

New Zealand: Selected Issues

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NEW ZEALAND

Selected Issues

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Approved by the Asia and Pacific Department

April 6, 2007

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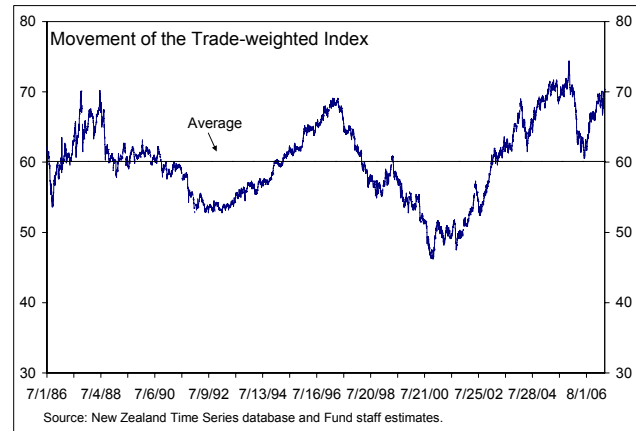
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I. THE KIWI DOLLAR—GETTING CARRIED AWAY?¹

1. **The New Zealand dollar has risen to post-float highs in recent years despite an uncomfortably large current account deficit.** Historically, the nominal trade-weighted exchange rate has

fluctuated around a broadly stable level. But over the last few years, the exchange rate has remained high for an extended period and appears to have decoupled from the traditional fundamental determinants of the currency's value—commodity prices. Instead, exchange rate

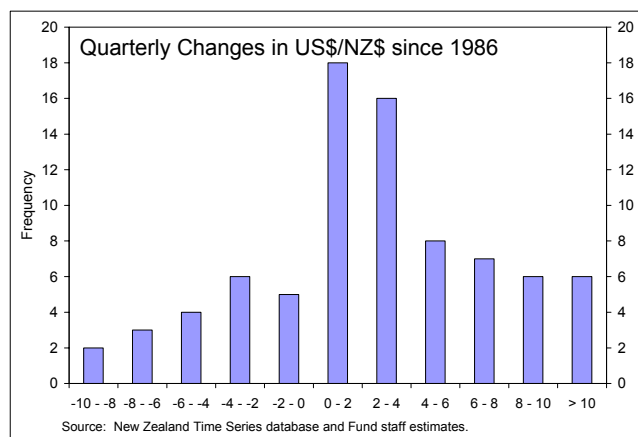
swings—most recently a sharp depreciation in early 2006, followed by a subsequent rebound—now appear to be more closely associated with capital inflows driven by expected interest differentials and global risk factors. The rapid expansion of offshore issues of New Zealand dollar denominated Eurokiwi and Uridashi bonds is a concrete sign of this trend.



2. **This chapter seeks to gain a better understanding of the underlying factors that explain the behavior of the Kiwi dollar.** This may not only help shape views on the near-term prospects for a decisive rebound in net exports, which have been dampened by the heightened exchange rate, but also help assess the potential risk of an unwinding of the carry trade. The episode of market turbulence that began in the last week in February provides a reminder of the potential widespread impact speculative trades can have on currency markets.

A. Foreign Exchange Market: Recent Developments

3. **The large depreciation of the Kiwi dollar in early 2006 was unusual, but not unprecedented.** The exchange rate declined by 10 percent against the U.S. dollar in the first quarter of 2006. However, on several occasions, the New Zealand dollar has appreciated by more than this amount in a quarter. Many have argued that the swings in the exchange rate since end-2005 can be attributed to the carry trade, pointing to the growing

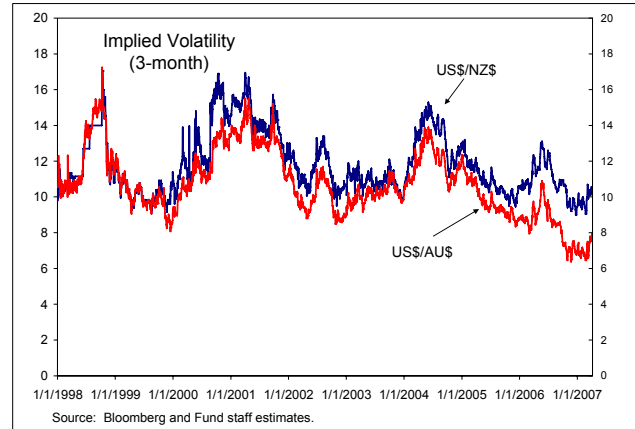


¹ Prepared by Hali J. Edison (Ext. 3-6946).

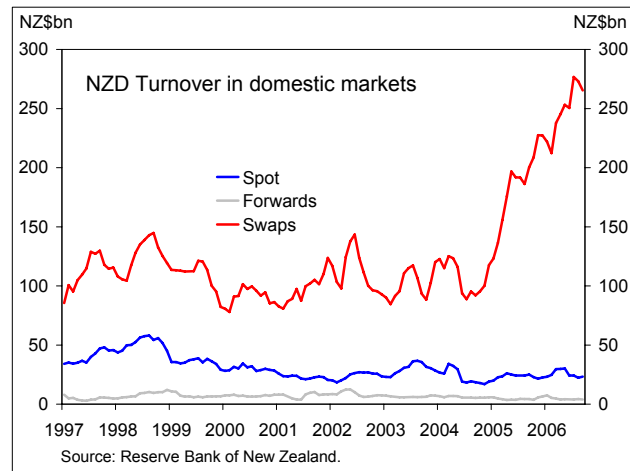
importance of financial globalization on the currency. In fact, in the week following the sell-off in global equity and currency markets in late February, the Kiwi dollar depreciated by more than 3 percent, which is consistent with the global repricing of risk.

4. Exchange rate volatility was also elevated in the first half of 2006, but not notably higher than other episodes.

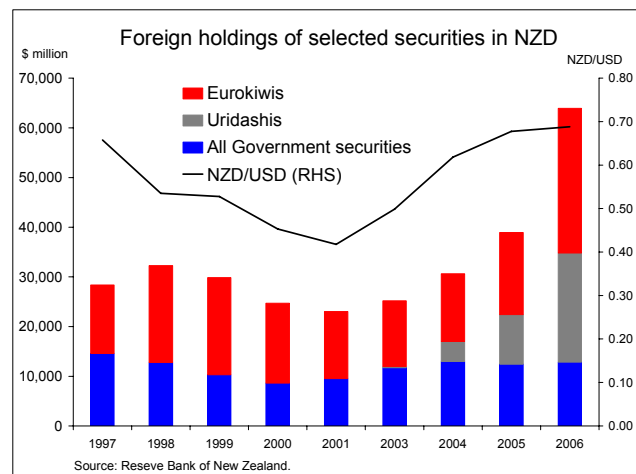
Volatility—measured as three-month implied volatility—has declined since then, indicating market participants’ confidence and expectation that there would be limited changes in the value of the currency. Short term volatility has fallen below its historical average, but is somewhat higher than Australian dollar volatility. This is largely a reflection of unusually high levels of trading activity and interest from a wide range of market participants.



5. In the last two years, there has been a rapid rise in foreign exchange turnover in New Zealand. This rise has been associated with significant growth in foreign exchange swap transactions—the most traded instrument. The increase in swap turnover can in part be attributed to domestic banks increasing the funds they raise offshore (Smyth, 2005). In particular, FX swaps allow banks to convert offshore borrowing into New Zealand dollars and hedge the exchange rate risk associated with borrowing offshore. These trends are also consistent with the global rise in foreign exchange turnover that has been associated with the broad search for yield or carry trade (see Galati and Melvin, 2004).



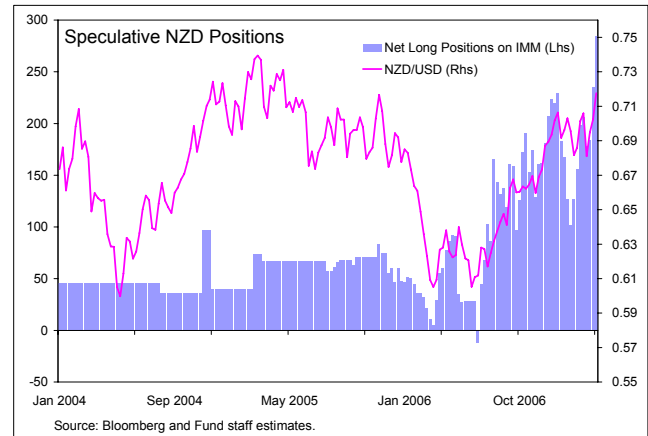
6. New Zealand has attracted a disproportionate share of global liquidity in recent years, putting upward pressure on the currency. Continued high interest rates in New Zealand relative to offshore rates, along with the perception that these differentials are likely to persist for some



time, have been a key driver behind offshore purchases of New Zealand dollar-denominated assets, such as Eurokiwis and Uridashis. The transactions associated with these bonds have provided a mechanism for domestic banks to obtain funds at cheaper rates than they would be able to otherwise, putting downward pressure on domestic interest rates.² The level of foreign investment in New Zealand government bonds is also high.

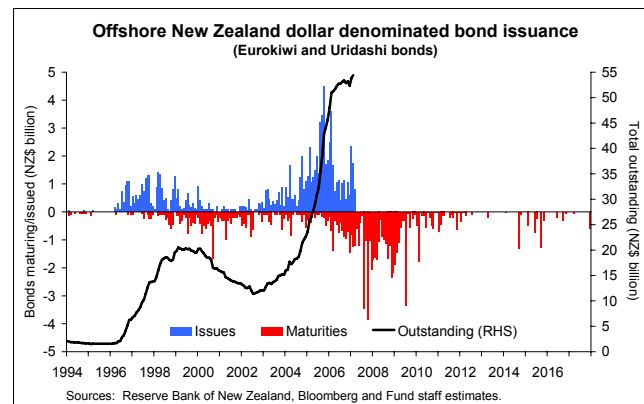
7. In addition, speculative interest in the New Zealand dollar from other types of investors has grown over time.

Net non-commercial long positions (number of long contracts minus short contracts) on the Chicago Mercantile Exchange (CME) is an indicator of foreign sentiment towards the New Zealand dollar.³ Since July 2006, there has been a build up of this long position indicating expanding speculative interest in the Kiwi



dollar. This positioning appears to coincide with movement in the New Zealand dollar. While these positions are a very small part of the overall market, they are often used as a barometer of trends in speculative flows, partly because they are available weekly and partly because other data are fairly limited.

8. A source of concern is that investors could quickly unwind their holdings of New Zealand dollar-denominated securities. One negative scenario is that there could be an abrupt decline in Eurokiwi and Uridashi issues (see RBNZ FSR, 2006). Indeed, the significant number of Uridashi bonds maturing in 2007-2008 leaves the New Zealand dollar exposed to changes in market sentiment and represents a



downside risk to the currency. However, given the dispersed nature of the Uridashi investor (across many Japanese households) and their typical long-term investment horizon, the

² For details, see Eckhold (1998) and Drage, Munro and Sleeman (2005)

³ The category of non-commercial accounts refers to accounts that do not have an underlying hedge interest. Because the CME acts as a central counterparty for trades, it is an attractive trading venue for hedge funds that have limited access to bank credit lines.

likelihood of a sudden reversal does not appear very substantial. In addition, Eurokiwis also appear to have a fairly stable retail client base.

B. What is the Carry Trade?

9. **In its pure form, a “carry trade” is a currency strategy** that exploits opportunities presented by expectations of low borrowing costs in one market segment combined with expected high returns in another. These types of trades are not new and their popularity with investors waxes and wanes depending on the constellation of global interest rates. The successful use of this strategy by investors is somewhat puzzling as the theory of uncovered interest rate parity implies that investors should enjoy no excess profit as the returns from high-interest country should be offset by the depreciation of its currency. However, the carry trade seems to be profitable, at least at certain times.

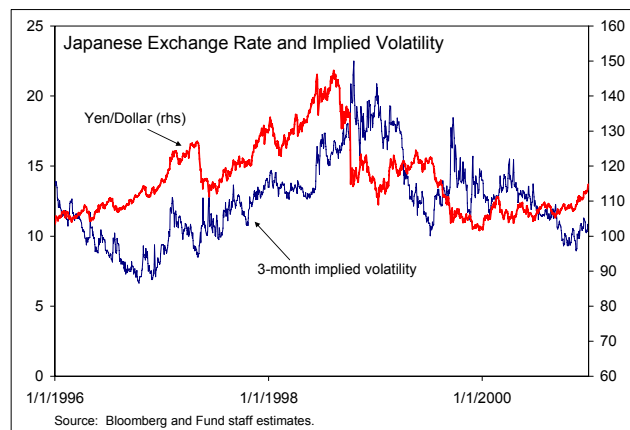
10. **Quantifying the extent of carry trade is difficult and there are no definitive statistics.** The data on carry trades are fairly limited, and are frequently anecdotal, relying on market intelligence. Further complications are that there is no standard definition of the carry trade and the underlying transactions can be conducted off-balance sheet. Both stock and flow estimates range widely.⁴ As a result, it is necessary to look at a number of different sources to gauge the size of the carry trade, including: (i) historical evidence; (ii) balance of payments data on capital flows; and (iii) speculative positions.

What do we know about carry trade?

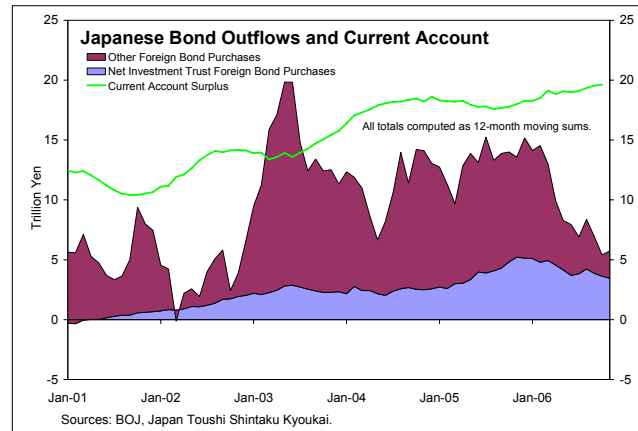
11. **Based on past experience, a major concern associated with the carry trade is that it could unwind rapidly.**

From October 6–9, 1998 the U.S. dollar fell by almost 15 percent against the Japanese yen because of a large-scale unwinding of the yen carry trade. During this episode, investors decided to close out short-term positions in response to a change in expectation. While the effects on the real sector were minimal, the

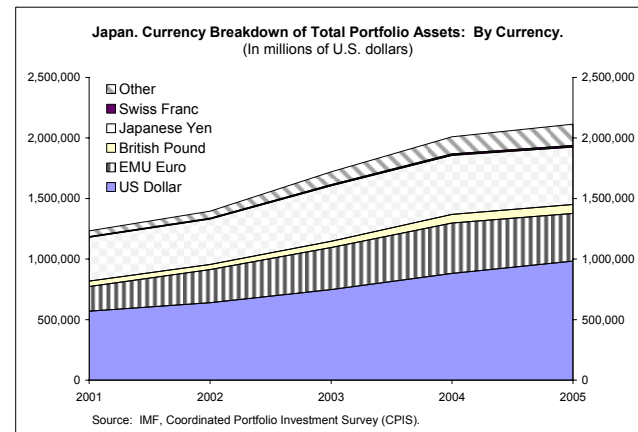
unwinding of short yen positions by hedge funds and large financial institutions led to a rapid drying up of liquidity in key markets. This resulted in unprecedented price disconnects and market seizures. In a number of respects, the current situation seems less problematic than the 1998 episode as the long-side of carry trade appears to be spread across a number of currencies (while in 1998 it was concentrated on the U.S. dollar) and the investor base in Japan has become more diversified.



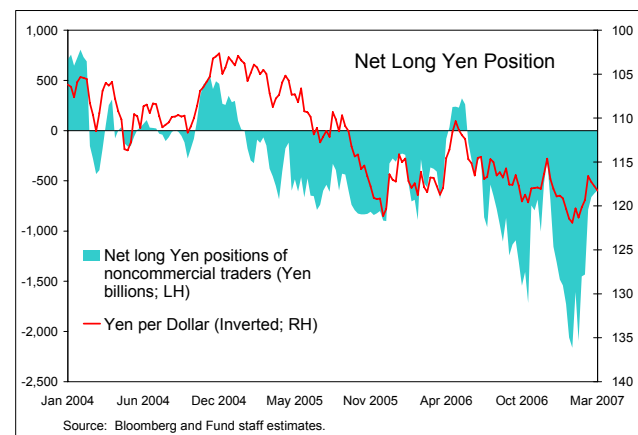
12. **Partly as a result of carry trade, domestic Japanese investors have dramatically increased their holdings of foreign bonds.** Historically, institutional Japanese investments in foreign bonds have tended to be the dominant source of private sector outflows. Recently, individual investors and pensioners have invested more overseas in search of higher returns. For example, the value of overseas investments by Japanese mutual funds in foreign bonds has grown rapidly over the last three years to reach \$230 billion in 2006. This growth reflects in part a secular decline in the home bias of domestic investors, both institutional and retail.



13. **Another indicator of the change in Japanese investment behavior can be seen from the breakdown of their portfolio assets.** The IMF's Coordinated Portfolio Investment Survey (CPIS) reports the breakdown of a country's foreign investment portfolio by currency. Japanese investment in foreign currency assets has increased 70 percent in the last five years. While there is no specific breakdown for the New Zealand dollar, which is part of "other" currency, the share of this category has nearly doubled over the time period. The rapid increase in size of the total foreign investment portfolio is consistent with the observation that there has been a steady decline in the home bias of Japanese investors.



14. **Key participants in carry trade are hedge funds and other leveraged players.** There is no single direct measure of such positions, but one useful indicator



is the call money market liabilities of foreign banks in Japan. These liabilities increased by over ¥7 trillion (\$63 billion), between January 2006 and January 2007. This is one possible

⁴ See Cavallo (2006).

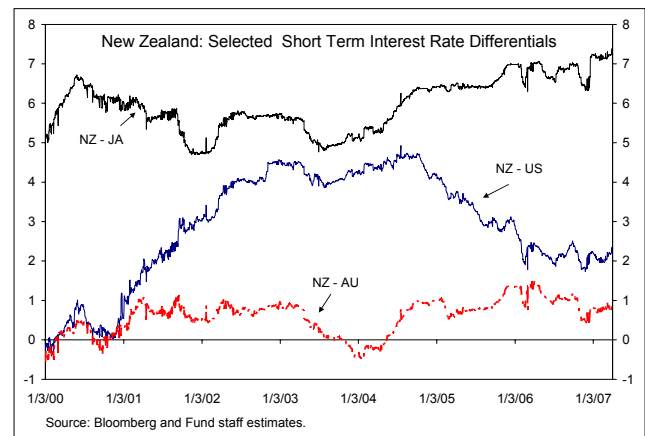
channel through which foreign hedge funds might obtain yen funding. Another potential indicator of carry trade position is the net short positions in yen futures of non-commercial traders (financial institutions and speculators) on the Chicago Mercantile Exchange. These data show a buildup of net short yen positions in 2005 and first quarter 2006, followed by a massive unwinding of positions in Q2.⁵

15. **In addition, there has been a rapid rise in speculative retail investors in local foreign exchange markets in Japan.** This class of investors is different from those who buy investment trusts, and also from those who buy Urudashi bonds. These investors buy futures, or forwards from local brokers using margin accounts. Unfortunately, there is no single source that shows the size of the whole market. According to one market analyst, the notional value of forward contracts in all currencies vis-à-vis the yen has risen rapidly to about ¥4 trillion (about \$35 billion). Most of these traders are thought to be internet traders who also have day jobs as broker volume peaks in the evening after the dinner hour.

What motivates carry trades?

16. **Three key factors influence carry trades:** (i) *size of carry*, large spreads tend to attract investors; (ii) *exchange rate expectations*, market views on the likely direction of exchange rate movements often diverge from what is implied by uncovered interest rate parity. Also, low volatility is conducive to carry trade as this suggests large future changes in exchange rates are not expected; and (iii) *risk appetite*, related to low volatility, an environment of risk-seeking or high risk appetite tends to be supportive of carry trades. Importantly, carry trades are normally unhedged, leaving the investor exposed to volatility in the form of an appreciation in the funding currency.

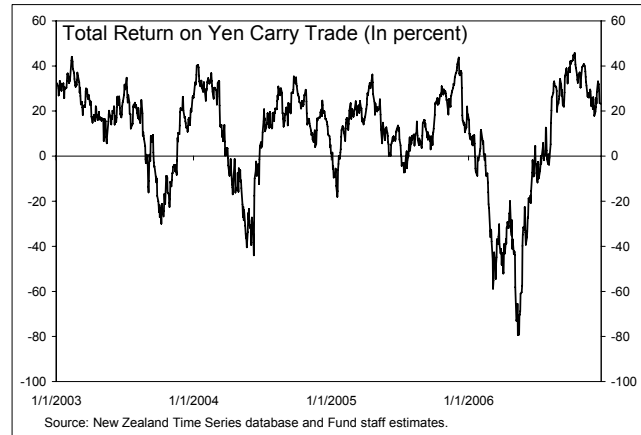
17. **The high nominal interest rate differential (the carry) has made New Zealand an important destination for carry trades.** With the official cash rate in New Zealand at 7½ percent, short-term interest rates are 1–2 percentage points higher than in Australia and around 7 percentage points higher than in Japan. The global search for yield has targeted New Zealand dollar assets not only because of the high interest rate spreads,



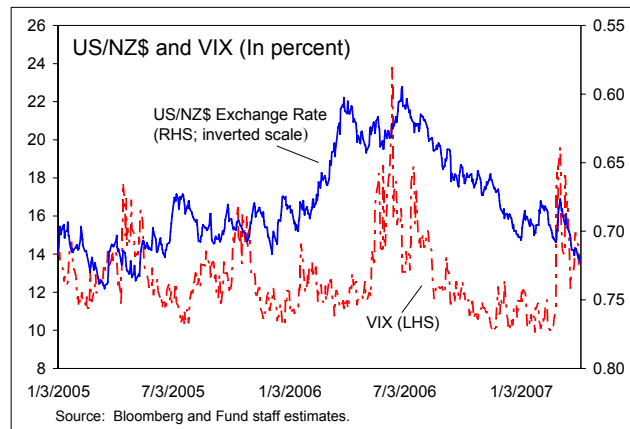
⁵ These futures contracts are non-deliverable and are settled in U.S. dollars. However, the exposure to exchange rate fluctuations is the same as it would be from a “pure” carry trade, making this measure a good proxy.

but also because these seem likely to persist. Supported by low interest rates, the yen has been the favorite funding currency, but of late there has also been an increase in Swiss franc funded carry trades.

18. **Calculations of total returns illustrate why carry trades have been popular.** Total returns are calculated as the sum of the interest rate spread and the annualized movement in the exchange rate (since the investment is unhedged). Given the persistence of low interest rates in Japan, ex ante interest rate carries have been positive for the last several years vis-à-vis the New Zealand dollar. Moreover, yen depreciation over much of this time has often made ex post total returns quite substantial. However, on a few occasions, the return has been negative, a reminder that such transactions are inherently risky.



19. **Global perceptions of a relatively benign risk environment have provided incentives for investors to explore alternative markets, searching for yield.** As the figure to the right shows, the New Zealand dollar, long thought of as a commodity currency, has become more sensitive to changes in global risk aversion, as proxied by the VIX (the S&P 500 Implied Volatility measure). The New Zealand dollar has tended to be relatively strong when global risk appetite is high and general market volatility is low.



C. The Behavior of the Kiwi dollar: the Impact of the Carry Trade

20. **Modeling exchange rates is notoriously difficult.**⁶ Recent research efforts to confront this challenge have attempted to identify a large shock and use this information to single out the most important explanatory factor to explain movements in the exchange rate.⁷ This approach has been adopted here to identify the key determinants of the Kiwi dollar and examine whether their relative importance has evolved over time. The focus is especially on those factors that influence carry trades: interest rate spreads and global risk factors. The

⁶ See for example Alquist and Chinn (2006).

⁷ See Chen and Rogoff (2002) and Brooks et al (2004)

empirical methods employed to analyze the data are quite rudimentary (expanding correlations and bare-bone regression analysis) but provide some useful insights.⁸ The analysis uses daily data from January 1986 to December 2006.⁹

21. **The New Zealand dollar has historically been regarded as a “commodity currency.”** The exchange rate closely tracked the movements in the New Zealand commodity price index (NZCP) in the 1980s and 1990s.¹⁰ This relationship seemed to break down in 2000, but resumed a few years later (see Figure 1). In contrast, there has been a somewhat stronger and steadier correlation of the Kiwi dollar and CRB commodity price index, a global commodity price, possibly indicating that global currency traders use this index when tracking commodity prices.¹¹ To quantify the relationship between the Kiwi dollar and these commodity prices, a set of rolling correlations was calculated. The plot of the correlation coefficients shows that the relationship between the exchange rate and commodity prices has declined from around 0.9 in early 2000 to about 0.7 at the end of 2006 (see Table 1). The results suggest that commodity prices are less important today in explaining the exchange rate than they were in the past, but that they are still linked.

22. **To investigate the importance of interest rates, two short-term differentials were constructed.**¹² The two differentials, actual 90-day interest rates and 90-day bank bill future rates, follow each other quite closely but neither differential follows the movement of the Kiwi dollar particularly well in the early part of the sample.¹³ In the later part of the sample, the spreads appear to move in line with the exchange rate. This observation is consistent with the correlations, which shows that the spreads have indeed become more correlated with the Kiwi dollar over time, reaching a maximum in the first half of 2001.

⁸ The analysis was conducted using both expanding correlation windows and fixed (or rolling) correlations where the window size is fixed. The results are similar for both, with the expanding window correlations somewhat smoother as the results are spread over a longer horizon.

⁹ This date range represents the entire sample period; however, some results pertain to a shorter sample period owing to data availability.

¹⁰ See Chen and Rogoff (2002). In New Zealand, the changes in the exchange rate frequently offset changes in commodity prices, serving as a buffer.

¹¹ See Box 1 of IMF Country Report No 04/128 <http://www.imf.org/external/pubs/cat/longres.cfm?sk=17377.0>.

¹² Typically, the correlation of interest rates on longer maturities is expected to have a larger impact on the exchange rate than an equivalent differential on short-term spreads (see Edison and Pauls (1993)). However, in the case of New Zealand, this has not been the case. Munro (2004) argues that this may reflect two factors: i) short-term interest rate differentials reflect domestic demand pressures, and therefore relative profitability; and ii) large observed exchange rate cycles may encourage herd-like behavior.

¹³ The bank bill future rate is constructed using the average of the first four generic contracts.

23. **To assess the sensitivity of the Kiwi dollar to changes in global sentiment, two measures were considered.** The measures used were the VIX and an index of risk aversion (or risk appetite) produced by Morgan Stanley.¹⁴ Simple plots of the data suggest that there are episodes when the Kiwi dollar has responded to large changes in these measures. The correlation plot shows that both measures are strongly associated with the exchange rate. The negative correlation of the exchange rate with the VIX and the positive correlation with Morgan Stanley measure indicate that the currency depreciates when volatility (or risk aversion) increases. The magnitude of the correlation coefficients suggests that global volatility has become highly correlated with the New Zealand dollar.

24. **To assess the relative importance of these three factors a simple exchange rate equation was estimated.** In both bivariate and multivariate regressions, the coefficients on commodity prices and short term interest rate differentials were positive, while the coefficient on the VIX was negative. All coefficients were statistically significant. A simple sensitivity analysis was conducted, based on the regression coefficients, to examine the impact that changes in each fundamental has on the exchange rate. According to the multivariate results, a 10 percent increase in New Zealand commodity prices would lead to a 3 percent appreciation of the exchange rate, while a 100 basis point increase in the short-term interest rate differential would lead to a 1 percent appreciation in the exchange rate. In contrast, the coefficient estimates suggest that if the VIX increased by 10 percentage points, the Kiwi dollar would depreciate by 5 percent. Admittedly, these estimates are rather crude, but they are consistent with the pattern of sensitivities that have been observed recently.

Table I.1. Summary of Correlation of Exchange Rate with Fundamentals				
	Sample Average	Max	Min	Last
Commodity prices				
New Zealand	0.67	0.84	0.53	0.70
World	0.75	0.88	0.67	0.67
Short-term interest rates				
Actual	0.48	0.70	0.30	0.41
Expected	0.39	0.67	0.16	0.35
Long-term interest rates				
Actual	0.15	0.45	-0.13	0.10
Global Risk Factors				
Vix	-0.69	-0.75	-0.65	-0.75
MS risk appetite	0.51	0.64	0.31	0.55
Source: IMF staff estimates.				

¹⁴ A recent study by Cairns, Ho, and McCauley (2007) finds a systematic pattern of sensitivity of Asia-Pacific currencies to global volatility. The VIX measures risk from US stock market volatility, while the measure of risk aversion is a more global indicator of risk appetite.

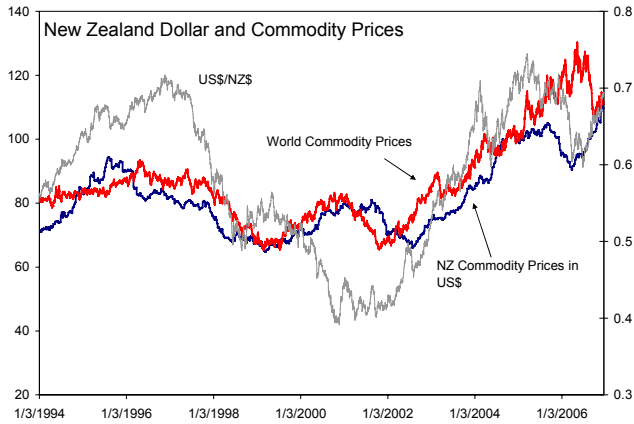
Table I.2. Sensitivity Analysis--Derived from Exchange Rate Regression ^{1/}			
	Bilateral Regressions		Joint Regression
	2003	2006	2006
Commodity Prices	0.06	0.04	0.03
S.T. Interest Spread	0.02	0.03	0.01
VIX	-0.08	-0.10	-0.05
Source: IMF staff estimates.			
Note:			
1/ Represents a 10 percent increase in commodity prices; 100 basis point increase in interest rate spread; and a 10 percent decline in market volatility.			

25. **The behavior of the Kiwi dollar is not unique, other currencies have also been affected by carry trade.** This can be seen by examining the co-movement of the changes in the New Zealand dollar with changes in these other currencies. Three sets of currencies were considered: other “commodity” currencies (Australian dollar, Canadian dollar, and South African rand), other carry trade destination currencies (Icelandic kroner and the Turkish lira), and carry trade funding currencies (Japanese yen and Swiss franc). The correlation between changes of the New Zealand dollar and other commodity currencies has increased since the end of the 1990s. The co-movement of the Kiwi dollar with the Australian dollar has been consistently very strong, with the average correlation coefficient since 2000 being about 0.8. The correlation between the New Zealand dollar and other carry trade destination currencies has not been particularly strong historically, but has been trending upward since the middle of 2003. Similarly, the co-movement of the New Zealand dollar with the Japanese yen and the Swiss franc has been increasing over time. While these correlations do not directly explain the behavior of the Kiwi, they are suggestive that relationships between currencies may have shifted as a result of changes in global capital markets.

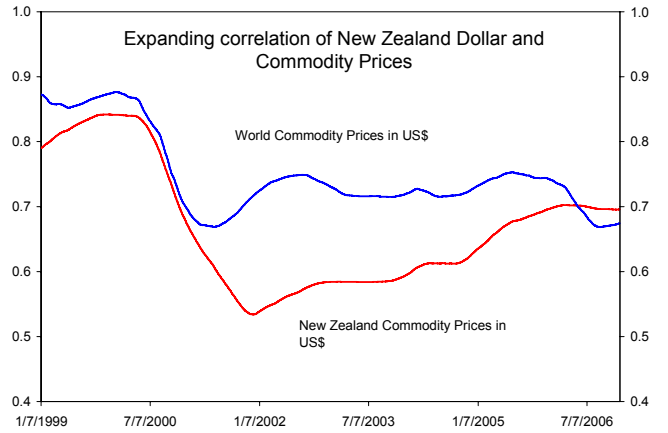
26. **The results of this chapter suggest that the factors influencing the New Zealand dollar have been changing.** New Zealand has become more integrated in global capital markets over time, and, as a result, the Kiwi dollar has become less of a commodity currency and more of a global currency that is influenced by interest rate spreads and global risk factors (VIX). This change makes the New Zealand dollar more sensitive to heightened volatility in global markets or shifts in risk appetite that might cause carry trades to unwind.

Figure I.1. What drives the New Zealand dollar?

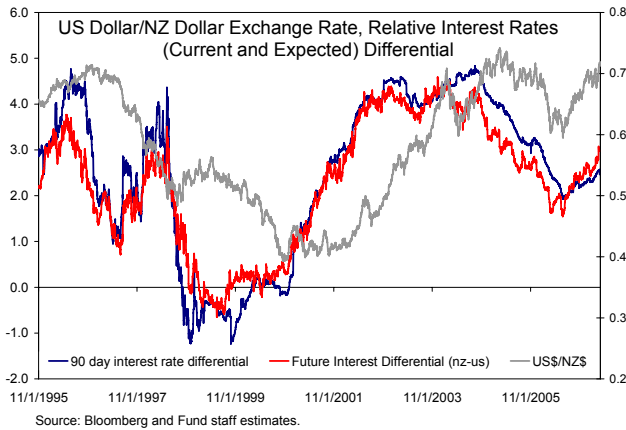
Historically the Kiwi dollar was considered a “commodity currency”



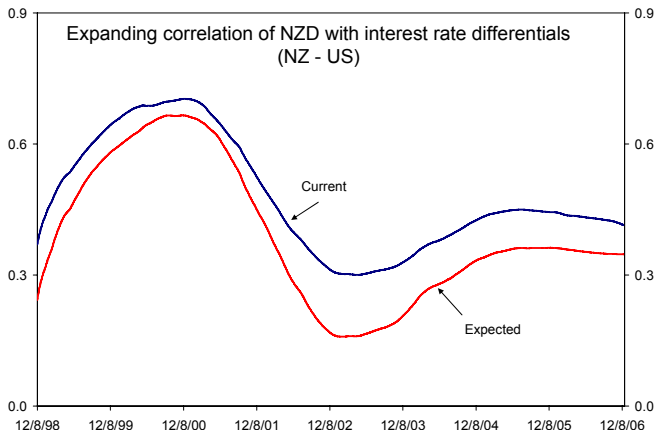
but this relationship broke down in the early 2000s.



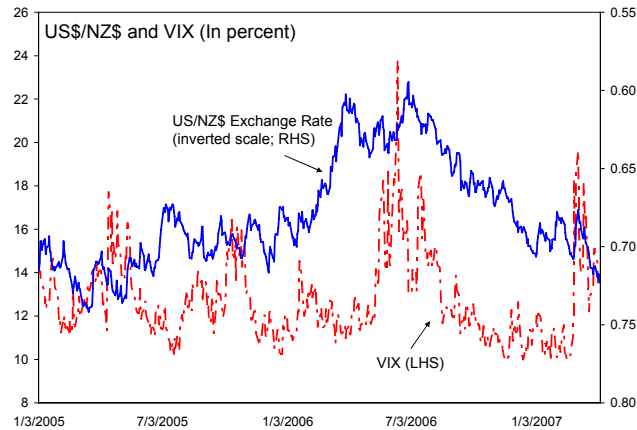
The link between the exchange and interest rate differentials has become stronger



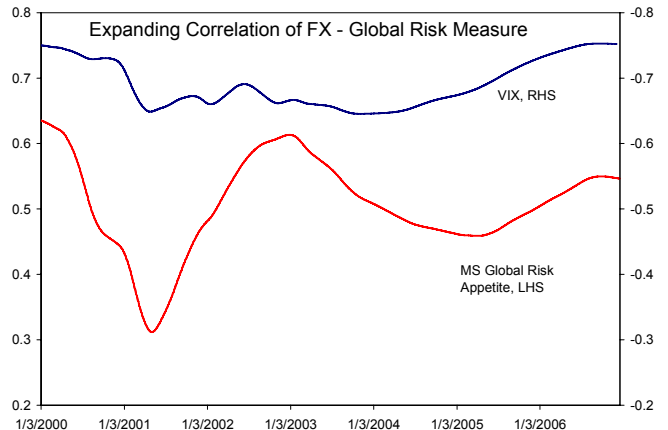
...however, the correlation has fluctuated considerably



The Kiwi dollar tends to strengthen when global market volatility measured by the VIX is low.

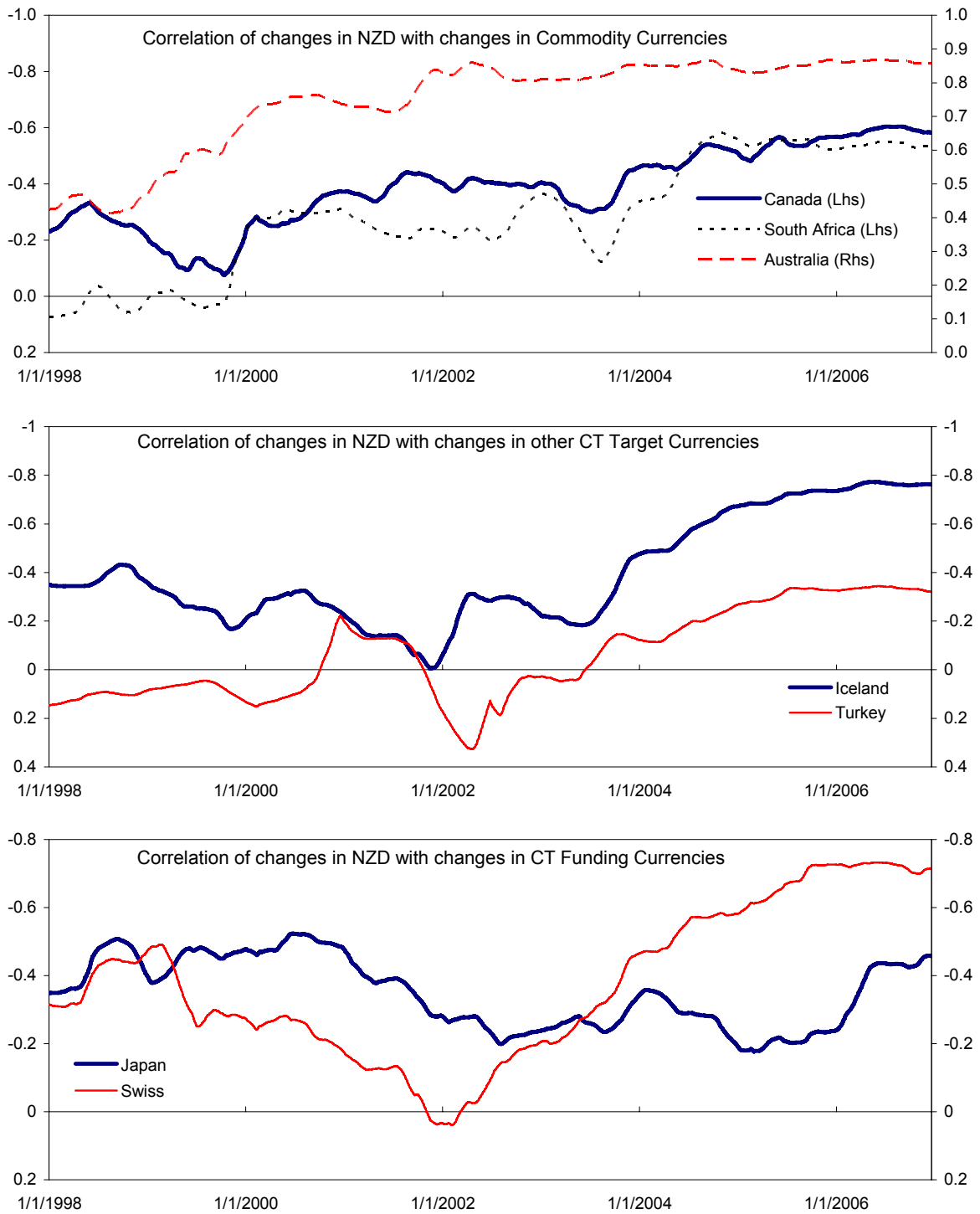


...and the correlation is consistently quite high.



Sources: Reserve Bank of New Zealand, Haver Analytics and Fund staff estimates.

Figure I.2. New Zealand: Correlation with Other Currencies



Source: IMF staff estimates

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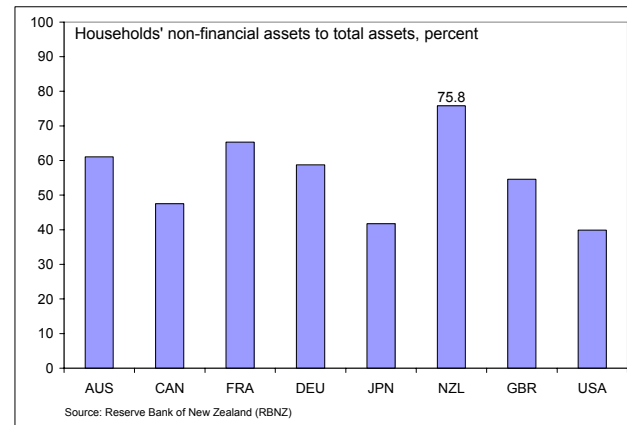
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II. THE “HOME BIAS” IN NEW ZEALAND HOUSEHOLDS’ PORTFOLIOS¹⁵

27. **This chapter looks at the strong preference for housing over financial assets exhibited by New Zealand households.** The large weight of housing in household portfolios merits consideration because of possible negative consequences for households and for macroeconomic performance. This chapter examines a number of reasons for the “home bias” of New Zealand households, and focuses on the taxation of housing investments. Investment properties in New Zealand enjoy a number of tax advantages, that are not available in other countries, and these may have contributed to the recent housing boom. Finally, the chapter considers the policy actions which may strengthen interest in the financial assets and dampen enthusiasm for housing assets, without introducing distortions into the system.

A. “Home Bias”: the Facts

28. **Housing assets make up a large portion of New Zealand households’ portfolios.** Non-financial assets (which consist mostly of housing) made up 76 percent of total assets of New Zealand households in 2006. This ratio is significantly higher than in most other OECD countries, and compares to around 60 percent in Australia, 50 percent in the United Kingdom, and 40 percent in the United States. Total housing assets are equal to 570 percent of household disposable income in New Zealand, also among the highest in OECD.

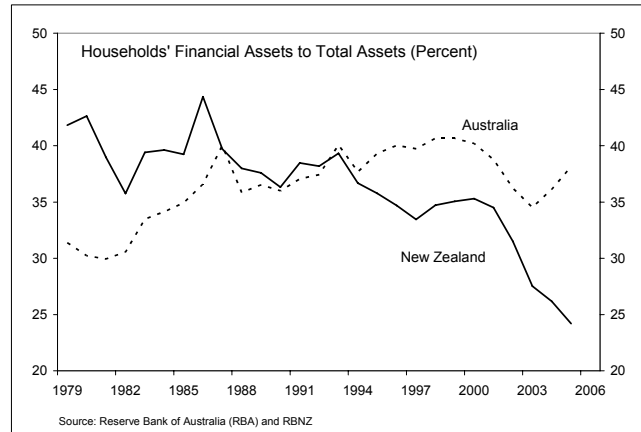


29. **The preference for housing over financial assets has strengthened in recent years, driven to a large extent by house prices.** Until early 1990s, the share of financial assets in total household assets fluctuated at around 40 percent – similar to the current level in Australia and Germany, and higher than that in France. The ratio fell to around 35 percent in mid-1990s, and then dropped to 24 percent in 2001-06. The latest decline was largely driven by the increase in house prices: between 2001 and 2006, house prices in New Zealand were increasing by 15 percent a year on average, and households’ net equity in housing increased from 240 percent of disposable income to over 500 percent.

¹⁵ Prepared by Dmitriy Rozhkov (Ext. 3-9745).

30. The difference with the structure of households' portfolios in Australia is remarkable.

The share of financial assets in Australian household portfolios rose above that in New Zealand in mid-1990s. What is remarkable, however, is that the Australian housing boom of 2000-03, although of similar magnitude to New Zealand's, resulted in only a minor decrease in the ratio of financial to total assets, and the ratio rebounded after the house prices stopped increasing.



In other words, Australian households appear to have reallocated some of the wealth created by the increase in house prices into financial assets. This is confirmed by the finding that Australia featured substantial home equity withdrawal (HEW) in recent years (Klyuev and Mills, 2006), and that two thirds of Australian HEW was used to acquire financial assets or pay off debt (RBA, 2005). In New Zealand, on the other hand, HEW was unknown until 2003, and available survey data suggest that proceeds from HEW are mostly used to finance home improvements and to purchase consumer durables (Smith, 2006).

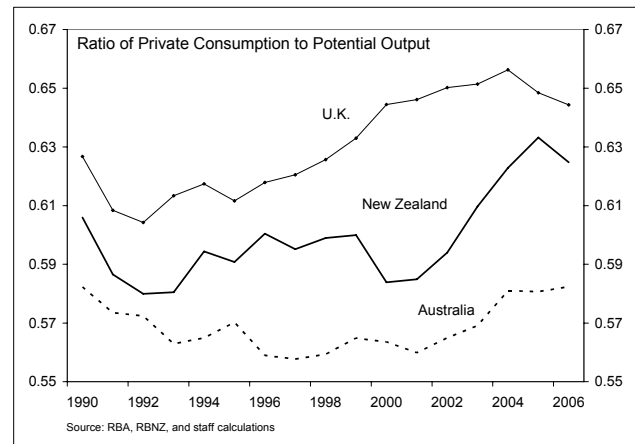
31. New Zealanders' holdings of equity appear to be particularly low. The direct holdings of both domestic and foreign equity make up only about 4 percent of total household assets in New Zealand (Bollard, 2006). Indirect holdings of equity via superannuation schemes, managed funds, and unit trusts account for another 2 to 3 percent of household assets, also low by international standards. Holdings of unlisted equities are likely to be greater, because of a large number of small firms and farms, almost all privately owned, often through family trusts. There are a number of statistical complications with the treatment of family trusts, which suggest that equity holdings of the household sector may be underestimated (Briggs, 2006). Furthermore, the offshore equity holdings by New Zealanders may also be underestimated in the official data. Nevertheless, even with these statistical issues in mind, holdings of equity by New Zealand households appear to be significantly lower than in other industrialized countries.

B. Is "Home Bias" a Problem?

32. The large weight of housing in portfolios has negative consequences for households. The lack of portfolio diversification, with a high exposure to such a lumpy and illiquid asset as housing, increases the sensitivity of households to falls in house prices. The focus of households on housing assets may also tend to drive house prices higher compared to income than they would be otherwise. Furthermore, since house purchases are typically financed by mortgage debt from the banking system, high exposure to housing increases household indebtedness. In 2006, total debt of New Zealand households reached 160 percent of disposable income, and debt servicing burden exceeded 13 percent of disposable income,

significantly higher than in most OECD countries (OECD, 2006). This raises concerns about the vulnerability of households to adverse interest rate and unemployment shocks, although at the moment this vulnerability does not appear to be a threat to systemic stability (see Chapter III).

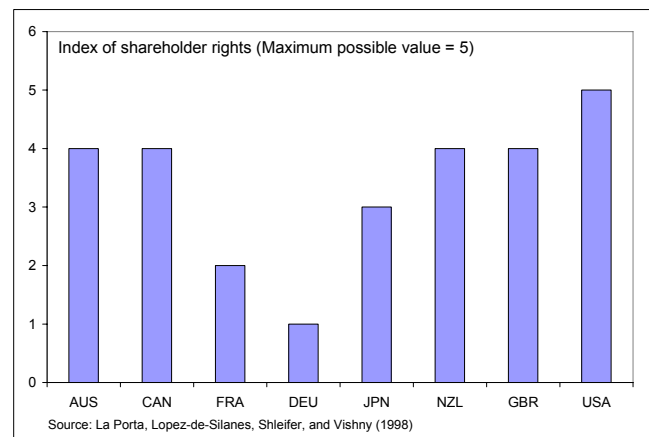
33. The strong preference for housing may also affect macroeconomic performance. The large share of housing in households' portfolios amplifies the wealth effect of rising house prices. This may be one of the reasons for the apparently higher sensitivity of consumption to house prices in New Zealand, compared to Australia and the United Kingdom. This high sensitivity is likely to be one of the factors behind the decline in the savings rate in recent years (Bollard et al, 2006, Goh, 2005). In addition, the preference for housing assets over equity may result in less equity capital being available to finance risky investments (such as start-ups), potentially reducing financing of investment and growth (Bollard, Drage, and Orr, 2007). This might explain the high use of home mortgages for raising business capital – according to RBNZ estimates, around 10 percent of total mortgage lending is used to finance business.



C. Possible Reasons for “Home Bias”

Investor Protection

34. Low level of investor protection can be a reason for the lack of development of financial markets; however, this does not apply in New Zealand. A strong link between the level of investor protection and the level of financial markets development is well established in the literature (La Porta et al, 1997). However, New Zealand has one of the highest possible scores for the index of shareholder (as well as creditor) rights. These indices capture only the most basic features of legislation that are believed to be necessary for adequate investor protection. A full assessment of investor protection would require analysis of investor protection environment and of the quality of implementation of existing legislation. Nevertheless, it

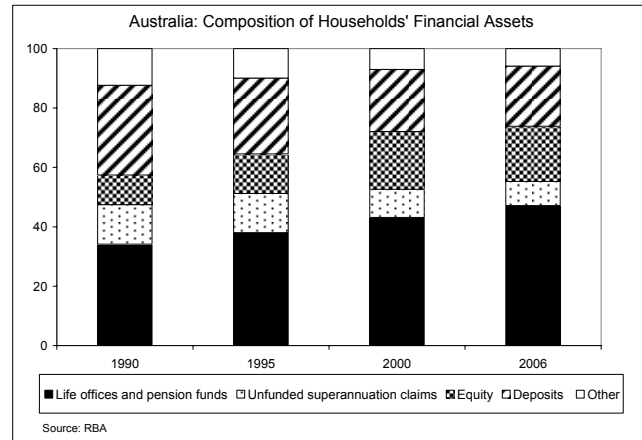


appears safe to assume that the level of legal protection is not the reason why most New Zealanders are reluctant to invest in financial assets.

Superannuation System

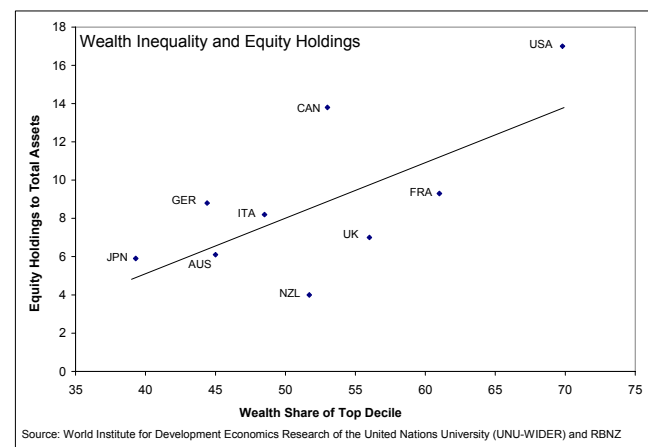
35. **The existence of national superannuation schemes could contribute to a lack of investment in financial assets.** It is possible that superannuation makes some households feel that they do not need additional private savings to finance their consumption in retirement. This would explain a low private savings rate, as well as low holdings of financial assets. However, in Australia, the introduction of the current compulsory superannuation system in the early 1990s

did not produce a decrease in the share of financial assets in households' portfolios. The main effect of superannuation was a change in the structure of households' financial assets (a decrease in the shares of deposits and unfunded superannuation claims, and an increase in the shares of equities and pension funds). However, the superannuation schemes in Australia are different from those in New Zealand (in particular, the age pension in Australia is less generous than New Zealand superannuation).



Wealth Inequality

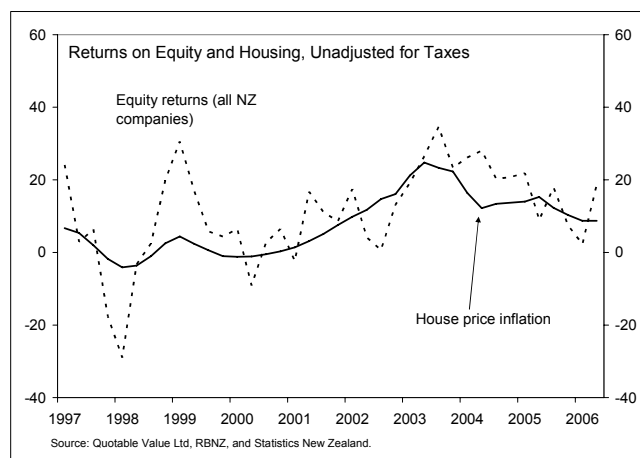
36. **Low wealth inequality in New Zealand may offer a partial explanation for low holdings of equity.** Households typically begin to invest in equity only after reaching a certain level of wealth. Thus, equity holdings tend to be concentrated in wealthier households. This would imply that holdings of equity will be higher in countries where wealth inequality is higher, which is confirmed by a simple scatter plot. However, even after taking the wealth distribution into account, New Zealand appears to be an outlier, with equity holdings lower than in other countries with similar distribution of wealth.



Investor Literacy and Financial System Development

37. **Survey data show a lack of understanding of share market returns in New Zealand, as well as a lack of investment skills.** A Financial Knowledge Survey conducted in 2006 by the ANZ bank and the Retirement Commission indicated that, while most New Zealanders have a good basic understanding of financial concepts, there are some topics (such as compound interest, mortgages, and investment) that are not well understood.¹⁶ Over half of respondents expressed strong preference for fixed-interest investment over shares as a long-term investment option. Furthermore, about 20 percent of respondents believed that investing only in property was a way to reduce investment risk.

38. **Past experience may increase the perception of the relative safety of investment in housing.** Housing has proved to be a reliable investment in New Zealand in the past. New Zealand has not experienced significant housing market busts (although real house prices have declined in several episodes), and during the period of high inflation in the 1970s and 1980s, returns on housing were better than those on bonds and other fixed-interest financial assets.¹⁷ By contrast, the



experience of the 1987 stock market crash was especially severe in New Zealand. As a result, the stock market is perceived by many to be significantly more risky and less reliable than the housing market, even in the long term. In reality, however, gross returns on a broad New Zealand stock market index have closely tracked the housing inflation over the last decade, albeit with higher volatility.

39. **Some features of New Zealand financial system may also contribute to the lack of interest in financial assets.** While the New Zealand banking system is deep by international standards, and the banks are sound and efficient (see Chapter III), other sectors of the financial system are relatively less developed. In particular, the equity market is shallow and has low turnover, and the corporate bond market is also relatively small (Beck, Demirgüç-Kunt, and Levine, 2006). While it is difficult to establish the direction of causality (lack of investors may be slowing the development of financial markets), it is remarkable that New Zealanders invest twice as much in equities directly compared with managed funds

¹⁶ The full Research Report on the Survey can be found at <http://www.consumeraffairs.govt.nz/policylawresearch/research/financial-knowledge/report/index.html>

¹⁷ RBNZ, *Financial Stability Report*, November 2006.

(Bollard, 2006). Analysts often attribute this to a “do it yourself” investment culture, and to a strong mistrust of investment advisors and managed funds.¹⁸ Whatever the reason, however, the result is that many households do not make diversified investments in the stock market, since it is very difficult to invest in a broad market index without using a managed fund.

Taxation of Housing

40. **The tax system can have an important impact on investment returns.** This section analyzes post-tax returns on various investments. The way the tax system treats capital gains on investments, and (in the case of housing) mortgage interest and depreciation, can have a major impact on the relative attractiveness of different investment options.

41. **There are important differences between the tax treatment of housing in New Zealand and in other OECD countries.** Property taxes in New Zealand are about 2 percent of GDP, in line with the OECD average.¹⁹ However, there are important differences in the way interest, depreciation, and capital gains on property are treated (Table II.1). In particular, property investors in New Zealand are able to deduct both mortgage interest and depreciation from income, and are able to use negative gearing.²⁰ In addition, property investors are almost never taxed on capital gains.²¹ While none of those elements of the tax system is unusual by itself, their combination makes New Zealand stand out from other OECD countries.

¹⁸ Survey results suggest that many investors consider the fees charged by managed funds excessive, too complex, and non-transparent. In addition, capital gains from equity investments by managed funds are typically taxed, while capital gains from investments by individuals are not.

¹⁹ *OECD Revenue Statistics*, 2006.

²⁰ Negative gearing is defined as the “practice of allowing those who have borrowed to finance the purchase of assets to deduct from their other taxable income the excess, if any, of the resulting interest payments over the cash flows, net of other expenses, from these investments” (Fane and Richardson, 2005).

²¹ In principle, capital gains on property are considered taxable income in New Zealand if the property was acquired for the purpose of resale (Oliver, 2000). However, in practice this tax is easy to avoid, as long as the business plan shows that the acquisition is being made because of rental yield, not capital gain.

Table II.1. Features of Taxation Systems Relevant to Housing Markets								
	Mortgage deductibility		Capital gains tax		Land/property tax		Negative gearing	Depreciation
	<i>Owner</i>	<i>Investor</i>	<i>Owner</i>	<i>Investor</i>	<i>Owner</i>	<i>Investor</i>	<i>Investor</i>	<i>Investor</i>
Australia	No	Yes	No	1/2 rate	Limited	Yes	Yes	Yes
Canada	No	Yes	No	1/2 rate	Yes	Yes	Yes	Yes
France	No	Yes	No	No	Limited	Limited	Limited	Yes
Germany	No	No	No	No	Limited	Limited	Yes	Yes
New Zealand	No	Yes	No	No	Limited	Limited	Yes	Yes
UK	No	Yes	No	Yes	Limited	Yes	No	No
USA	Yes	Yes	Limited	Yes	Yes	Yes	Limited	Yes

Source: Ellis (2006)

42. **The current tax system favors housing over equity investments.** Capital gains on equity investments are also typically not subject to tax, unless they are made through managed funds (index funds are exempt). However, the possibility of deducting interest and depreciation from taxable income provides an advantage to investments in housing, which are typically at least 80 percent leveraged. This advantage is not available to owner-occupiers, but can be used by investors in rental property.

43. **To assess the impact of the taxation system on returns from investing in housing, it is useful to begin with a simple hypothetical example.** A base case is considered first, with rental yield and house inflation set at 5 percent, and the mortgage interest rate at 10 percent. The effect of an increase in house inflation and rental yield, and of a decrease in the mortgage rate can then be analyzed (Table II.2).²² The results show the importance of the ability to deduct interest and depreciation. Even in the base case scenario, with a high mortgage rate compared to rental yield and capital gains, investors in housing would be able to receive a sizable return on their investment, once all tax deductions are taken into account. Not surprisingly, of all the scenarios considered, an increase in house inflation is the most beneficial for the investors (the untaxed capital gains increase, with all tax deductions unchanged). A decrease in the mortgage rate, on the other hand, reduces interest expenses, but at the same time cuts the tax gain from the interest deduction, and therefore has a much smaller effect on returns.

²² Calculations of returns on housing investments in Tables II.2 and II.3 do not take into account closing costs and fees related to a purchase and subsequent sale of a house. These costs are estimated to be less than 2 percent of the current median house price, and should not affect the results.

Table II.2. Returns on Housing Investment: A Hypothetical Case				
	I	II	III	IV
	Base case	Increase in house inflation	Increase in rental yield	Decrease in mortgage rate
	<i>Percent</i>			
Rental yield	5.0	5.0	10.0	5.0
House inflation	5.0	10.0	5.0	5.0
Mortgage rate	10.0	10.0	10.0	5.0
	<i>NZ dollars</i>			
Own capital invested	100.0	100.0	100.0	100.0
Value of housing purchased	500.0	500.0	500.0	500.0
Mortgage interest paid	-40.0	-40.0	-40.0	-20.0
Rent	25.0	25.0	50.0	25.0
Capital gain	25.0	50.0	25.0	25.0
Property tax paid	-3.0	-3.0	-3.0	-3.0
Income tax paid on rent	-8.3	-8.3	-16.5	-8.3
Sub-total	-1.3	23.8	15.5	18.8
Tax gain from interest deduction	13.2	13.2	13.2	6.6
Tax gain from depreciation allowance	2.5	2.5	2.5	2.5
Total	14.4	39.4	31.2	27.8
Source: staff calculations.				

44. **The next step is to estimate the actual returns realized by investors in housing and stock market in the past decade.** Table II.3 shows the calculation of returns for the last three years, and for the 10-year period 1997-2006. Returns are also calculated separately for the period of the housing boom (2004-06) and for the period before the boom (1997-2003).

45. **Calculations show that over the past decade, investors in housing enjoyed returns that were superior to stock market returns, for several reasons.** One of the key reasons is the ability to leverage housing investment, which has been especially important in recent years when house price inflation by far exceeded the effective mortgage rate.²³ However, even during the period of relatively small house price increases (1997-2003), the rental yield and house price inflation together exceeded the gross stock market return, and the ability to leverage allowed investors in the housing market to obtain superior returns. The deductibility of depreciation and interest from taxable income further increases returns from investment in housing. The gain from tax deductions depends mainly on the mortgage and tax rates, and is therefore especially important in times of low house price increases: in 1997-2003, tax deductions allowed housing investors to double their returns.

²³ Most stock market investments by households are not leveraged. However, Table II.3 shows that, given the volatile nature of the stock market, leveraging equity investment at 80 percent at the prevailing lending rate is a highly risky strategy, which produces negative returns in the periods of relatively slow growth in equity prices.

Table II.3. Actual Returns on Housing and Equity Investments						
	2004	2005	2006	3 year average 2004-06	10 year average 1997-2006	7 year average 1997-2003
Parameters used in calculations			<i>Percent</i>			
Stock market return (all companies)	28.0	9.0	18.7	18.3	10.4	7.2
Median rental yield	5.4	4.9	4.7	5.1	6.0	6.3
House price inflation	18.6	14.1	10.4	14.7	7.7	4.9
Effective mortgage rate	7.2	7.6	7.9	7.5	7.6	7.7
Marginal income tax rate	39.0	39.0	39.0	39.0	39.0	39.0
Business tax rate	33.0	33.0	33.0	33.0	33.0	33.0
Investment in equity			<i>NZ dollars</i>			
Own capital invested	100.0	100.0	100.0	100.0	100.0	100.0
Gross return	28.0	9.0	18.7	18.3	10.4	7.2
If leveraged at 80 percent	98.7	-1.3	44.6	46.0	10.2	-4.4
Investment in housing			<i>NZ dollars</i>			
Own capital invested	100.0	100.0	100.0	100.0	100.0	100.0
Value of housing purchased	500.0	500.0	500.0	500.0	500.0	500.0
Mortgage interest paid	-28.6	-30.3	-31.5	-30.2	-30.5	-30.8
Rent	27.1	24.4	23.5	25.3	29.9	31.6
Capital gain	92.8	70.5	52.2	73.6	38.5	24.7
Property tax paid	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0
Income tax paid on rent	-9.0	-8.0	-7.8	-8.3	-9.9	-10.4
Sub-total	79.3	53.6	33.4	57.4	25.0	12.1
Tax gain from interest deduction	9.4	10.0	10.4	9.9	10.1	10.1
Tax gain from depreciation allowance	2.5	2.5	2.5	2.5	2.5	2.5
Total	91.2	66.0	46.3	69.8	37.5	24.7
Capital gains tax			<i>NZ dollars</i>			
At 1/2 marginal income tax	-18.1	-13.7	-10.2	-14.4	-7.5	-4.8
At marginal income tax	-36.2	-27.5	-20.3	-28.7	-15.0	-9.6
Source: RBNZ, Statistics New Zealand, and staff calculations.						

46. **Calculations also show that taxing capital gains would reduce but not eliminate the advantages of investment in housing.** Table II.3 shows the amounts that housing investors would have to pay if a capital gains tax was levied at a rate equal to 50 or 100 percent of the marginal tax rate.²⁴ Although a capital gains tax would substantially reduce the returns on housing investments, these returns would remain extremely attractive. During the period of relatively slow growth of house prices (1997-2003), even a capital gains tax at the marginal income tax rate would not fully eliminate the gain from the mortgage interest deduction.

²⁴ The calculation in the table is a static exercise, and does not take into account the possible impact of a capital gains tax on demand for assets, and therefore on asset returns.

47. **For owner-occupiers, there are fewer tax advantages from investing in housing.** While owner-occupiers are also not taxed on capital gains, they cannot deduct interest or depreciation from taxable income. Nevertheless, even for them, capital gains during the recent housing boom substantially exceeded mortgage interest, making house ownership an attractive proposition.

48. **The importance of investors in housing from the macroeconomic point of view is likely to be substantial.** No comprehensive analysis has been done to determine whether investment property transactions have played a disproportionate role in the housing boom of recent years.²⁵ However, banks indicate that about 30 percent of housing loans issued in recent years were for purchases of rental housing. This is consistent with staff estimates based on changes in the owner-occupation ratio during 1990-2004. RBNZ estimates that most landlords sell rental properties within 4 years – an indication that properties may often be purchased mainly for capital gains, rather than rental yields. Finally, Australian experience shows that investor activity in the residential property market has been a key driver of the recent property boom (Parlett and Rossiter, 2004), with many investors pursuing the negative gearing strategy that is allowed by both Australian and New Zealand tax rules.

D. Policy Implications

49. **Investor education and some improvements in regulation may strengthen interest in financial assets.** The memories of the market crash of 1987 will naturally fade over time, and investor education can improve understanding of returns, mortgages, and other investment concepts. Various projects currently being undertaken by the Retirement Commission, Ministry of Education, and Enterprise New Zealand Trust to improve financial education are aimed at improving financial literacy in the long-term.²⁶ Studies conducted in OECD countries show that financial knowledge generally increases with income, education, and net worth (OECD, 2005), and New Zealand is well placed to achieve rapid progress in this area. In addition, improvements in regulation of managed funds, and better transparency, could help overcome the distrust of fund managers. The main objective of the Review of Financial Products and Providers, led by the Ministry of Economic Development, is to ensure that regulation promotes confidence and participation in financial markets. Proposals made under this review would enhance the disclosure regime for securities offerings, by making disclosure more accessible for consumers.²⁷

²⁵ Initial Report on Supplementary Stabilization Instruments, February 2006.

²⁶ A description of some of the projects with focus on youth education can be found at http://www.retirement.org.nz/in_schools.html.

²⁷ The proposals would also harmonize the regulatory frameworks for collective investment schemes and most superannuation schemes. Consultation papers outlining proposals made under the review are available at http://www.med.govt.nz/templates/ContentTopicSummary___479.aspx.

50. **Tightening of tax rules applying to housing investment could help dampen enthusiasm for housing assets.** Measures that deserve consideration include (i) not allowing operating losses on investment properties to be offset against other taxable income; and (ii) strictly enforcing the current law making gains on non owner-occupied properties purchased with the intention of resale subject to income tax. Both these measures were examined in the context of the Supplementary Stabilization Instruments (SSI) report,²⁸ and the RBNZ has recently indicated that they are still under consideration.²⁹ The second of these measures involves strict enforcement of the existing law, and would at this stage be preferable to a general capital gains tax on real estate.

51. **Measures that would introduce distortions in the housing market should be avoided.** The SSI report also considered introducing a limit on the loan to value ratio for all loans secured by residential property, and a discretionary mortgage interest levy. While both these measures could have a dampening effect on the housing cycle, they are distortionary and should be avoided. Both measures would also have the biggest impact on lower income borrowers. In addition, a mortgage interest levy would raise the cost of residential mortgage loans relative to other types of credit, irrespective of relative risk considerations.

²⁸ The February 2006 report is available at <http://www.rbnz.govt.nz/news/2006/2504934.html>.

²⁹ RBNZ, *Monetary Policy Statement*, March 2007.

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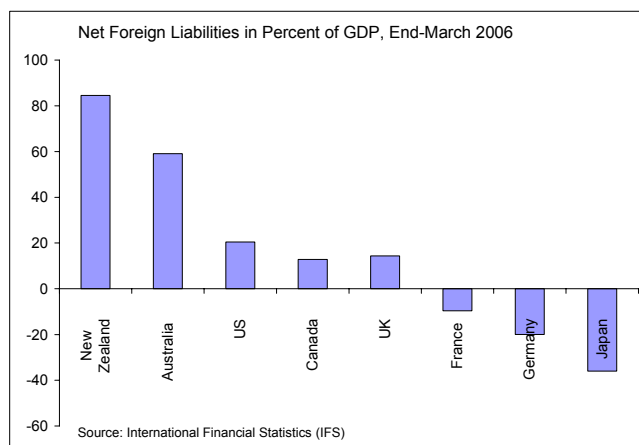
III. ANALYSIS OF VULNERABILITIES³⁰

52. **This chapter assesses New Zealand's economic vulnerabilities from two angles: the external position of the country, and the financial health of the different sectors of the economy.** These two angles are related, because the willingness of foreign investors to continue to finance New Zealand's external position hinges on the financial health of the various economic sectors. The health of the banking sector is especially important, given the large share of banks in recent external borrowing.

53. **New Zealand does not face major vulnerabilities, although the high and growing exposure of some economic sectors to the housing market needs to be closely monitored.** Foreign liabilities continue to grow, but liquidity and currency risks are contained, as borrowers are predominantly highly-rated banks, about half of external debt is denominated in domestic currency, and almost 90 percent of the remaining foreign currency debt is hedged. Banks and non-bank lending institutions are financially sound and have proven in the past to be resilient to large swings in exchange rate and interest rates. Nevertheless, their growing exposure to the household mortgage sector needs to be closely monitored. Households are also highly exposed to the housing market, and their debt service burden has grown considerably, implying greater vulnerability to increases in interest rates, rises in unemployment, and falls in house prices. Nonetheless, aggregate balance sheets of the households are strong, and these vulnerabilities should not pose a threat to systemic stability.

A. External Position

54. **Driven by the private sector, net foreign liabilities and gross external debt continue to edge up.** Net foreign liabilities increased from 77 percent of GDP at end-March 2003 to 89 percent at end-2006 (Table III.1). This level is high compared to other industrial countries, but similar to the level that prevailed in New Zealand during most of the 1990s. Gross external debt increased from around 84 percent of GDP in late 1990s to around 117 percent in 2006.³¹ This growth in debt was on account of the private sector, as gross external debt of the official government fell from 20 percent of GDP in 1998 to 10 percent in 2006. The current account deficit peaked at 9.7 percent of GDP in June 2006, and then declined slightly later in the year. This is larger



³⁰ Prepared by Dmitriy Rozhkov (Ext. 3-9745).

³¹ Data from 2001 are not fully comparable to earlier data due to methodological changes.

than most estimates of the “sustainable” current account deficit, and increases the probability of an abrupt and costly external adjustment in the future (Edwards, 2006).

Table III.1. New Zealand: Key External Vulnerability Statistics							
	1993	1998	2003	2004	2005	2006	2006
	Mar.	Mar.	Mar.	Mar.	Mar.	Mar.	Dec.
	(In percent of GDP)						
Current account (annual)	-3.6	-5.4	-3.6	-5.0	-7.4	-9.6	-9.0
Net foreign liabilities	88.3	88.0	77.2	78.6	82.9	83.7	89.4
Gross external debt	78.4	84.3	109.4	107.2	110.1	115.8	116.7
<i>Of which:</i>							
Local currency denominated	...	45.4	57.1	54.3	53.9	59.2	63.2
Short-term (residual maturity)	...	39.6	52.8	52.3	57.8	58.4	59.8
Official government	...	20.1	13.6	13.1	11.7	11.5	9.6
Foreign-currency denominated external debt	...	38.9	52.3	52.9	56.2	56.7	53.5
Share of which hedged (in percent)	...	94.9	89.0	87.9	87.0	89.1	...
	(Annual percentage growth)						
Export volumes	3.1	3.9	7.8	0.8	4.6	-0.3	2.0
Import volumes	7.0	2.6	7.0	12.9	12.3	4.0	-2.4
Terms of trade	0.9	-2.0	-1.9	6.1	3.4	-1.3	0.0
Real effective exchange rate (1990=100)	...	122.1	119.8	129.5	138.1	128.4	132.5

Sources: Statistics New Zealand and Fund staff estimates.

55. **Banks account for most of the recent external borrowing.** Much of the recent increase in debt is due to New Zealand banks’ funding of mortgage lending, typically by tapping international capital markets in U.S. dollars (USD).³² The highly liquid swap market in New Zealand dollars (NZD) enables banks to manage their exchange rate and interest rate risks. Most new mortgage loans have interest rates that are fixed, yet New Zealand banks tend to borrow at floating rates. To match liabilities and assets, the banks use cross-currency swaps, selling the USD funds they have raised for NZD, and at the same time, exchanging their USD floating rate debt for NZD debt with a fixed interest rate. The swap rate that banks pay on the NZD debt represents the marginal cost of New Zealand dollar funding for banks and is used to price fixed-rate mortgages. Banks now account for almost 60 percent of total gross external debt, as their external debt more than doubled as a percentage of GDP since late 1990s, to reach 66 percent of GDP at end-March 2006 (Table III.2).

³² There has been a rapid expansion in offshore issues of NZD denominated Eurokiwi and Uridashi bonds over the last few years. The buyers of these bonds are mostly retail investors in Europe and Japan looking for high yields. The issuers (typically foreign entities with a high credit standing) profit by swapping the proceeds for foreign currency borrowed abroad by New Zealand banks.

Table III.2. New Zealand: Decomposition of Gross External Debt 1/

	End-March						
	1998	2000	2002	2003	2004	2005	2006
	(In percent of GDP)						
Total gross external debt	84.3	97.8	113.8	109.4	107.5	110.1	115.6
<i>By sector</i>							
Official government	19.9	16.2	16.1	13.6	13.1	11.7	11.4
Private sector	64.4	81.7	97.7	95.8	94.4	98.4	104.2
<i>By sub-sector</i>							
Banks	32.4	46.5	55.6	55.2	58.7	62.1	66.3
Other private	31.9	35.2	42.0	40.6	35.6	36.3	37.9
	(In percent of total gross external debt)						
Total gross external debt	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>By sector</i>							
Official government	23.6	16.5	14.2	12.4	12.2	10.6	9.9
Private sector	76.4	83.5	85.8	87.6	87.8	89.4	90.1
<i>By sub-sector</i>							
Banks	38.5	47.5	48.9	50.5	54.6	56.5	57.4
Other private	37.9	36.0	36.9	37.1	33.2	33.0	32.7
<i>By currency 2/</i>							
New Zealand dollar	53.5	43.3	47.9	52.2	50.7	48.9	51.1
Foreign currency	46.5	56.7	55.2	47.8	49.7	51.4	49.2
U.S. dollar	28.2	35.4	34.0	33.2	32.6	29.5	31.1
Japanese yen	5.0	7.5	5.2	3.4	2.0	1.5	1.4
Australian dollar	3.8	4.7	6.4	4.9	6.3	6.9	6.5
European Euro & UK Pound	7.0	5.4	4.4	4.5	6.3	11.0	7.6
Unallocated	2.6	3.7	5.2	1.9	2.5	2.4	2.7
<i>By (residual) maturity 2/</i>							
Short term (under 1 year) 3/	46.7	50.5	53.1	48.3	48.8	52.5	50.4
Medium term (1-5 years)	28.1	32.0	20.6	20.4	18.4	16.4	18.6
Long term (over 5 years)	24.3	15.5	21.2	24.9	26.7	27.1	26.2
Unallocated	0.9	2.1	5.1	6.4	6.1	4.0	4.8

Sources: Statistics New Zealand; and Fund staff estimates.

1/ Based on the International Investment Position and the "Overseas Debt Survey" comprising all official organizations known to have external debt, and corporates with external debt greater than \$NZ 50 million.

2/ Breakdown unavailable for data published in the IIP of March 2000. Thus, prior to 2001, ratios to total debt from the Overseas Debt Survey of March 2000 are applied to the revised total debt data.

3/ From 2001, short-term maturity data reclassified to include debt maturing in one year.

56. **Despite the high level of external debt, liquidity and foreign currency risks are contained by a number of factors.** In December 2006, 51 percent of external debt was short-term, similar to the average level of the past five years. However, liquidity risks are limited by the financial strength of banks (Section B). The foreign currency component of external debt has declined slightly to 46 percent of total debt at end-2006. The risks from

foreign currency exposure are mitigated by a substantial degree of foreign exchange hedging³³ In March 2006, 89 percent of New Zealand's total foreign currency denominated external debt was hedged, either by financial derivatives or against financial assets or receipts.

B. Sectoral Analysis of Vulnerabilities

Banking Sector

57. **The banking sector dominates the New Zealand's financial system (Table III.3).**

Banks account for about 74 percent of total financial system assets, and this share is now higher than in the early 1990s (around 70 percent). The health of the banking system is therefore critical for the overall stability of the financial sector. The system remains concentrated, with the largest bank holding 35 percent of total assets, and the four largest banks (all Australian-owned) holding 88 percent of total assets of the banking system.

	Assets (NZ\$ billion)					Market share (in assets)				
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
Banks	190	205	221	242	254	72.5	74.5	74.2	74.7	73.8
Other deposit-taking institutions	12	15	19	22	26	4.6	5.5	6.4	6.8	7.6
Funds under management	60	55	58	60	64	22.9	20.0	19.5	18.5	18.6
Total financial system	262	275	298	324	344	100.0	100.0	100.0	100.0	100.0

Source: Reserve Bank of New Zealand (RBNZ)

58. **New Zealand's banking sector continues to perform strongly (Table III.4).**

Despite continued competitive pressure on lending margins, banks remained solidly profitable in the first half of 2006, with an aggregate return on assets of 1.2 percent, and an aggregate return on equity of 14.6 percent. The banks are well capitalized, maintaining total capital adequacy ratios above 10 percent, and tier-one capital averaging above 8 percent of risk-weighted assets.³⁴ Banks maintain high asset quality, with the ratio of impaired assets to total assets remaining at 0.2 percent during the past four years, well below levels in other developed countries. Those impaired assets that do exist are adequately provisioned.

³³ Hedging information is collected by Statistics New Zealand from a survey of corporations that covers almost all external debt. In 2006, the survey covered 91 percent of foreign currency debt.

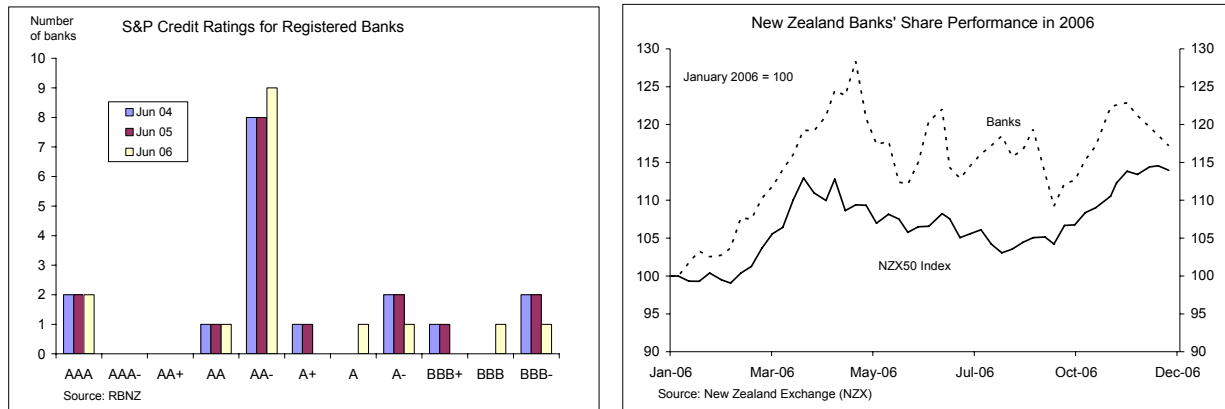
³⁴ Registered banks in New Zealand are required to maintain a minimum tier-one capital ratio of 4 percent and a total capital ratio of 8 percent of risk-weighted assets.

Efficiency indicators have been improving, with the ratio of operating costs to income decreasing from 55 percent in 2000 to 46 percent in 2006.

Table III.4. New Zealand: Financial Soundness Indicators of the Banking Sector (In percent)							
End of Year	2000	2001	2002	2003	2004	2005	2006 ^{1/}
<i>Capital adequacy</i>							
Total capital to risk-weighted assets	11.1	10.7	11.1	10.3	10.8	10.9	10.5
Tier I capital to risk-weighted assets ^{2/}	7.7	7.6	8.3	7.6	8.4	8.7	8.3
<i>Asset composition (share of total)</i>							
Financial securities	17.5	22.0	19.7	18.2	16.4	16.6	14.6
Residential mortgage loans	37.6	34.6	36.6	37.2	41.6	43.2	44.5
Other lending	37.9	36.9	38.0	38.3	35.8	34.5	35.1
Other assets	7.1	6.4	5.8	6.3	6.2	5.7	5.8
<i>Asset growth</i>							
Total assets	13.7	5.2	7.9	7.8	9.8	4.9	11.4
Total loans	7.7	9.4	8.1	9.5	10.2	9.3	13.9
Residential mortgages	7.4	-0.3	8.6	17.3	14.8	16.1	14.8
<i>Asset quality</i>							
Impaired assets to total lending	0.4	0.4	0.3	0.2	0.2	0.2	0.2
Specific provisions to impaired assets	33.8	25.4	37.5	45.4	34.2	38.2	37.7
<i>Earnings and profitability (year average)</i>							
Return on average assets	1.1	1.2	1.4	1.2	1.2	1.1	1.2
Return on average equity ^{3/}	...	...	22.5	17.8	14.1	13.7	14.6
Aggregate lending margin	2.3	2.3	2.6	2.5	2.5	2.3	2.3
Total income to average assets	3.4	3.2	3.5	3.5	3.4	3.2	3.2
Net interest income to total income	62.2	63.3	67.6	67.7	68.8	67.8	69.0
Operating costs to income	54.8	48.4	45.5	46.1	47.6	48.0	45.9
<i>Bank concentration (market share)</i>							
Largest bank	...	...	32.7	32.9	33.2	33.3	34.6
Four largest banks	...	...	84.6	85.4	85.6	85.3	87.9
Source: RBNZ.							
1/ Data for end-June.							
2/ Tier I capital includes issued and fully paid common equity and perpetual non-cumulative preference shares, and disclosed reserves.							
3/ For systemically important banks.							

59. **The overall strength of the banks in New Zealand is reflected in their high credit ratings.** Banks accounting for 95 percent of total banking system assets have a rating of AA- from Standard and Poor's, implying the cumulative probability of default of less than

1 percent over a 5-year horizon.³⁵ In addition to sound asset quality and strong capitalization, these high credit ratings reflect in part the strength of Australian parent banks, for whom the New Zealand operations comprise about 15 percent of total assets.³⁶ The share performance of the largest banks was strong in 2006, with the banking component of the NZX50 index outperforming the index as a whole.



60. **The main potential vulnerability of the banking system is related to the increase in banks' exposure to the household mortgage sector.** Residential mortgage loans increased at an average annual rate of about 16 percent during the last four years, and the share of mortgages in the aggregate credit portfolio of New Zealand banks increased from 35 percent in 2001 to 45 percent in 2006. This concentration of loans exposes the banking system to any event that damages the ability of households to service debt (such as an increase in interest rates or unemployment), and to a large and rapid depreciation of property values. In addition, intense price competition in the mortgage market has diminished banks' margins, and there are concerns that lending competition may have led to a decrease in lending standards. However, while banks have recently begun to use more actively new higher-risk lending products, such as "low doc" and "100 percent" loans, the extent of subprime lending appears to be on a relatively limited scale.³⁷ Another area of concern is

³⁵ Standard and Poor's ratings cover all banks operating in New Zealand. The largest banks have similarly high ratings from Fitch and Moody's as well.

³⁶ New Zealand banks are required to have credit ratings independent of their foreign parents. Nevertheless, rating agencies often mention the high probability of parental support in their reviews.

³⁷ Market estimates indicate that only 3-5 percent of mortgage loans outstanding are to subprime borrowers (see, for example, "Subprime Woes: Should NZ Be Worried?," *ANZ Market Focus New Zealand*, March 2007).

lending for investment properties, especially in the circumstances where many properties are expected to generate negative cash flows, an issue that also arises in the farm sector.³⁸

61. **There is little concrete evidence to date that the quality of existing loans has deteriorated, but the situation needs to be closely monitored.** Corporate and mortgage lending increased by about 23 percent between January 2005 and June 2006, and NPLs increased at a similar rate, so the impaired assets ratio remained stable, which is typical during periods of strong credit growth. Nonetheless, there is some risk of a deterioration in bank asset quality if the economy slows. However, the results of the Financial Sector Assessment Program (FSAP) and more recent stress testing suggest that even quite large shocks should not create problems for stability (see section on stress testing below). Bank lending practices tended to be very conservative in the past, and many mortgages have features that forestall foreclosure in case of temporary income reductions or unemployment, reducing risks to collateral values. Most important, the aggregate level of impaired assets is extremely low, and aggregate regulatory capital (Tier I and Tier II) covers over 12 percent of all mortgages, allowing the banks to withstand a significant deterioration of loan quality.

Non-bank Lending Institutions

62. **Non-bank lending institutions are small, and at the moment do not pose a systemic risk.** Deposit taking and lending in New Zealand is done by over 200 non-bank institutions, such as building societies, the Public Service Investment Society (PSIS), finance companies, and credit unions. Although their share in the financial system has grown significantly over the past 5 years, they remain small, with total assets of about 10 percent of banking system assets (Table III.3). The differentiation between the bank and non-bank sector is clearly perceived by the public, so problems in non-bank lenders are unlikely to undermine the confidence in banks. This lack of contagion risk was underscored by the failure of three finance companies in 2006, which had no noticeable impact on the banking system. All three failed companies specialized in secured lending on second-hand cars, and their failures appear to have been caused primarily by poor credit risk management.

63. **The main concerns for the soundness of non-bank lending institutions are related to their high exposure to the housing sector.** The share of housing loans in total NBFILending increased from 26 percent at end-2004 to 33 percent in late 2006 (Table III.5). The exposure of some finance companies to high-risk property development lending is seen as a potential risk by the RBNZ.³⁹ In addition, the funds of non-bank lending institutions have on average shorter maturity than their assets: 81 percent of liabilities have maturity of

³⁸ Parts of agriculture are seen as relatively vulnerable because of rising debt leverage relative to farm profits (RBNZ, *Financial Stability Report*, November 2006). However, exposure of banks to agriculture is relatively low, at around 10 percent of total lending.

³⁹ RBNZ, *Financial Stability Report*, November 2006.

less than 1 year, compared to 62 percent of assets (Table III.6). While it is not unusual for financial institutions to have a maturity mismatch, the mismatch appears to be particularly large for the savings institutions, many of whom have over half of liabilities with maturity of less than three months. However, given that most these institutions have stable profits and low impaired assets, these problems should not present a significant risk in the near future.

	Dec-04	Jun-05	Dec-05	Jun-06	Sep-06
Agriculture	4.9	4.9	5.6	5.7	5.7
Other business lending	39.6	38.8	37.3	37.8	37.4
Housing	26.1	27.6	28.6	30.7	32.7
Consumer	29.4	28.7	28.5	25.8	24.2

Source: RBNZ.

	Dec-04		Jun-05		Dec-05		Jun-06		Sep-06	
	Claims	Funding	Claims	Funding	Claims	Funding	Claims	Funding	Claims	Funding
Call	8.6	7.4	8.8	7.3	8.8	6.8	7.9	7.4	8.1	7.2
2 < 90 days	29.8	28.0	28.7	27.8	27.1	30.2	28.0	27.1	27.0	23.8
90 days < 1 year	24.9	42.2	25.3	43.8	24.9	40.0	26.8	40.9	26.6	49.7
1 year < 2 years	18.9	15.3	20.1	14.5	21.0	15.2	19.1	15.4	19.3	12.7
2 years < 3 years	10.7	5.0	9.7	4.2	10.2	4.9	11.3	4.7	11.6	4.1
3 years < 4 years	3.9	1.1	3.7	1.1	3.9	1.3	3.8	1.4	4.1	0.7
4 years < 5 years	1.7	0.8	2.3	1.1	2.9	1.4	2.1	1.4	2.3	0.3
5 years +	1.5	0.3	1.3	0.2	1.2	0.2	0.9	1.8	0.9	1.4

Source: RBNZ.

64. **The proposed changes to the regulatory framework for NBFIs should help the public better assess the relative risk of different institutions.** As part of the Review of Financial Products and Providers, a number of consultation papers outlining proposals for the reform of financial sector regulation (including NBFIs) were released in September 2006.⁴⁰ With respect to non-bank deposit takers, the proposals would involve a two-tiered structure of Authorized Deposit Takers (ADTs) and other deposit-takers. Any deposit taker would be able to become an ADT, provided they meet the licensing and other supervisory requirements. ADTs would then be supervised by the RBNZ using a framework similar to

that for registered banks. Other deposit takers would be supervised by trustees under strengthened trustee arrangements, and would be required to disclose prominently that they do not have an ADT status.

Corporate Sector

65. **New Zealand's corporate sector appears to be in good financial health.** Rates of return on assets and on equity have eased from their peaks in 2002, but remain at comfortable levels (Table III.7). Capitalization is strong, aggregate liquidity is sufficiently high, and interest coverage is healthy. In the second half of 2006, business confidence rebounded to 18-month highs, driven by lower oil prices and by the economic slowdown turning out to be short-lived. Nevertheless, profit margins have come down as the cycle matured, and corporate financial health can be expected to decline somewhat in near term, but this is unlikely to fundamentally affect companies' liquidity and solvency.

Table III.7. New Zealand: Corporate Sector Indicators (Aggregate Ratios for Non-Financial Companies, in Percent)							
	1999	2000	2001	2002	2003	2004	2005
Current assets to current liabilities	127.9	115.7	119.1	124.8	130.8	131.1	127.7
Own Funds to Total Equity and Liabilities	53.2	52.8	52.9	50.9	52.0	53.1	52.3
Interest coverage ratio 1/	3.1	3.2	3.4	5.2	4.5	4.3	4.1
Return on equity	11.3	11.2	9.5	13.1	11.7	11.4	10.7
Return on assets	6.0	5.9	5.0	6.7	6.1	6.0	5.6

Source: Statistics New Zealand, and Fund staff calculations.
1/ Earnings before interest, taxes and depreciation divided by interest payments

Households

66. **Household indebtedness continues to grow.** Driven by a combination of favorable financial conditions and rising house prices, household indebtedness increased by about 50 percentage points since 2000, to reach 160 percent of disposable income in 2006 (Table III.8). Housing accounted for about 75 percent of total household assets and over 90 percent of household debt in 2006, while holdings of equity and other financial assets were relatively low by OECD standards (see Chapter II). Household gearing has remained relatively stable, with total debt of around 20 percent of total assets. Debt servicing costs increased from 8½ to 13 percent of disposable income, one of the highest levels among industrial countries (OECD, 2006). Debt service burdens are likely to increase further in the near-term, as about one third of all mortgages are due to be re-priced at higher rates during 2007.

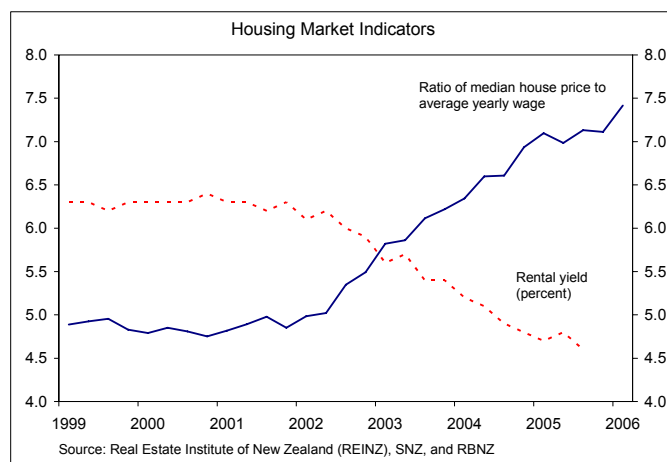
⁴⁰ The full text of the consultation papers can be found at http://www.med.govt.nz/templates/ContentTopicSummary_479.aspx.

	1999	2000	2001	2002	2003	2004	2005	2006 June
Net Wealth	414	405	400	430	513	547	597	605
Total assets	517	512	508	547	641	684	748	761
Financial	182	180	176	172	176	179	181	187
Housing	335	332	332	375	464	506	567	574
Total liabilities	103	106	108	117	127	137	151	156
Housing loans	93	95	96	104	114	124	137	143
Other loans	10	11	12	13	13	13	14	13
Debt/assets, percent	19.9	20.8	21.2	21.4	19.9	20.1	20.1	20.5
Debt servicing costs	8.2	9.3	8.6	9.5	9.5	10.8	12.2	13.0
Savings rate 1/	-1.5	-4.9	-4.9	-11.1	-12.3	-12.4	-14.8	...

Source: RBNZ; Statistics New Zealand; and Fund staff estimates.

1/ Figures refer to year beginning in April, and ending in March of the subsequent year. The household savings data are under review by Statistics New Zealand.

67. **Heavy exposure of households to the housing market is a cause for some concern.** High leveraged exposure to a “lumpy” and illiquid asset increases the vulnerability of households to rises in interest rates and unemployment and falls in house prices.⁴¹ Some analysts suggested that the recent rise in house prices can be fully explained by an adjustment to a new set of fundamentals, such as the higher top personal tax rate and the lower long-term interest rates.⁴² Nevertheless, affordability of housing has decreased dramatically in recent years, with the median house price reaching 7½ times the average annual income by end-2006. House prices are also at historically high levels relative to rents. Given the likely increase of mortgage servicing costs in the near-term due to increasing interest rates as mortgages re-price, there is a possibility that house prices may decline in the future. However, until now the housing market has proved to be quite resilient, with house price inflation remaining at 9 percent in early 2007.



⁴¹ In addition, regional house prices in New Zealand appear to be strongly influenced by economic cycles, making housing a poor hedge against local household income security (Aitken, Grimes, and Kerr, 2003).

⁴² See, for example, “Bubble, Schmubble – House Prices Have Been Pushed Up by Tax Rates and Interest Rates,” *Westpac Bulletin*, March 2007.

68. **However, this vulnerability should not present a threat to systemic stability.** Rising house prices have increased the value of housing assets from 332 percent of disposable income in 2001 to 574 percent in 2006, substantially raising the net worth of the households. Research shows that in the short-run, financial wealth and housing wealth reduce the effect of household indebtedness on arrears – in other words, wealth tends to be used as a buffer in case of unexpected shocks (Rinaldi and Sanchis-Arellano, 2006). Even if house prices fall, the banks should be able to recoup the mortgages, as long as borrowers have positive equity in their houses. In New Zealand, strong growth of housing values in recent years has created a substantial buffer, so that house prices would need to fall by over one third to reduce the aggregate net housing assets to the end-2001 level.

69. **Vulnerability to interest rate pressures is concentrated in a small share of households.** Similarly to other OECD countries, most household debt is held by higher-income households, who have the lowest debt service ratios (OECD, 2006). The 2004 Household Economic Survey reported that only about 8 percent of total household debt was held by households in the lower 40 percent of income distribution. Furthermore, only one-tenth of borrowers (representing about 3 percent of households) had total spending on housing exceeding 50 percent of disposable income, and were therefore highly sensitive to mortgage rates.⁴³

Stress Tests

70. **The results of stress tests conducted during the FSAP indicated that, although some households were vulnerable to interest rate increases, this did not present a threat to financial system stability.** Stress tests from the FSAP concluded in 2004 indicate that banks would be resilient to significant market and credit risk shocks (IMF, 2004). In particular, a stress test scenario with a 20 percent decline in house prices, combined with a 4 percentage point rise in unemployment and a 4 percent decrease in households' real disposable income was found to result in a loss of 28 percent of annual bank profits on average, and at most half of annual bank profits in the case of the most affected banks.

71. **The authorities have been working on updating and refining the stress tests.** During the FSAP, participating banks calculated the impact of a given macroeconomic shock on their performance independently, sometimes using different approaches and methodologies. Recent work at RBNZ suggested a number of improvements to the methodology, including the development of a more structured approach to stress testing, and using simulations to estimate probabilities of certain outcomes occurring (Hampton and Harrison, 2006). Preliminary results obtained from applying this different methodology to recent bank data suggest that the main conclusions of the FSAP are still valid. The New

⁴³ <http://www.stats.govt.nz/store/2006/06/household-economic-survey-yejun04-hotp.htm>.

Zealand banking system should be able to handle some inevitable deterioration of asset quality during a slowdown (caused, for example, by rising unemployment and stagnating or falling house prices) without major difficulties.

72. **The RBNZ is planning to make the stress tests an integral part of bank supervision.** The RBNZ intends to conduct comprehensive stress tests every one or two years, using several different models to ensure the robustness of results. The results of stress tests will be discussed with banks and published in the *Financial Stability Report* and other RBNZ publications. In addition, banks are expected to use the same models to conduct their own stress tests, in the context of the Basel II supervisory framework.

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