reserve Bank and other government agencies seek to encourage effective market discipline in a number of ways:

Contestable banking market. A fundamental element in this is the promotion of a competitive banking sector through a contestable banking market. In New Zealand, there are few *quantitative* hurdles to establishing a bank and no

statutory or Reserve Bank-imposed limit on the number of bank “licenses” that may be issued by the Reserve Bank. A bank incorporated in New Zealand needs only to have a minimum amount of capital of NZ\$15 million, as well as meeting the 8 per cent Basel capital ratio requirement. Except in a defined set of circumstances, the Reserve Bank is indifferent as to whether a foreign bank operates in New Zealand as a branch of the parent bank, or as a subsidiary, provided that the parent bank meets the *qualitative* hurdles applied by the Reserve Bank. The qualitative hurdles applied to any bank applicant include demonstrating a proven risk management capacity, having a high level of market reputation, and having high quality directors and senior management, among other criteria.

It is important to note that bank registration is only required if an entity wishes to include the word “bank” (or any derivative of that word) in its name. Bank registration is not required for the conduct of banking business in New Zealand and the Reserve Bank does not license the business of banking.

Contestable financial market. More generally, the broader financial system is highly contestable. There is no licensing requirement for non-bank financial institutions. Any entity may conduct a wide range of banking business, including taking in deposits and lending money, without the need to be a registered bank and without being licensed in any other way. However, they do need to comply with ongoing financial disclosure requirements under the Securities Act and must comply with a range of other laws, including law relating to fair trading practices and clear disclosure of the terms and conditions applicable to any funding they obtain from the public and on their lending.

Market disciplines are fostered by a “level playing field”. New Zealand also seeks to promote effective market disciplines by maintaining a level playing field in the financial sector, such that banks, non-bank financial institutions and other entities can compete on broadly equal regulatory terms. In that regard, the divisions between different categories of financial institution that were once very clear, in terms of regulation and permissible functions, are now much more blurred. As a result, banks and non-banks are able to

compete with each other more effectively than in the past.

Important guiding principles in New Zealand’s approach to regulation in the financial sector (and in other sectors of the economy) include the general need for any regulation to be competitively neutral in its impact on market participants, and the need for compliance costs and regulatory distortions to be kept to a minimum. These principles help to promote market disciplines by seeking to maintain a competitive and efficient market environment.

No deposit insurance or guarantees. The absence of deposit insurance or other support for individual banks also reinforces market disciplines. In years gone by, some categories of financial institution enjoyed a guarantee from central government, such that depositors were fully insulated against risks. Those guarantees have long gone and there are now no guarantees or similar underwriting arrangements in place.

Privatisation of most government-owned banks. New Zealand further strengthened market disciplines in the financial sector by privatising government-owned banks. In the 1980s and 1990s, four government-owned financial institutions were fully privatised, as was a life insurance company. Today, all but two of the banks operating in New Zealand are owned by foreign banks. One bank is owned privately, through a community trust, and the other is a newly formed retail bank operated through the government-owned postal network.

Financial disclosure. Another important factor underpinning market disciplines in the New Zealand financial sector is a requirement for all registered banks to issue comprehensive quarterly financial disclosures, including information on a bank’s:

- capital position, measured using the Basel capital accord;
- concentration of credit exposures to individual counterparties;
- related party exposures;
- asset quality and provisioning;
- interest rate, exchange rate and equity risks;
- off-balance sheet exposures;

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- credit rating and any changes made to the credit rating in the preceding two years; and
 - fiduciary risks.

Banks' disclosure statements are in two forms. One takes the form of a comprehensive disclosure statement, containing the full set of information, and must be made available free of charge on demand. The other is a Key Information Summary, which is a very summarised disclosure of key financial and risk-related information, and must be on display and available in every bank branch.

Responding to bank failures. The Reserve Bank is also seeking to reinforce market disciplines by maintaining the capacity to respond to a bank distress or failure event in ways that do not insulate depositors or other creditors from potential loss arising from a bank failure. One of the options currently being explored is the possibility of using statutory management to close a bank temporarily where it is insolvent and to use the funds of depositors and other creditors to absorb estimated losses and to potentially recapitalise the bank, such that the bank's doors could be re-opened for business within a few days of closure. This option presumes that the losses in the bank have already eliminated all shareholders' funds and that there is no possibility of shareholder support.

Corporate governance. Banks' directors and senior managers are encouraged to be responsive to market disciplines and to manage their bank's affairs prudently through robust corporate governance arrangements. The Reserve Bank encourages sound corporate governance and risk management in banks in a number of ways. An important element of this is the emphasis we place on the role of bank directors in overseeing, and taking ultimate responsibility for, the management of risks in their bank. We focus on this role by requiring banks to disclose comprehensive financial and risk-related information on a quarterly basis, and by requiring all bank directors to sign the disclosure statements as being not false or misleading. The disclosure statements must include attestations signed by each director attesting to a number of matters, including the bank's compliance with prudential regulations and that the bank is satisfactorily identifying and managing all of its business risks. Directors are liable to criminal sanctions if a

bank's disclosure statement is found to be misleading or false, and can face unlimited personal liability for losses sustained by the bank's creditors where they had relied on a disclosure statement that was misleading or false.

Sound corporate governance is also fostered through other measures imposed by the Reserve Bank, including a requirement for all banks incorporated in New Zealand to have a non-executive chairman and at least two fully independent, non-executive directors on their boards. These requirements are intended to strengthen the ability of the Board to exercise an appropriate degree of scrutiny over the managers of a bank and to provide independent scrutiny of dealings between the bank and its related parties.

Banking registration and supervision. Market disciplines are probably further reinforced as a result of the approach taken to the supervision of banks in New Zealand. Only a small number of prudential quantitative limits are imposed on banks. These are contained in a bank's conditions of registration, and include a minimum \$15 million of capital for a locally incorporated bank, minimum capital adequacy ratios broadly consistent with the Basel international standard, and a limit on a bank's credit exposures to connected parties. Unlike many banking supervisory authorities, the Reserve Bank does not conduct on-site examinations of banks; nor does it obtain detailed private information from banks on a routine basis. However, the Reserve Bank does monitor banks closely through their quarterly public disclosures and meets with the senior management teams of all banks on an annual basis to discuss a range of risk-related and strategic management issues.

Conclusion

Overall, the Reserve Bank is currently satisfied that the approach to financial sector regulation in New Zealand has been effective in promoting market disciplines and in achieving the ultimate goal of a sound and efficient financial system. However, the Reserve Bank continues to assess further ways by which market disciplines could be made more effective, and continues to develop its thinking on possible enhancements to the corporate governance and banking supervision arrangements in New Zealand.

Results of Bulletin readers survey

During April and May this year, the Bank conducted a survey of Bulletin readers to obtain their views on a range of matters in relation to the Bulletin. This note summarises the results of the survey.

Objectives of the survey

The Bank conducted the survey in order to gain a better understanding of what readers want to see in the Bulletin, as part of a process of making ongoing improvements to it. In particular, we sought feedback on the following matters:

- Do readers value receiving a hard copy of the Bulletin or would they be content to have access only to the web version?
- Have articles in recent issues of the Bulletin been of sufficient interest and relevance to readers?
- Are Bulletin articles pitched at the "right" level? Are they sufficiently comprehensive and readable?
- What topics do readers most want to see covered in the Bulletin?
- Are there any new regular features readers would like to see in the Bulletin?
- What suggestions do readers have for improving the Bulletin?

Survey results

The Bank received more than 70 responses to the survey, representing probably between 80 and 100 Bulletin readers. Although the survey results cannot be said to necessarily represent the views of the majority of Bulletin readers, they do provide a useful source of feedback and ideas for ongoing improvements.

The main results from the survey are summarised below.

How do readers access the Bulletin? Do they want the Bank to continue to publish a hard copy of the Bulletin?

A growing number of Bulletin readers are accessing the Bulletin either exclusively via the Bank's website or through the website and in hard copy. It seems likely that that trend will continue.

Of total respondents, about two thirds said that continuing to publish the Bulletin in hard copy was either "very important" or "fairly important", including a significant number of respondents who access the Bulletin using the website. A number of reasons were cited for continuing to publish a hard copy of the Bulletin, including that:

- significant numbers of Bulletin readers do not have ready access to the internet;
- it is still common for people not to have access to a colour printer;
- it is difficult to read lengthy documents on a computer screen and not always convenient to print out an article; and
- hard copies of the Bulletin are easier to file and retrieve than are print-outs from the web.

Do respondents find the Bulletin articles relevant to their interests, informative and easy to read and understand?

Respondents were asked to provide responses to a set of questions for each Bulletin article from the December 2000 issue through to the March 2002 issue. The questions and options for responding to them were:

- Have you read the article? ("Yes", "No", "Scanned only")
- Was the article relevant to your interests? ("Very", "Fairly", "Not at all")
- Was the article informative? ("Very", "Fairly", "Not at all")
- How easy was the article to read and understand? ("Very easy", "Fairly easy", "Not easy")

Of those who responded to these questions, the great majority rated the articles as “very” or “fairly relevant” to their interests, “very” or “fairly informative”, and “very” or “fairly easy to read and understand”. The ratings were quite evenly divided between “very” and “fairly”, but slightly more assigned a “fairly” rating than a “very” rating. Very few of the respondents rated articles as being “not at all” relevant or informative, or “not easy” to read and understand.

In their comments on the survey form, a significant number of respondents stated that the articles were well pitched to their needs and were relatively easy to understand. However, a number of readers urged the Bank to simplify the language used in Bulletin articles, so that relatively complex concepts could be better understood by non-experts.

What do readers want to read about in the Bulletin?

Respondents were asked to indicate what topics they most wished to read about in the Bulletin. A number of topics were set out in the survey form and respondents were invited to indicate whether they would be “very interested”, “fairly interested” or “not interested” in reading about the indicated topics.

As can be seen from the table below, the topics that attracted greatest interest from respondents are monetary policy, economic growth, exchange rate issues, external vulnerability and financial stability. The topics that attracted least interest are banking supervision, financial sector efficiency, and international central banking issues.

What additional issues do readers wish to read about in the Bulletin?

Respondents were also asked to identify any other topics they would like to see covered in the Bulletin. This provided interesting comments from quite a large number of respondents, who suggested a wide range of topics. Most of the suggestions related to issues that are within the Reserve Bank’s sphere of interest – ie monetary policy, exchange rate policy, banking supervision, external vulnerability, foreign exchange reserves, interaction between monetary and fiscal policy and financial sector developments. Some of the other suggested topics were outside of the Bank’s immediate responsibilities, but nonetheless provide a helpful basis for planning future Bulletin articles, including on issues relating to economic growth, saving and the balance of payments.

What topics do readers want to read about in the Bulletin? (Numbers of respondents)

Topic	Very interested	Fairly interested	Not interested
International central banking issues	34	22	14
Monetary policy	50	12	6
Exchange rate issues	44	19	3
Currency union	25	32	11
Financial stability	38	26	4
Banking supervision	26	23	19
Financial sector efficiency	22	31	15
External vulnerability	41	24	4
Economic growth	48	19	2
International economic developments	24	34	10
Domestic economic developments	32	24	12

What new features or other changes would respondents like to see in the Bulletin? What are their suggestions for ways in which the Bulletin can be improved?

Respondents made a wide range of suggestions for new features or other changes they would like to see in the Bulletin. Many of these suggestions are very helpful and will be adopted as we continue the process of improving the Bulletin, as discussed below.

Where to from here?

The Bulletin survey provided the Bank with very helpful feedback from readers. This will assist us in the ongoing process of improving the content and style of the Bulletin and better meeting the needs of our readers.

In the light of feedback from readers, and on the basis of our own thinking, we are not proposing any major changes to the Bulletin in the near future, but do plan to make some incremental changes, some of which represent a continuation of the types of modifications we have been making in recent years.

We plan to continue publishing a hard copy of the Bulletin for the foreseeable future, in recognition that many readers do not have access to the internet or cannot conveniently print off copies of articles from the internet. We also appreciate that many readers prefer to read lengthy documents in hard copy, rather than on the computer screen.

In response to feedback from readers, we plan to include more comprehensive (but still brief) summaries of articles at the beginning of each article, to enable readers to quickly grasp the basic content and conclusions of articles. We have made a start on this in the September issue of the Bulletin.

We take on board the feedback from readers that they would like articles to be somewhat less technical, with sparing use

of economic jargon, while still ensuring that articles are informative to the non-expert, but intelligent and interested reader. We therefore plan to continue the practice of trying to convey relatively complex economic ideas in non-technical language and to keep articles well focused.

The suggestions from readers on the topics they would like to see discussed in the Bulletin provide us with some useful ideas for future Bulletin articles. We plan to continue the recent practice of widening the subject areas covered in the Bulletin, but to focus on issues in which the Bank has expertise and which are relevant to our role as a central bank. On this basis, most articles are likely to be on issues relating to monetary policy, exchange rate policy, financial stability, banking supervision, payment system developments, international financial developments and external vulnerability – all areas that fall squarely within the sphere of interest of a central bank. From time to time we will also run articles on some of the less visible aspects of central banking, such as central bank internal risk management, corporate governance and transparency practices. And we will also occasionally include articles that reach a little further out into other topical economic and financial issues where we feel we have something to say on those issues, even though they may not fall within our core functions.

In the light of readers' suggestions, we also plan to integrate better the material contained in the Bulletin with that covered by the Reserve Bank's Discussion Papers. As a first step in that direction, the June 2002 issue of the Bulletin contained summaries of recently issued Discussion Papers – a practice we intend to continue.

From time to time we may also publish articles contributed by foreign central bankers or visiting academics, to supplement the material generated by our staff. This was recommended by a number of our readers, and is something that the Bank had separately been considering.

RESERVE BANK DISCUSSION PAPERS

This section sets out the abstracts of recently issued Reserve Bank Discussion Papers. The Discussion Papers are available on the Reserve Bank web site and can be obtained in hard copy on request from the Reserve Bank.

DP2002/01

Extracting expectations of New Zealand's Official Cash Rate from the bank-risk yield curve

By Leo Krippner, March 2002

The hypothesis that a forward term-premium (FTP) exists between forward 1-day rates calculated from the New Zealand bank-risk yield curve and the corresponding ex-post Official Cash Rate (OCR) is tested by applying a single equation method for a cointegrated system to daily data from March 1999 to December 2001. The results indicate that the FTP is statistically significant for all forward horizons tested. The results also indicate that the estimates of the FTP appear to be an increasing function of the forward horizon, and the FTP may be tentatively represented as a simple monotonically-increasing analytical function. The model may be used in reverse to imply current ex-ante expectations of the OCR.

DP2002/02

Modelling the long-run real effective exchange rate of the New Zealand Dollar

By Ronald MacDonald, October 2001

The usefulness of the concept of an equilibrium exchange rate has been brought into sharp focus by the dramatic depreciation of the euro since its inception in 1999. Does this movement reflect a movement of the actual exchange rate relative to its equilibrium or has the equilibrium shifted relative to the perception of where the euro was in 1999? Similar kinds of questions have been asked about the behaviour of the New Zealand dollar since the latter part of 1999. To answer these kinds of questions it is necessary to have some measure of an equilibrium exchange rate and there are a plethora of alternative approaches available in the literature. In this paper we use the behavioural equilibrium exchange rate (BEER) approach of Clark and MacDonald (1999) to produce long-run equilibrium exchange rates for the effective real exchange rates of the New Zealand dollar. We demonstrate that a well founded measure of the

equilibrium value of the dollar may be recovered from a relatively small set of fundamental variables and that this can be used to produce an assessment of the dollar in terms of periods of misalignment.

DP2002/03

Monetary policy and inflation forecasting with and without the output gap

By Weshah Razzak, March 2002

Some observers have worried that under or over-estimating the output gap may unnecessarily induce tightening or loosening of monetary conditions, causing real fluctuations. To investigate the relationship between the output gap and inflation, we examine models of inflation that do and do not use the output gap. The Phillips curve, which relates inflation to real activity, is regarded as the maintained theory of inflation. Models of inflation without the output gap include the equation of exchange of the quantity theory of money, the real interest rate gap, and two versions of the model. Since none of these economic models are either totally wrong nor complete, it makes sense to diversify across models rather than relying on one model exclusively. The forecasts derived from different stable models can be combined through averaging, which offsets biases and reduces the forecast error variance. Such model diversification spreads the risks of errors (i.e., insurance about bad outcomes that arise from the reliance on a single model) and provides greater robustness for policy. This paper examines ten different models of inflation and estimates sixty-seven different specifications, some of which outperform others. Some explanatory variables like money and the real interest rate gap seem to provide more information about future inflation than does estimates of output gap.

DP2002/04

Extracting market expectations from option prices: an application to over-the-counter New Zealand dollar options

By Aron Gereben, April 2002

What are the odds of a large shift in the exchange rate? Is a large depreciation more likely than a large appreciation? This paper uses over-the-counter New Zealand dollar/US dollar option prices to quantify market expectations of exchange rate uncertainty through measures based on risk-neutral probability distribution functions. Results suggest that the estimated probability distributions can provide important insights into market perceptions about exchange rate risk in the future. Econometric evidence indicates that the higher moments calculated from risk-neutral probability density functions can be used to explain the dynamic behaviour of the forward bias measured in the New Zealand dollar/US dollar exchange rate.

DP2002/05

Foreign-owned banks: Implication for New Zealand's financial stability

By Leslie Hull, April 2002

Of the five major banks in New Zealand three are owned by Australian parent companies, one operates as the New Zealand branch of an Australian bank, and one has a British parent. Thus, bank ownership in New Zealand is foreign, but not very diversified. The literature on foreign bank ownership predominately focuses on developing countries and highlights the fact that large, diversified banks can enhance stability. New Zealand differs from the developing countries previously studied, as it is a developed country with foreign, but not necessarily diversified ownership. This paper explores the composition of bank ownership in New Zealand and the implications for financial stability. The paper begins with an analysis of the diversification of parent companies' assets and discusses the implications of institutional arrangements between parents and their subsidiaries for financial stability. Next, the degree of interdependence between Australia and New Zealand is analysed. Finally, the paper presents stylised implications of the structure of the market on bank behaviour during a time of crisis. The

interaction of these three factors dictates the implications of foreign bank ownership on financial stability in New Zealand.

DP2002/06

Estimating a Taylor Rule for New Zealand with a time-varying neutral real rate

By L Christopher Plantier and Dean Scrimgeour, May 2002

Many critics of the Taylor rule claim that it is inferior to inflation forecast based (IFB) rules because it is not forward-looking, is not aggressive enough, and because of uncertainty surrounding the output gap. Nevertheless, the Taylor rule serves a constructive purpose because it abstracts from the Bank's macroeconomic model, FPS, and its performance is robust across various economic models. The Taylor rule thus provides a useful cross-check to the IFB rule, whose recommendations necessarily rely on a particular model structure, its dynamics and specific judgements over the forecast horizon. Additionally, this paper contends that any interest rate rule or model must account for the fall in the ex-ante real interest rate and the non-stationarity of short-term rates in New Zealand. We show how the neutral real interest rate (NRR) in the Taylor rule drifts downward since the second quarter of 1988, and explain why this presents additional real-time difficulties for the Taylor rule.

NEWS RELEASES

For the record: recent press releases

OCR increased to 5.75 per cent

3 July 2002

The Reserve Bank of New Zealand today increased the Official Cash Rate from 5.5 per cent to 5.75 per cent, but also signaled that further increases were now rather less likely than was indicated in the Reserve Bank's May Monetary Policy Statement.

Reserve Bank Acting Governor Rod Carr commented:

"Adjusting interest rates so that they no longer actively encourage accelerated spending makes sense, given that the momentum of the New Zealand economy seems at least as strong as anticipated in May. Retail sales are at near record growth rates, helped along by very robust immigration flows, a strong tourist inflow and export incomes, though they are declining, are still at historically very healthy levels. Given the weakness of the world economy, recent overall growth performance has been outstanding.

"Nonetheless, since May there has been a much sharper rise in the exchange rate than allowed for previously, which has had the effect of tightening monetary conditions. If the exchange rate appreciation is sustained, or goes further, some heat will be taken out of future inflation pressures, reducing the extent to which interest rates may need to rise in the months ahead.

"Working in the same direction, international news from equity markets in particular suggests that the US economic recovery has become more fragile, with implications for the global economy. Furthermore, there are promising signs that New Zealand's inflation will peak in the next two quarters a little lower than earlier expected. Both factors will reduce inflation pressures further out.

"The balance of these factors will be the focus of the Bank's next full review, due with the Monetary Policy Statement on 14 August," Dr Carr concluded.

Dates for MPS/OCR announcements in 2003

24 July 2002

The following is the Reserve Bank's schedule for the release of its quarterly Monetary Policy Statements and Official Cash Rate announcements for 2003. Each Monetary Policy Statement includes within it an OCR announcement, so, in total, as usual there will be eight OCR announcements during 2003.

23 January	OCR announcement
6 March	<i>Monetary Policy Statement</i>
24 April	OCR announcement
5 June	<i>Monetary Policy Statement</i>
24 July	OCR announcement
4 September	<i>Monetary Policy Statement</i>
23 October	OCR announcement
4 December	<i>Monetary Policy Statement</i>

Please note that these changes involve moving the MPS release dates to the first week of each quarter, ensuring an even spread throughout the year. Also, all the announcements have been moved from Wednesdays to Thursdays to facilitate our printing and distribution processes.

The Reserve Bank reserves the right to make changes to this schedule, if required due to unexpected developments. In that unlikely event, the markets and the media will be given as much warning as possible.

Reserve Bank pauses, OCR held at 5.75 per cent

14 August 2002

The Reserve Bank today left the Official Cash Rate unchanged at 5.75 per cent.

Reserve Bank Acting Governor Rod Carr commented "Since our May *Statement*, prospects for the international economy have become increasingly clouded, with sharp falls in equity markets and heightened investor nervousness in the US and elsewhere. Although the New Zealand economy has performed well over the past year, the odds of an

international slowdown have increased, which would have adverse consequences for the performance of the New Zealand economy.

“ This renewed global uncertainty occurs at a time when the outlook for inflation has been of concern. Indicators of core inflation have edged up to around 3 per cent following a sustained period of higher-than-average pressure on the country's productive resources.

“ Gauging the extent to which the path for inflation will be affected by recent global developments is no easy task. Quite plausibly, the impact of recent global developments will remove much of the existing upwards pressure on inflation. But, conversely, the economy may continue to grow at a pace that maintains pressure on resources. Indeed, some of the recent drivers of strong domestic economic activity, including the sharp turnaround in net immigration, may not dissipate rapidly even in the event of softer international conditions.

“ Monetary policy involves carefully weighing the competing risks. On balance, we feel that current global developments, recent falls in export prices, an exchange rate higher than on average last year, and the lagged effects of the interest rate increases earlier this year are likely to dampen inflation pressures sufficiently going forward. In May it looked likely that further increases in interest rates would be required over the coming year to keep inflation within the target band, but that prospect now looks less likely. That was also the judgement we were coming to at our last OCR review in July, albeit for somewhat different reasons.

“ We will continue to monitor global markets and the local economy, and assess the inflation outlook. For now, the prudent response is to pause, and to watch and wait,Ó Dr Carr concluded.

New Governor of the Reserve Bank

22 August 2002

The Secretary to the Treasury, Dr Alan Bollard, is to be appointed the next Reserve Bank Governor, Finance Minister Michael Cullen announced today.

Dr Bollard was nominated by the non-executive directors of

the Reserve Bank Board and the nomination has been accepted by the government.

“ Although I am obviously very pleased that the Board has chosen someone of such high ability, it was with mixed feelings that I accepted their recommendation because it means I will lose Dr Bollard as Secretary to the Treasury,” Dr Cullen said.

“ He has been enormously successful in changing the culture of the Treasury into a more open and outward looking organisation and was always a pleasure to work with.”

Confirmation of Dr Bollard's appointment will be subject to the conclusion of a contract of employment and to the negotiation of a new Policy Targets Agreement. The government wants monetary policy outcomes to move closer to those of Australia.

“ I am confident Dr Bollard and I will be able to negotiate a PTA which is satisfactory to each of us and to the broader financial and business community and which will serve New Zealand well,” Dr Cullen said.

Dr Bollard was appointed as Secretary to the Treasury in February, 1998. He was Chairman of the New Zealand Commerce Commission from 1994 and before that, was Director of the New Zealand Institute of Economic Research – a position he held for seven years.

He has also worked as an economist in a variety of positions in Britain and the South Pacific.

Contact: Patricia Herbert [press secretary] 04-471-9412 or 021-270-9013. E-mail: patricia.herbert@parliament.govt.nz

Details about the appointment process and biographical details

The Appointment Process and the Reserve Bank Act 1989

Vacancy in the office of the Governor or absence of Governor

Section 48 (1) of the Act explains, “ If the office of the Governor becomes vacant, the Minister shall, on the recommendation of the Board, appoint

(a) A director of the Bank; or

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- (b) An officer of the Bank; or
- (c) Any other person to act as Governor for a period not exceeding 6 months” .

Section 47 provides that if the Governor is absent the Deputy Chief Executive (DCE) shall have all the duties, responsibilities and functions and powers of the Governor. If an appointment has been made, but the appointee is not be able to commence in the position within the six month period then the Governor would be “absent” until s/he took up the position and the DCE could operate the Bank.

Policy Targets Agreement (PTA)

The primary function of the Reserve Bank is to deliver “stability in the general level of prices.” Section 9 (1) explains, “The Minister shall, before appointing, or reappointing, any person as Governor, fix, in agreement with that person, policy targets for the carrying out by the Bank of its primary function...” .

A new PTA must be negotiated every time a Governor is appointed or re-appointed. However, the PTA does not have to be renegotiated when a new Treasurer is appointed.

Section 9 also requires that the new PTA be recorded in writing, tabled at the first Board meeting after they are fixed published in the *Gazette* and tabled in Parliament.

Section 9 (4) of the Act specifies that the PTA can only be changed by agreement between the Governor and the Treasurer, so unilateral changes to the PTA cannot be imposed on either side.

Conditions of employment of the Governor

Section 40 (1) states “ There shall be a Governor of the Bank who shall be appointed by the Minister on the recommendation of the Board.

Section 42 states:

- (1) “ The Governor shall be appointed for a term of 5 years and may be reappointed for a further term or terms, each of up to 5 years.
- (2) The conditions of employment of the Governor, including

remuneration, shall be –(a) Determined by agreement between the Minister and the Governor after consultation with the Board” .

The conditions of employment must be consistent with the Bank’s functions and not prevent the Governor from ensuring that the Bank’s functions are carried out.

Section 46 sets out a range of circumstances that disqualify a person from being appointed Governor. These circumstances apply as from the date the person takes up the appointment, not the date the appointment is announced. Thus, if any potential candidate is a chief executive of a Government department they could be appointed to the position so long as the Government Department role was relinquished before the appointment is taken up.

Note that the conditions of employment need not be agreed before or at the time the Governor is appointed.

Process

In practical terms, this means the Board recommends a candidate to the Minister for the position of Governor.

If the Minister provisionally accepts the recommendation, the Minister and the provisional appointee then negotiate a Policy Targets Agreement (PTA).

The Minister and the recommended candidate, after consultation with the Board, also agree on the conditions of employment.

If the draft PTA is within the powers of the Act then the PTA is formally signed off and the Minister formally appoints the Governor.

Dr Alan Bollard Secretary to the Treasury, New Zealand

Dr Alan Bollard was appointed as Secretary to the Treasury in February 1998. The Treasury manages the Crown’s finances and is the Government’s principal economic advisor.

The Treasury provides advice on all Government spending and on the Government’s overall strategy for the economy.

The department manages the Crown's liabilities, and monitors the performance of State-Owned Enterprises and other commercially orientated Crown entities and Crown companies.

Dr Bollard was previously Chairman of the New Zealand Commerce Commission, the country's anti-trust and fair trading regulatory authority. Prior to joining the New Zealand Commerce Commission in 1994, Dr Bollard was Director of the New Zealand Institute of Economic Research for seven years, where he was involved in advising governments and companies on a wide range of applied economic work and forecasting.

He has also worked as an economist in a variety of positions in the United Kingdom and in the South Pacific.

Dr Bollard has written a number of books on the New Zealand economy, has produced a computer simulation game called *Oikonomos* where you play at being the Minister of Finance, and has helped rebuild the famous Phillips hydraulic economic simulation model 'the Moniac'.

Embargoed until 9.00 am, 17 September 2002

Joint Press Statement by Finance Minister Michael Cullen and incoming Reserve Bank Governor Alan Bollard

New Policy Targets Agreement

The Finance Minister and the incoming Governor of the Reserve Bank today signed a new Policy Targets Agreement (PTA), which sets out specific targets for achieving and maintaining price stability.

The most significant change is that the Reserve Bank is required to take a forward looking, medium-term approach to achieving price stability. This gives the Bank more flexibility to decide how it responds to shocks in the economy and inflation variations around the target.

The new PTA raises the bottom of the inflation target to 1 per cent, while retaining the 3 per cent upper limit and

includes a statement of the Government's broader economic goals.

Dr Cullen said: "The Government's aim has always been to avoid unnecessary instability in output, interest rates and the exchange rate. That objective was explicitly included in the PTA I signed in 1999 with the previous governor. I believe the changes inserted in this PTA will make it easier for the bank to achieve this goal.

"The agreement is broadly as the markets have been anticipating and is consistent with the publicly stated advice of expert commentators. I expect it to be well-received by the financial markets and by other stakeholders in the economy."

Dr Bollard said: "This PTA acknowledges the way monetary policy has and will evolve. As inflation expectations have become steadily better anchored, so monetary policy has become more flexible, and this trend will continue, as signalled in this PTA.

"Price stability is the Reserve Bank's 'primary function', but we also seek to avoid 'unnecessary instability in output, interest rates and the exchange rate.' The shift to an inflation target 'on average over the medium term' allows us to better achieve this. This helps economic growth, which, we all agree, New Zealand needs, by enhancing predictability and confidence and, by that, savings and productive investment. The raising of the bottom of the band brings the overall target more in line with New Zealand's inflation outcomes in recent years and those in other countries.

"In addition, today I am releasing the text of a letter that I intend to send to the Minister once I have begun my duties as Governor. This lays out how I wish to manage my relationship with the Minister, recognising the particular need for the Bank to be operationally independent and yet also for the Bank and the Government to keep each other informed," Dr Bollard concluded.

Dr Cullen added that the new PTA sits well alongside the framework for the improved accountability mechanisms recommended by the Svensson Review and legislated for in the Reserve Bank Amendment Bill currently before Parliament. The bill strengthens the Reserve Bank Board's role within the Bank and enhances the Bank's independence.

The bill retains the Governor as a member of the Board but removes him as chairman in favour of a non-executive chair, and requires that the Board issue its own annual report assessing the performance of the Governor.

The new Policy Targets Agreement is attached, plus the text of the letter referred to. The letter will be signed when Dr Bollard formally takes up his appointment on 23 September.

POLICY TARGETS AGREEMENT

This agreement between the Minister of Finance and the Governor of the Reserve Bank of New Zealand (the Bank) is made under section 9 of the Reserve Bank of New Zealand Act 1989 (the Act). The Minister and the Governor agree as follows:

1. Price stability

- a) Under Section 8 of the Act the Reserve Bank is required to conduct monetary policy with the goal of maintaining a stable general level of prices
- b) The objective of the Government's economic policy is to promote sustainable and balanced economic development in order to create full employment, higher real incomes and a more equitable distribution of incomes. Price stability plays an important part in supporting the achievement of wider economic and social objectives.

2. Policy target

- a) In pursuing the objective of a stable general level of prices, the Bank shall monitor prices as measured by a range of price indices. The price stability target will be defined in terms of the All Groups Consumers Price Index (CPI), as published by Statistics New Zealand.
- b) For the purpose of this agreement, the policy target shall be to keep future CPI inflation outcomes between 1 per cent and 3 per cent on average over the medium term.

3. Inflation variations around target

- a) For a variety of reasons, the actual annual rate of CPI inflation will vary around the medium-term trend of inflation, which is the focus of the policy target. Amongst these reasons, there is a range of events whose impact would normally be temporary. Such events include, for example, shifts in the aggregate price level as a result of exceptional movements in the prices of commodities traded in world markets, changes in indirect taxes, significant government policy changes that directly affect prices, or a natural disaster affecting a major part of the economy.
- b) When disturbances of the kind described in clause 3(a) arise, the Bank will respond consistent with meeting its medium-term target.

4. Communication, implementation and accountability

- a) On occasions when the annual rate of inflation is outside the medium-term target range, or when such occasions are projected, the Bank shall explain in Policy Statements made under section 15 of the Act why such outcomes have occurred, or are projected to occur, and what measures it has taken, or proposes to take, to ensure that inflation outcomes remain consistent with the medium-term target.
- b) In pursuing its price stability objective, the Bank shall implement monetary policy in a sustainable, consistent and transparent manner and shall seek to avoid unnecessary instability in output, interest rates and the exchange rate.
- c) The Bank shall be fully accountable for its judgements and actions in implementing monetary policy.

Hon Dr Michael Cullen
Minister of Finance

Dr Alan E Bollard
Governor Designate
Reserve Bank of New Zealand

Dated at Wellington this 17th day of September 2002

September 2002

Hon Dr Michael Cullen
Treasurer
Parliament Buildings
Private Bag
WELLINGTON

Dear Michael

On assuming the responsibility as Governor of the Reserve Bank I thought it would be useful to outline how I envisage various important relationships evolving.

To contribute to the effective conduct of overall economic policy it would be useful to build on the existing relationship between the Reserve Bank and The Treasury in sharing information. In addition I would like to establish a regular dialogue with you on economic developments and ensure that I remain fully briefed on the development of Government policies which potentially impact on the formulation and implementation of monetary policy consistent with the Policy Targets Agreement. It is also important to ensure that there is a shared understanding of the way in which the Policy Targets Agreement impacts on the formation and implementation of monetary policy.

It is both my obligation and intention to consult with a wide range of sources in the public and private sectors in forming my opinion as to the appropriate monetary conditions consistent with maintaining stability in the general level of prices.

The Reserve Bank also has a broader range of operational and policy functions. To the extent you have a responsibility in these areas, the Bank will provide timely briefings and reports on matters of importance to you.

I believe that we should agree that we should inform each other of the release of material into the public domain that may be likely to cause public comment on matters of mutual interest. We should take care to ensure such material is not inconsistent with maintaining the independence and credibility of the Bank.

Yours sincerely

Dr Alan E Bollard
Governor

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