

New Zealand: Selected Issues

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NEW ZEALAND

Selected Issues

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Approved by Asia and Pacific Department

April 10, 2006

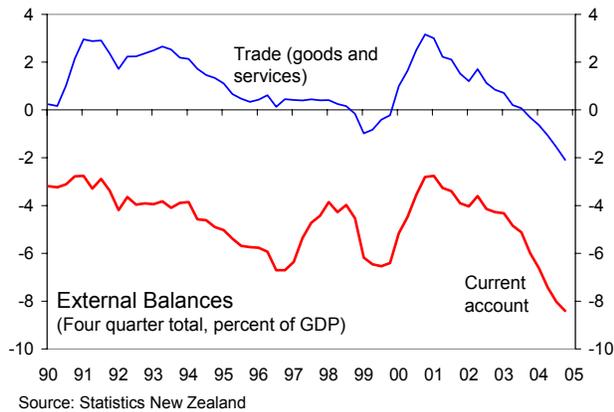
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I. RISING IMPORT PENETRATION IN NEW ZEALAND: IS IT JUST CYCLICAL?¹

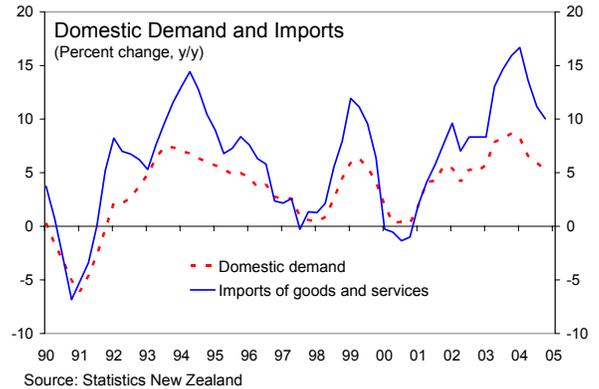
1. Import penetration in New Zealand has risen faster than usual in recent years.

The ratio of imports of goods and services to gross national expenditure (GNE) rose to 35.7 percent in the year ended September 2005, up from 32.3 percent in 2003, an increase 2 percentage points larger than implied by historical trends.² This unusually sharp rise in import penetration contributed to the substantial recent widening of the external current account deficit, which reached 9 percent of GDP in 2005. This chapter analyzes whether cyclical factors, including the large real exchange rate appreciation in recent years, can account for the rapidity of the recent rise in import penetration, or whether more lasting structural changes, such as the effects of globalization, may have played a role.

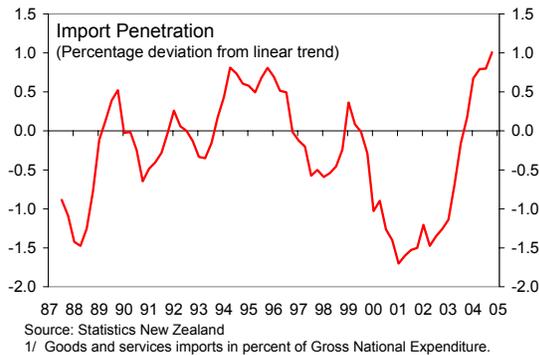
The trade balance was the main contributor to the wider external current account deficit in 2005...



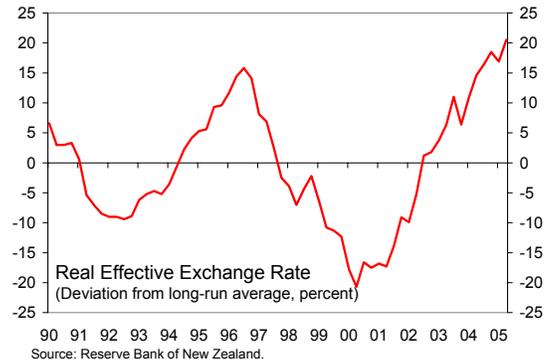
... reflecting strong domestic demand growth, but also rapid growth in imports relative to demand, as...



...import penetration rose more rapidly than usual in recent years, which may be related to...



...the substantial appreciation of real exchange rate, which in 2005 was 42 percent above its 2001 level.

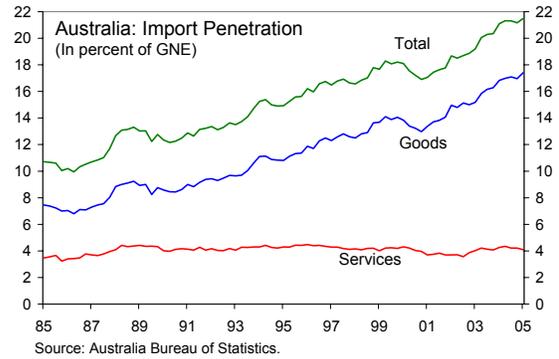
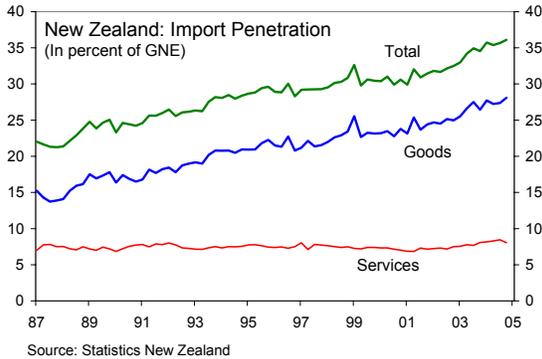


¹ Prepared by Craig Beaumont (Ext. 3-7411)

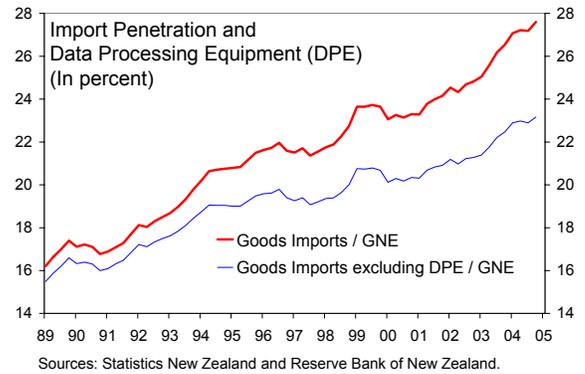
² Import penetration in this chapter is based on volume data as swings in the nominal exchange rate substantially affect measures based on current price data.

A. Import Penetration: New Zealand and International Developments

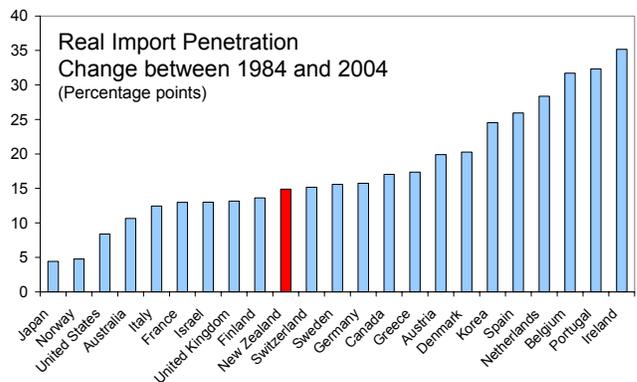
2. **The rise in import penetration in New Zealand has been concentrated on goods rather than services, in parallel with Australia.** Hence the remainder of the chapter focuses on imports of goods.



3. **Computer imports contributed substantially to the rise in import penetration.** Imports of data processing equipment have remained at 3 to 4 percent of total goods imports in nominal terms. However, in real terms they have risen from 1½ percent of imports in 1988 to over 20 percent by 2005, owing to large falls in the deflator for computers. As a result, the analysis focuses on imports of goods excluding data processing equipment. The recent rise in import penetration is smaller on this measure, with a rise from 21.4 percent in 2003 to 23.2 percent in the year ended September 2005, an increase 1 percentage point larger than implied by historical trends.



4. **Rising import penetration is a global development.** All advanced economies have experienced a rise in import penetration in the past 20 years, and New Zealand's rise is broadly typical. This suggests that the trend rise in import penetration in New Zealand mostly reflects developments that are shared with other countries rather than country-specific factors.



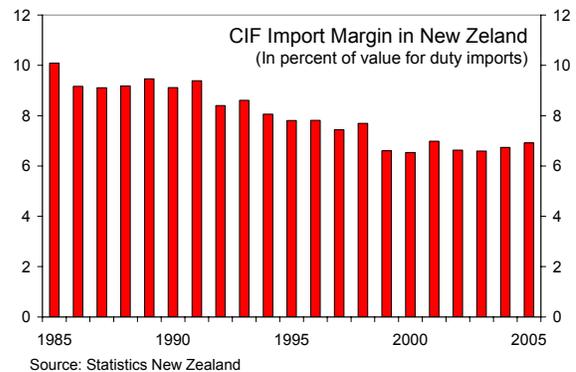
B. What Accounts for the Trend Increase in Import Penetration?

5. **Standard import models do not offer a satisfactory explanation of the trend rise import penetration.** In a traditional model, imports (m) depend on domestic income or expenditure (y) and the relative price of imports (p^m/p):

$$m = \alpha y - \beta (p^m/p) \quad (1)$$

Estimating such an equation on New Zealand data finds a long-run income elasticity of 1.5, which would require imports to systematically be luxury goods to an implausible degree. Income elasticities for imports estimated from household cross-section data are more plausible, e.g., 1.2 in Australia, according to Dark and Hawkins (2005).

6. **Declining costs of trade are likely a key factor underpinning the uptrend in import penetration.** Tariff barriers have been cut internationally and also in New Zealand, and transport has become more efficient through innovations like containerization. For example, international margins for cost, insurance and freight (CIF) fell from 12 percent of traded goods value in the 1950s to 5–6 percent in the early 1990s. Declines in the CIF margin have continued through the 1990s in New Zealand, perhaps benefiting from port reform. In addition, cheaper telecommunications have reduced search and other costs in using products from foreign rather than local sources. Coe *et al.* (2002) find declining distance coefficients in gravity model of trade, consistent with reduced costs of trade. Hence the traditional import equation may produce implausible estimates because the relative price data do not fully reflect the declining costs of trade.



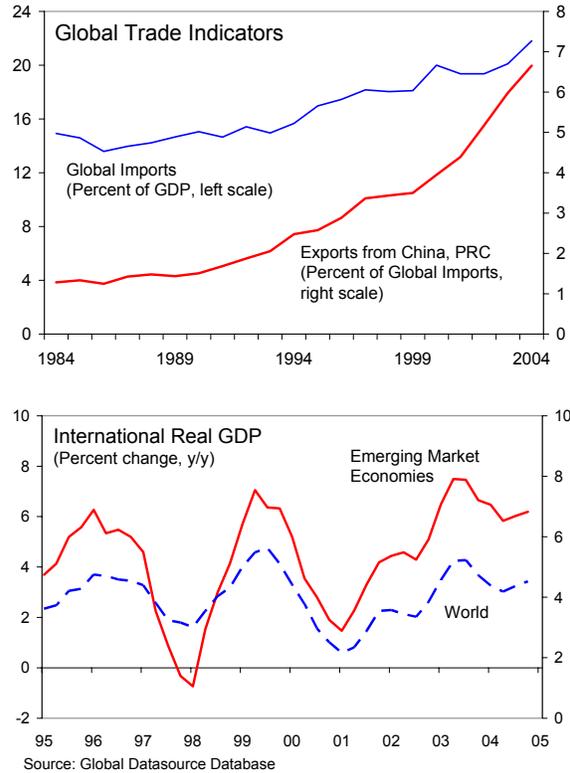
7. **Another explanation proposed for rising import penetration is the expanding supply capacity of exporters.** Fast growing countries are systematically found to have high income elasticities of demand for their products. To explain this “45-degree rule,” Krugman (1989) provides a model with product differentiation and increasing returns, such that an expansion in the variety of products produced by fast growing countries expands demand for their exports. The traditional import model is then augmented by a foreign variable (y^*):

$$m = \alpha_1 y + \alpha_2 y^* - \beta p^m/p \quad (2)$$

8. **Recent literature provides empirical support for export supply effects on imports.** Bayoumi (1999) includes growth in exporters’ GDP in import equations, estimating a coefficient of 0.8, and similarly Gagnon (2003) finds an export supply effect of 0.75, with both finding elasticities on domestic income that are more plausible than if foreign variables are excluded. Mann and Pluck (2005) instead use a measure of exporters’ product variety,

and find it to be a significant factor explaining import growth. For example, of 136 4-digit SITC categories for capital goods, China went from supplying 46 in 1980 to 125 in 2003. In this model the expansion in global trade relative to GDP, and the emergence of new exporters, are closely linked developments.

9. **Interestingly, the recent rise in import penetration in New Zealand has occurred during a period of relatively strong international economic growth.** This is suggestive of exporter supply effects on New Zealand imports. At the same time, strong international economic growth tends to be associated with a rise in New Zealand's terms of trade and an appreciation of the exchange rate that makes imports more price competitive. So further analysis is needed.



C. An Econometric Analysis

10. **Alternative specifications for the trend in import penetration merit consideration.** In the recent OECD international trade model, import equations are estimated under the restriction that the long-run expenditure elasticity is unity, while a deterministic trend is included to capture the long-term rise in import penetration (Pain, *et al.*, 2005).³ The New Zealand import equations discussed below are estimated with either deterministic trends, which are sometimes considered to represent the declining cost of trade, or variables to represent exporter supply:

$$m = \alpha_1 e + \alpha_2 y^* + \alpha_3 T - \beta(p^m/p^e) \quad (3)$$

Variables are in logs: m = imports of goods excluding data processing equipment
 e = gross national expenditure
 y^* = GDP of world economy or emerging market economies
 p^m = implicit price deflator, imports of goods excluding computers
 p^e = implicit price deflator, gross national expenditure
 T = deterministic trend (a log trend fits best)

³ The OECD import equations disaggregate expenditures into consumption, investment, and exports, but a similar decomposition was not found to improve the fit in these equations.

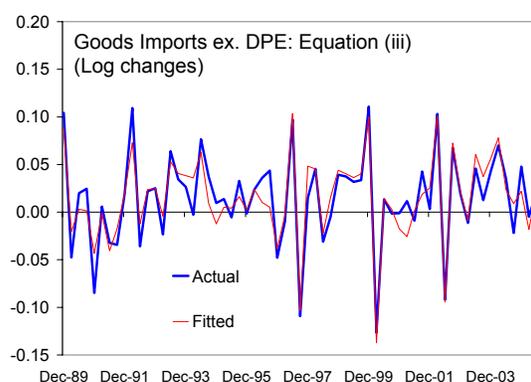
11. **The declining costs of trade and export supply effects may both underpin the uptrend in import penetration.** Table 1 presents the estimation results. All four alternative equations are cointegrated (applying the ECM t-test to the t-statistic on m_1). In addition to the levels variables in (3), domestic expenditures were found to have a distributed lag effect on imports.⁴ The equations had the following properties:

(i) The traditional import equation, without a deterministic trend, had a long-run domestic expenditure elasticity of 1.52 (0.919/0.606) and relative import prices had no effect.

(ii) Including a deterministic trend led to an improvement in the fit and in the plausibility of the parameters. The long-run expenditure elasticity is estimated at 1.06, and the long-run elasticity on the relative price of imports of -0.12 is statistically significant.

(iii) The restriction that the long-run expenditure elasticity is 1 was not rejected ($P=0.478$), and with this restriction, the long-run relative price elasticity of -0.14 is slightly larger.

(iv) Using world GDP instead of the deterministic trend reduced the fit only slightly.⁵ The long-run parameter on world GDP is estimated at 0.69, close to the estimates reported above in models



including export supply effects. In practice, world GDP trends very smoothly, and the supply effect on imports may be spread over time. Hence the deterministic trend in equation (iii) may capture a combination of effects from rising export supply and declining trade costs.

12. **Statistical tests do not signal that the recent rise in import penetration reflects a structural shift.**⁶ To test whether the recent increase in import penetration could reflect a structural change, a piecewise trend is added, composed of two variables: a dummy (D) that is 1 from 2003Q3 but 0 before; and a log-trend beginning at the same time (D*T). The starting date is chosen to match the beginning of the recent increase in import penetration. The joint restriction that the coefficients on these added variables are 0 was not rejected

⁴ Three dummies are included owing to one-off rises in imports of over 10 percent in 1997Q2, 1999Q4, and 2002Q1, which may reflect imports of vessels and aircraft.

⁵ Equations with emerging market GDP rather than world GDP were also estimated, but fit notably less well. Nonetheless, the trend rise in import penetration has been associated with an uptrend in the import share of North East Asia (China, HK SAR, Taiwan POC, and South Korea) and ASEAN countries from 8 percent in 1984 to 27½ percent in 2004.

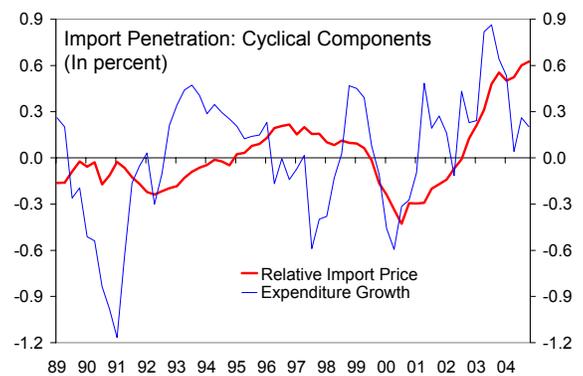
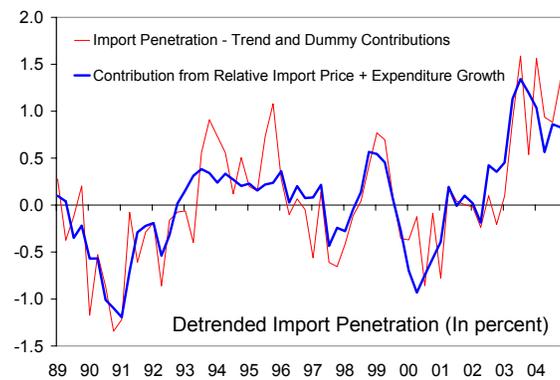
⁶ A range of standard specification tests were not statistically significant, and they are not reported.

($P=0.149$). A standard out-of-sample stability test was also conducted, using projections for 12 quarters, 2002Q4 to 2005Q3, with coefficient instability rejected ($P=0.673$).

13. **While the estimated elasticity on import prices is small, the relative price of imports has declined substantially.** The long-run relative price elasticity of -0.14 is small compared with the OECD estimates for other countries, which are mostly in the -0.3 to -0.6 range, with only two countries found to have relative price elasticities smaller than -0.2 (Austria and Denmark). Nonetheless, the relative price of imports (goods excluding computers) has fallen by almost one-quarter since 2001, largely reflecting the appreciation of the New Zealand dollar.



14. **Hence cyclical factors can explain much of the recent increase in import penetration relative to trend.** The trend is estimated to contribute 0.4 percentage points to import penetration each year. The 1 percentage point rise on top of this trend in the two years ended 2005Q3 is well accounted for by the combined effect of high domestic expenditure growth and declines in the relative price of imports. The estimated effect of high domestic expenditure growth was especially strong in the year to September 2004, lifting import penetration by 0.6 percentage points on average, but this effect was largely unwound in 2005. The decline in relative import prices boosted import penetration by an estimated 0.5 percentage points in the year to September 2004, and by 0.6 percentage points by the year to September 2005.⁷ Part of the fall in relative import prices could be structural, e.g., owing to the impact of China's emergence on global prices manufactures. Nonetheless, the bulk of the decline appears to reflect the appreciation of the New Zealand dollar in 2002–05, a swing which has been broadly consistent with previous currency cycles.



⁷ While the equation under predicts import penetration in 2005, the under prediction is well within the normal standard error, and recent data show a 4 percent decline in goods import volumes in 2005Q4.

15. **As the economy cools, import penetration is likely to flatten in 2006–07.** With demand slowing and the exchange rate declining in late 2005 and early 2006, a reversion to trend in import penetration can be expected according to this model. If, for example, the relative price of imports rose by 20 percent, to be at average levels over the sample, import penetration would decline 0.6 percentage points relative to trend, although the level of import penetration would fall only modestly given the steady trend increase in recent decades.

16. **Nonetheless, some structural increase in import penetration could arise if recent high investment rates are sustained as the economy slows.** Rising plant and machinery investment has been a major contributor to the rise in overall goods import penetration in recent years. Excluding the 86 percent measured increase in real computer investment, there has been a 25 percent increase in non-computer equipment investment in the past two years. It is not yet clear whether this increase is a typical cyclical development or the early phase of a shift to more capital intensive production technologies. Given the high import intensity of non-computer equipment investment (about 50 percent), a change in the trend level of such investment would have a lasting effect on import penetration.

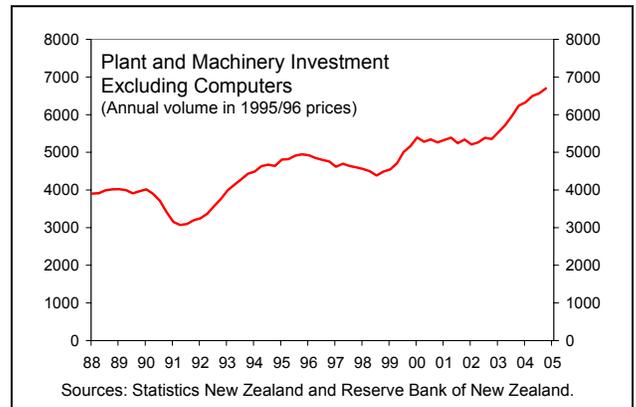


Table I.1: ECM Models of Goods Imports				
Sample: 1989Q4–2005Q3; Observations: 64; (t-statistics)				
Dependent: Δm	Excluding Deterministic Trend (i)	Including Deterministic Trend (ii)	Long-Run Expenditure Elasticity Restricted (iii)	World GDP Included (iv)
m_{-1}	-0.606 (-6.3)	-0.885 (-9.2)	-0.877 (-9.2)	-0.793 (-8.6)
e_{-1}	0.919 (6.1)	0.936 (7.5)	0.877	0.793
$(p^m/p^e)_{-2}$	-0.001 (-0.0)	-0.107 (-2.5)	-0.122 (-3.3)	-0.093 (-2.4)
T	...	0.407 (5.1)	0.449 (8.3)	...
y^*_{-1}	...	...	...	0.544 (7.6)
Δe	1.503 (6.6)	1.196 (6.1)	1.152 (6.2)	1.327 (6.9)
$\Delta e_{-1} + \Delta e_{-2}$	0.383 (2.5)	0.558 (4.3)	0.566 (4.3)	0.632 (4.5)
Δe_{-3}	0.439 (2.1)	0.764 (4.2)	0.794 (4.5)	0.722 (4.0)
Intercept	-4.164 (-5.1)	-3.392 (-5.0)	-2.997 (-7.5)	-3.328 (-7.1)
Dummies (1,-1) are included in 3 quarters when imports rose over 10% followed by a fall of a similar magnitude in the next quarter.				
		1997Q2: 0.048 (3.1)	1999Q4: 0.069 (4.8)	2002Q1: 0.036 (2.4)
R^2	0.788	0.858	0.857	0.843
S.E. (%)	2.38	1.96	1.95	2.04
D.W.	2.24	2.14	2.12	2.17

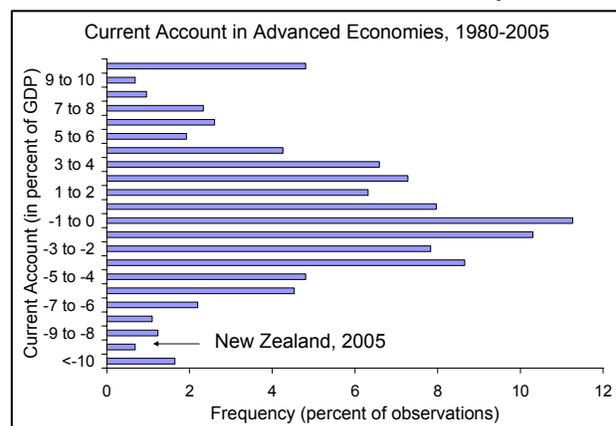
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II. IMPLICATIONS OF THE CURRENT ACCOUNT FOR MACRO STABILITY IN NEW ZEALAND⁸

1. The current account deficit poses no immediate threat to macro stability in New Zealand, but risks have increased.

In comparison to all advanced economies over the past 25 years, New Zealand's current account deficit is unusually high (Chart). The empirical literature on sharp current account reversals suggests that the economic situation in New Zealand displays many of the factors that contributed to sharp reversals in other countries. Macroeconomic developments also have some similarities with those in Finland and Sweden before they



experienced severe recessions in the early 1990s. Moreover, imbalances in New Zealand at present are larger now than they were in 1997, the last time there was a significant correction in the current account balance. Nonetheless, the international experience points to a robust financial system as being a key element in achieving a smooth and orderly adjustment of the current account, and New Zealand's healthy banking sector should ensure a soft landing.

A. What Does the Literature Tell Us About New Zealand's Current Account Deficit?

2. **Economic theory is unclear on whether current account deficits are a cause for concern.** Current account deficits caused by persistent fiscal deficits ("twin deficits") are usually considered undesirable, because they reflect an unsustainable fiscal policy. It is less obvious that private sector-led current account deficits are undesirable, because these deficits reflect decisions of private agents. Problems could nonetheless arise if the decisions of private agents lead to deviations from fundamentals (if, for example, there is an asset price bubble), or if mounting external debt leaves the country excessively exposed to external shocks (e.g., to export demand or the terms and availability of financing).

3. **Quantifying the optimal level of the current account deficit is a difficult exercise.** Sachs (1981) formalized the idea that a current account deficit can be optimal because it reflects unusually good investment opportunities or a country smoothing consumption when a negative shock hits. Sheffrin and Woo (1992) quantified the optimal level of the current account deficit. Their methodology was subsequently applied to numerous countries (Obstfeld and Rogoff, 1995 and 1996 survey the early literature; Hall, Kim, and Buckle, 2001 apply the methodology to New Zealand). The estimated optimal current account

⁸ Prepared by Benoît Mercereau (Ext. 3-4986).

“benchmarks” tend to be very imprecise, however, and they are therefore not a reliable basis for assessing whether a country’s current account deficit is excessive (Mercereau and Miniane, 2004).

4. **Cross-country studies shed light on whether current account deficits signal problems.** Current account deficits have been used as an early warning indicator for currency crises in emerging markets (see, e.g., Kaminsky and Reinhart, 1999). Other studies, following Milesi-Ferretti and Razin (1998), assess whether sharp reversals follow large current account deficits and, if so, what factors make such reversals more likely and more costly. Milesi-Ferretti and Razin (1998) use two criteria to define a current account reversal: (i) the average reduction in a current account deficit is at least 3 percent of GDP in the three years after the reversals compared to the three years before; and (ii) the maximum deficit after the reversal must be no larger than the minimum deficit in the three years preceding the reversal (this second criterion is to ensure that the reversal is permanent rather than temporary). Other studies use similar criteria to define a current account reversal. Box 1 lists these studies and their coverage.

Box II.1. Cross-country Studies Investigating Current Account Reversals.

Milesi-Ferretti and Razin (1998): 86 low- and middle- income countries, 1971–92.
Edwards (2004, 2005): 157 countries, 1970–2001.
Freund (2005): 25 industrial economies, 1980–97.
Freund and Warnock (2005): OECD countries, 1980–2003.
Debelle and Galati (2005): 21 industrial countries, 1974–2003.
Croke et al. (2005): industrial countries.
Adalet and Eichengreen (2005): industrial countries, 1880–1998.

5. **Some factors tend to increase the probability of a current account reversal.** Table II.1 summarizes the results found by the empirical studies listed in Box II.1. Larger current account deficits and higher levels of external debts seem to increase the probability of a reversal. Higher deficits or debt levels are seen as leaving a country more vulnerable to external shocks (though Debelle and Galati (2005) find that larger current account deficits do not increase the risk of reversal). Greater openness to trade seems to increase the probability of a reversal, while higher reserves seem to reduce it. More open economies might be more vulnerable to external shocks, while higher reserves might reduce the risk of financing withdrawals, especially in emerging markets. Higher international interest rates are associated with a higher probability of reversals. Higher international interest rates might redirect capital flows away from indebted countries and increase their debt service. More advanced economies are not less subject to reversals, and rates of economic growth, both domestic and worldwide, do not have a consistent impact on the probability of reversal. Surprisingly, larger fiscal deficits do not increase the probability of reversal. There is also no evidence that an appreciated exchange rate increases the probability of reversals. These two

results suggest some potential problems in the way the various models and explanatory variables are specified.

<i>Type of economies</i>	Low-middle income	All	High income				
<i>Variables¹</i>	Milesi-Ferretti Razin	Edwards	Freund	Debelle Galati	Adalet Eichen-green	Consensus	Increased risk for NZL ?
CA deficit	+	+	+	ns	+	+	Yes
Trade openness	+				+	+	Yes
Reserves	-	-				-	?
GDP per capita	+	ns			-	?	
Fiscal deficit	-		ns		+	?	
OECD growth	+			-	+	?	
U.S. interest rates	+			+		+	Yes
External debt/GDP		+				+	Yes
Appreciated REER			ns	ns		?	
GDP growth			+	ns	-	?	
Sudden stop		+				+	Yes

« + » means « significantly increases the probability of a reversal ».
« ns » means « not significant ».

1/ Only variables which appear in more than one study or which have a non-ambiguous impact are included in the table.

6. **Current account reversals tend to have a negative impact on GDP growth, and some factors exacerbate this impact.** Larger current account deficits and a more appreciated exchange rate increase the cost of reversal, while higher trade openness reduces it (Table II.2). Larger current account deficits might reflect that a larger adjustment is necessary (though Debelle and Galati (2005) also find that larger current account deficits do not increase the likelihood of a reversal). A more appreciated real effective exchange rate might signal greater misalignment with economic fundamentals. More open economies can rely more on trade rather than a domestic demand contraction to adjust. Surprisingly, neither a healthy fiscal position nor a more flexible exchange rate seem to reduce the cost of a reversal. More open capital accounts, which leave the country more subject to rapid capital outflows; higher GDP growth before the adjustment, which could reflect overheating; and higher international interest rates, which increase debt service, do not seem to increase the cost of reversal either.

Table II.2. Determinants of the Growth Impact of a Reversal

<i>Type of economies</i>	Low-middle income	All	High income					
<i>Variables¹</i>	Milesi Ferretti Razin	Edwards	Freund	Debelle Galati	Adalet Eichen-green	Croke et al.	Consensus	Increased impact for NZL ?
CA deficit ²			+	ns	+	+	+	Yes
Trade openness	-	-					-	No
Fiscal deficit					+	ns	?	?
U.S. interest rates				+	ns		?	?
External debt/GDP						ns	?	?
Large investment	-					+	?	
Appreciated REER	+				+		+	Yes
GDP growth				ns		+	?	
Capital-controls		ns			-		?	
Flexible exchange rate		-			ns		?	?

« + » means « significantly increases the cost of a reversal ».
« ns » means « not significant ».

1/ Only variables which appear in more than one study or which have a nonambiguous impact are included in the table.
2/ Trade deficit in Adalet and Eichengreen (2005).

7. **Many of the factors identified as increasing the cost of a reversal are at play in New Zealand.** New Zealand current account deficit is high; the real effective exchange rate is significantly above historical average; and the economy is relatively closed.⁹ Nonetheless, one would expect New Zealand’s healthy fiscal position and flexible exchange rate to help

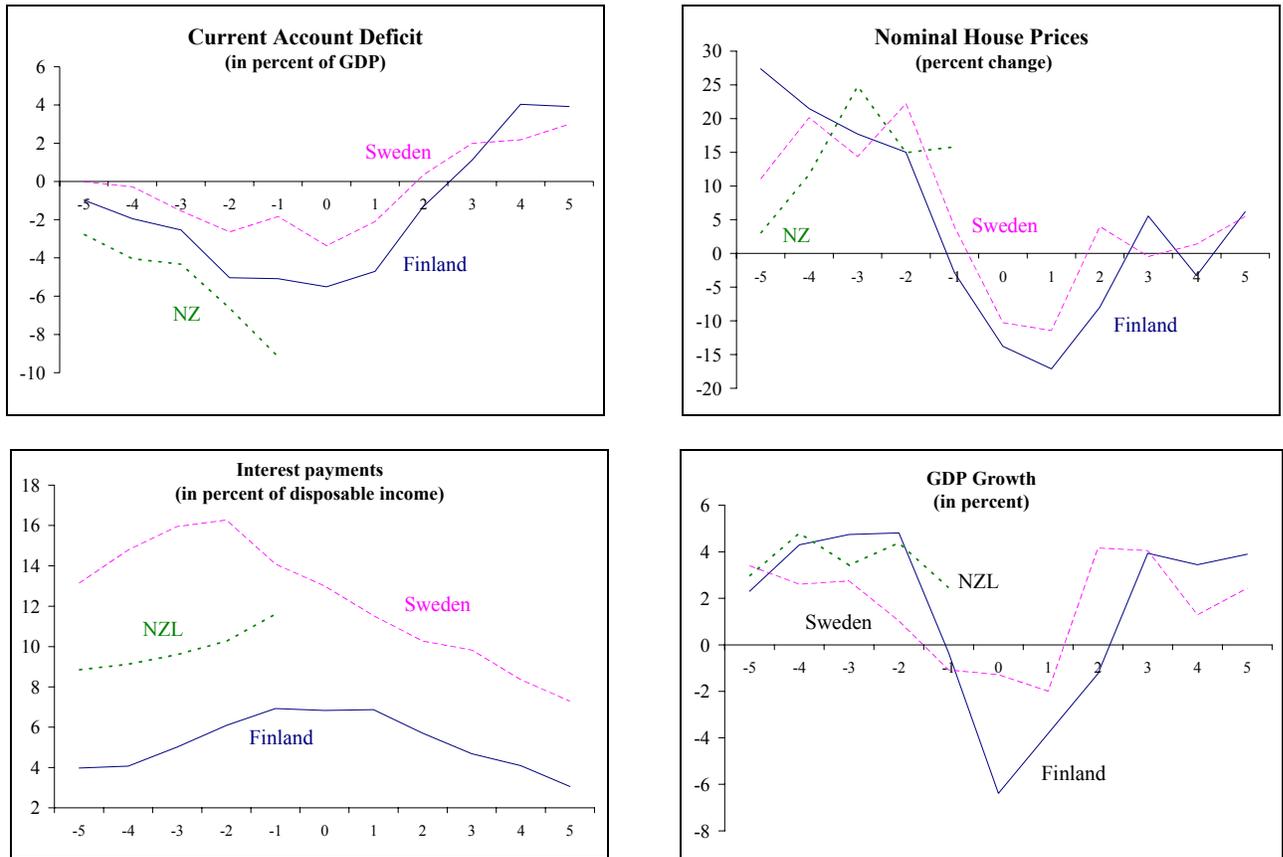
⁹ New Zealand ranks 19th out of 30 OECD countries for openness, and the relative lack of openness in the economy is even larger when adjusting for the size of the economy. New Zealand’s openness is about 60 percent against about 150 percent for European countries of similar size, such as Ireland or Belgium. This measure of trade openness may understate the openness of the New Zealand economy however, because the country’s exports tend to have high domestic value-added and low import content.

cushion the impact of a potential reversal on GDP growth, despite the fact that the empirical literature does not offer strong evidence supporting this intuition.

B. Do the Recessions in Finland and Sweden in the Early 1990s Carry Lessons for New Zealand?

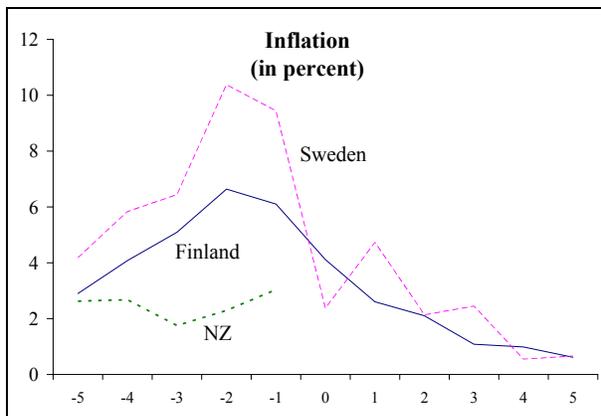
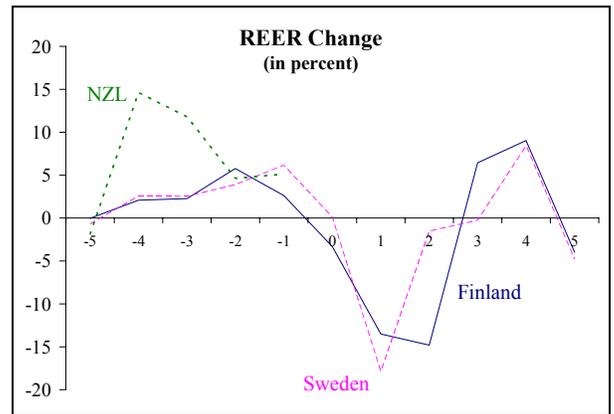
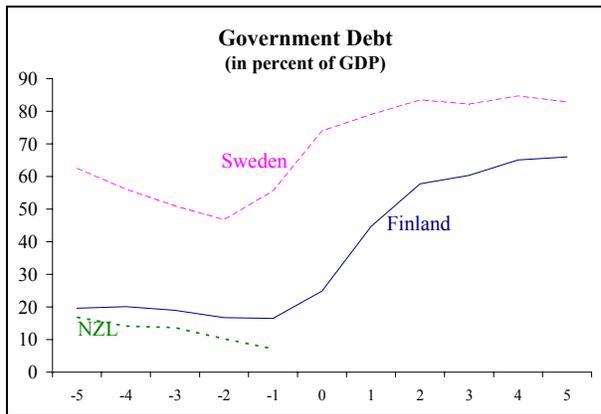
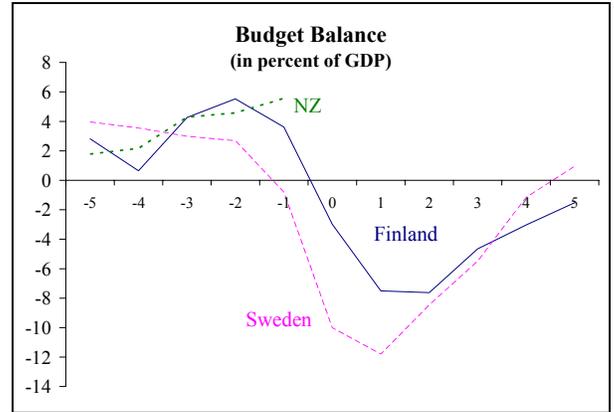
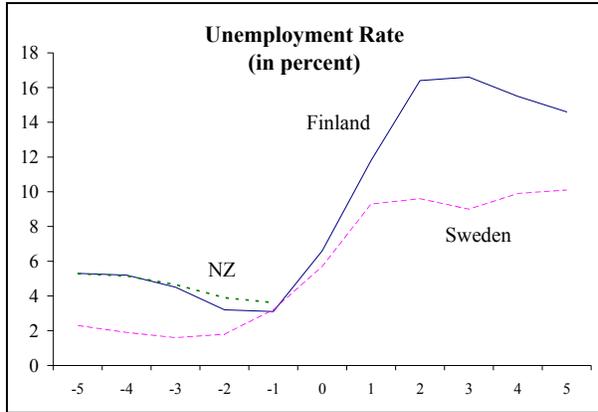
8. **Macroeconomic fundamentals in New Zealand in 2005 were similar to those in Finland and Sweden before their recessions in the early 1990s** (Figure II.1). Current account deficits were widening in all three countries. Housing booms played a key role in these deficits, as the booms encouraged increasing borrowing. Household saving rates fell, and household debt rose sharply, increasing their debt service burden. Buoyant domestic demand contributed to strong GDP growth and the unemployment rate fell below 2 percent in Sweden and below 4 percent in Finland. Strong growth helped generate positive fiscal balances, and government debt fell steadily. Inflation also picked up as resources in the economy became stretched. The real exchange rate appreciated, as a result of strong capital inflows and rising inflation, but a major difference was that Finland's and Sweden's nominal exchange rates were pegged.

Figure II.1. Finland 1991 and Sweden 1992 vs. New Zealand 2005 1/



1/ Year 0 on the horizontal axis corresponds to the peak in current account deficits in Finland (1991) and Sweden (1992), and to 2006 for New Zealand.

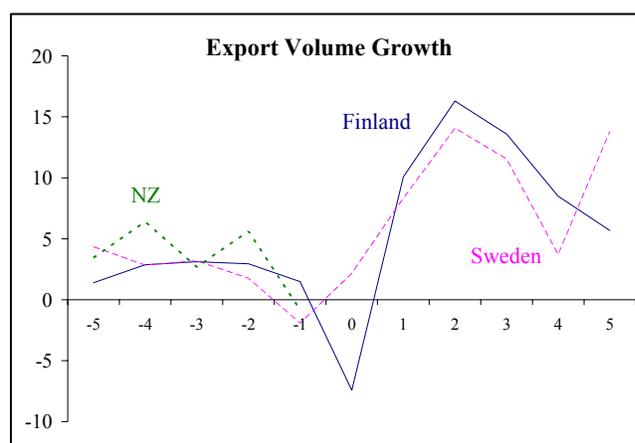
Figure II.1. Finland 1991 and Sweden 1992 vs. New Zealand 2005 (Concluded)



9. **Finland and Sweden experienced severe recessions during which their current account balances swung from deficit to surplus.**¹⁰ House price and GDP growth started declining in Finland in 1990 and in Sweden in 1991. Sweden started raising interest rates in 1990 partly as a result of insufficiently tight fiscal policy. German unification and the subsequent increase in German interest rates forced Finland and Sweden to further raise interest rates in 1991–92 to defend their currency, until sustained speculative attacks forced devaluations of both currencies. Consumption and investment dropped as economic confidence plummeted (investment fell 15 and 20 percent annually on average during 1991–93 in Sweden and Finland, respectively). Imports fell as a result, and exports boomed, helped notably by the countries negotiating EU membership at the time. The current account balances improved, but the economies remained in recession for three years (output dropped by an overall 14 percent in Finland).

10. **Financial sector health is probably key in avoiding a severe economic recession.** Both Finland and Sweden had liberalized their financial sector in the years preceding the crisis. While household credit grew rapidly as a result, lending to corporations increased even faster in Sweden. It was therefore not clear that the resulting current account deficit was unhealthy, as it also reflected high levels of business investment. Yet, it turned out that banks had extended loans too aggressively as a result of inadequate financial regulation and over-aggressive competition to gain market shares. Finland and Sweden both experienced a banking crisis in the early 1990s. The turmoil in the banking sector probably contributed to a sharp fall in confidence and in lending, adding to the fall in economic activity. In contrast, the recent FSAP stressed that New Zealand’s financial system is robust. The country seems therefore better prepared to achieve a smooth current account adjustment than Finland and Sweden in the early 1990s.

11. **The sharp rebalancing that occurred in Finland and Sweden mostly reflected domestic factors, although external shocks helped trigger the adjustment.** External shocks hit Sweden and Finland in the early 1990s, but their overall impact on GDP growth was probably limited. European interest rates increased in the early 1990s, but Finland and Sweden eventually loosened monetary policy. Finnish interest rates, which were 7 percent higher than Germany’s in 1992, had fallen near German levels by 1993. Swedish interest rates fell to their lowest in over a decade in 1993. Consequently, interest payments by households fell quickly. Through significant trade links, the collapse of the Soviet Union



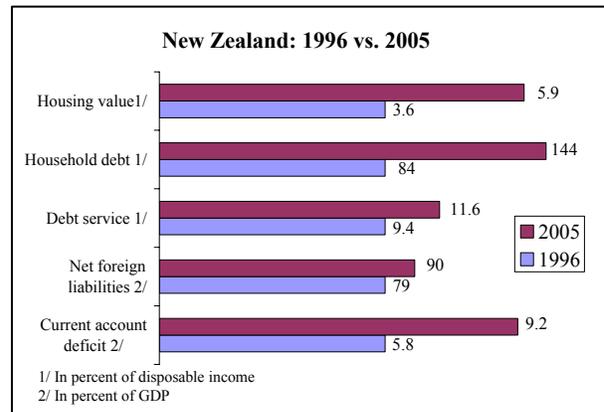
¹⁰ The analysis in this paragraph draws on Englund (1999) and Honkapohja and Koskela (1999).

also hit Finland. The overall impact on the economy was small, however. Exports to the Soviet Union, which represented 15 percent of total, fell 70 percent in 1991. But Finnish total exports grew 6.7 percent annually on average in 1991–93, so that export levels were back to pre-Soviet collapse levels within less than two years and kept growing fast afterwards. Honkapohja and Koskela (1999) estimate that the overall cost for the economy was at most 2 percent of GDP, even allowing for large multipliers.

12. **A significant economic slowdown can have large fiscal and employment costs.** The recessions in Finland and Sweden had a large and persistent impact on fiscal positions and unemployment. While positive before the reversal, budget balances turned largely negative afterwards, as revenue fell and expenditure (notably social spending) increased (Figure II.1). Government debt increased by about 40 percent of GDP in both countries.¹¹ Unemployment rates, which had been remarkably low, increased to nearly 10 percent in Sweden and over 15 percent in Finland and remained at such levels for several years. The lessons from the Finnish and Swedish cases are that positive fiscal balances can prove fragile when a severe recession settles in; and that ex-ante well-functioning labor markets can prove persistently dysfunctional under great economic stress.

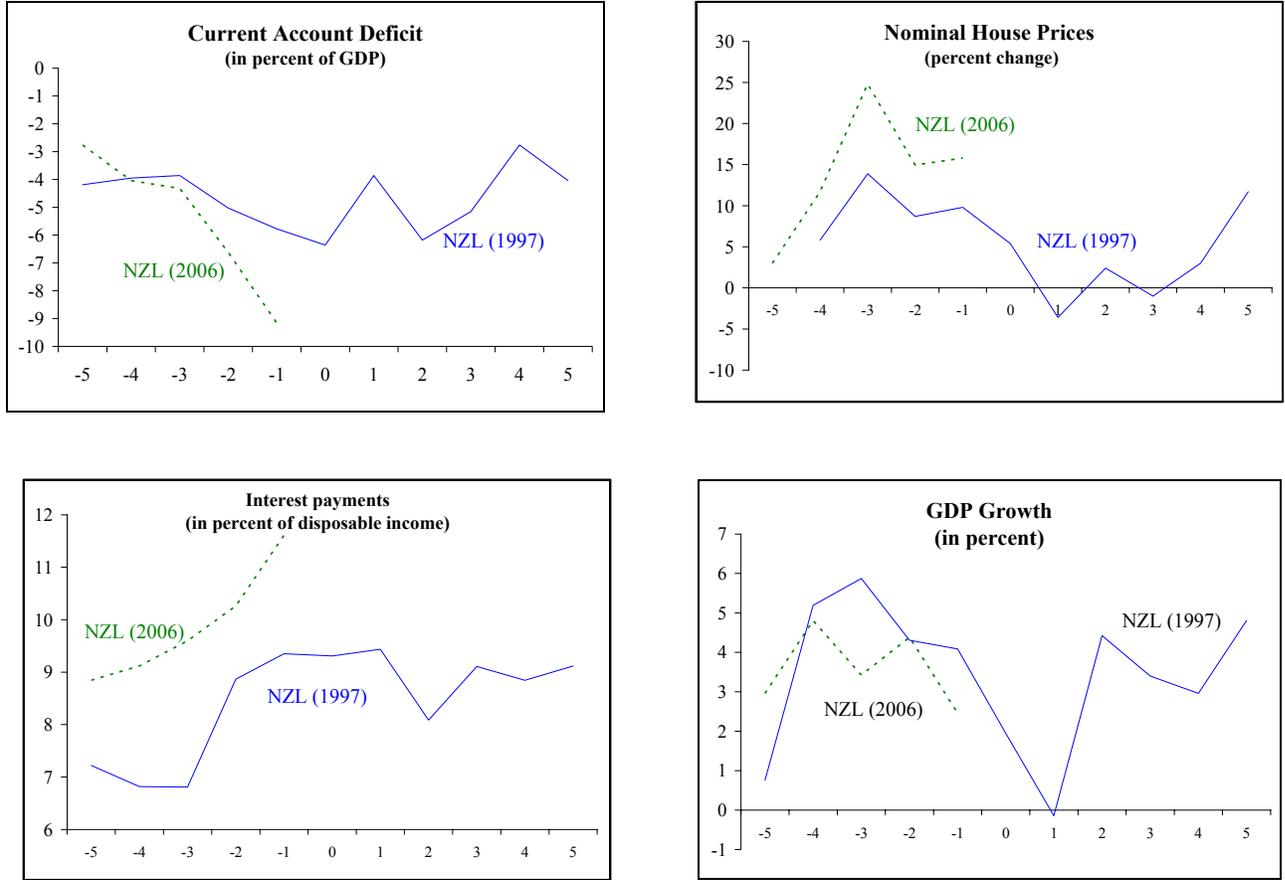
C. Is New Zealand 2005 Similar to New Zealand 1997?

13. **The economic settings in 1997 and 2005 have some similarities** (Figure II.2). In both years, GDP growth was strong; house prices, household debt, and interest payments were rising; unemployment was low; and the government was running fiscal surpluses. The currency was also appreciating and the current account deficit widening. In 1997, the Asian crisis, combined with sharp monetary tightening, triggered a brief recession and a current account adjustment. The near-term probability of a similar strong external shock occurring is not clear. However, New Zealand's imbalances in 2005 were larger than in 1997. Housing value and household debt have risen significantly compared to disposable income. Debt service and net foreign liabilities have also increased. Moreover, the current account deficit is now larger. All of these developments would tend to make the economy more vulnerable.



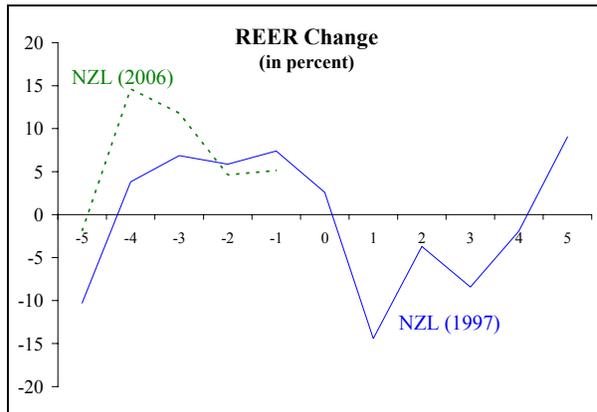
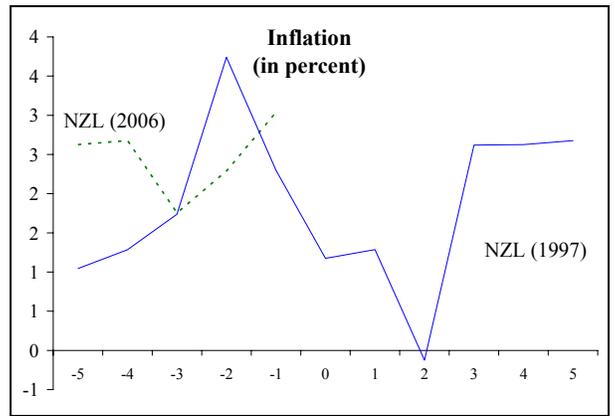
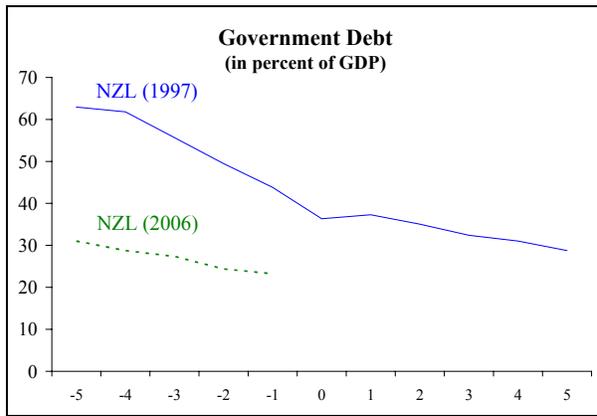
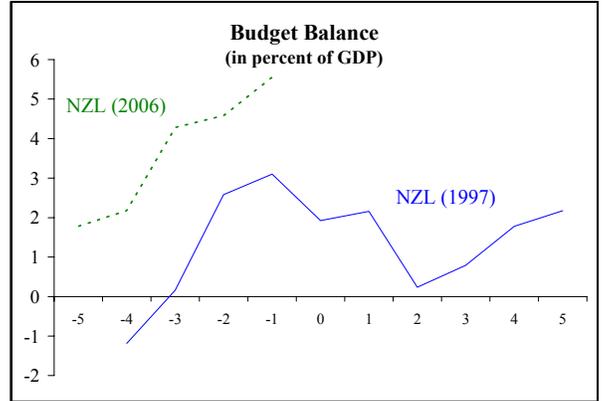
¹¹ Englund (1999) reports that the direct fiscal cost of the banking crisis in Sweden was about 2 percent of GDP. Most of the increase in public debt therefore corresponds to the cost of recession.

Figure II.2. New Zealand 1997 vs. New Zealand 2006 1/



1/ Year 0 on the horizontal axis corresponds to 1997 (the peak in current account deficit) for “New Zealand 1997” and to 2006 for “New Zealand 2006”.

Figure II.2. New Zealand 1997 vs. New Zealand 2006 (Concluded)



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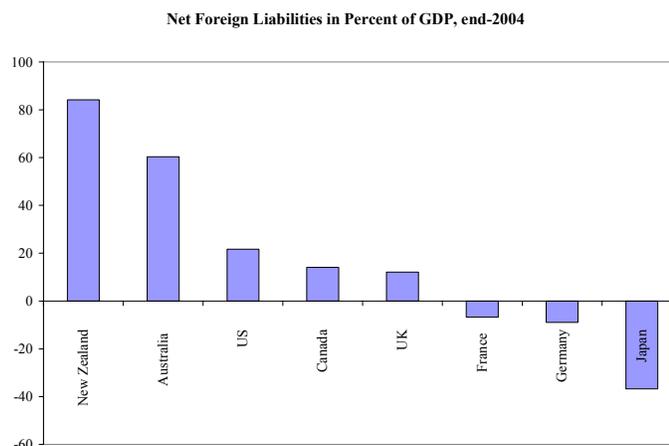
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III. ECONOMIC VULNERABILITIES: LOOKING AT SECTORAL BALANCE SHEETS¹²

A. Overview

1. **An examination of New Zealand's economic vulnerabilities is timely given the recent widening of the current account deficit.**

New Zealand's net foreign liabilities have been high relative to other advanced economies since the early 1990s. The current account deficit reached 9 percent of GDP in 2005, and net external liabilities increased to 90 percent of GDP. So far, high foreign liabilities have not become a source of instability, because foreigners have been willing to finance the current account deficit. However, the willingness of foreigners to do this in



the future depends on their assessment of ability of New Zealand borrowers to repay their debts. Since these are mostly private borrowers, the level of risk to financial stability from high external liabilities depends not only on macroeconomic factors, but also on the health and soundness of the private entities that created those liabilities in the first place.

Table III.1. New Zealand: Key External Vulnerability Statistics

	1993 Mar.	1998 Mar.	2002 Mar.	2003 Mar.	2004 Mar.	2005 Mar.	2005 Dec.
	(In percent of GDP)						
Current account (annual)	-3.6	-5.4	-3.3	-3.6	-4.8	-7.4	-8.8
Net foreign liabilities	88.3	88.0	79.5	77.4	78.6	82.7	88.6
Gross external debt	78.4	84.3	113.5	109.6	107.2	111.6	107.0
<i>Of which :</i>							
Local currency denominated	...	45.4	54.3	57.2	54.2	55.2	54.3
Short-term (residual maturity)	...	39.6	60.2	52.9	52.3	56.8	54.4
Official government	...	20.1	16.1	13.6	13.1	11.6	11.7
Foreign-currency denominated external debt	...	38.9	59.2	52.5	53.0	56.4	52.6
Share of which hedged (in percent)	...	94.9	94.4	89.0	87.9	87.0	...
	(Annual percentage growth)						
Export volumes	3.1	3.9	3.2	7.8	1.6	3.9	-0.2
Import volumes	7.0	2.6	4.2	7.0	13.0	13.6	6.5
Terms of trade	0.9	-2.0	3.1	-1.9	6.0	4.6	1.1
Real effective exchange rate (1990=100)	...	122.1	103.1	119.8	129.5	138.2	139.6

Sources: Statistics New Zealand; and Fund staff estimates.

¹² Prepared by Dmitry Rozhkov (Ext. 3-9745).

2. **This chapter looks at New Zealand's vulnerabilities from two angles.** It first evaluates the external position of the country, and then assesses the health and soundness of various sectors of the economy (banks, other lending institutions, corporate sector, and households) by looking at their balance sheets and the key vulnerability indicators.

3. **Overall, New Zealand does not appear to face major vulnerabilities, but the household sector has likely become more sensitive to shocks.** Foreign currency exposure is small because about half of external debt is denominated in domestic currency and almost 90 percent of the remaining foreign currency debt is hedged. While about half of external debt is short-term, liquidity risks are contained as highly-rated banks are the predominant borrowers, and a substantial share of external loans are from the foreign owners of banks and corporations. Banking and corporate sector balance sheets remain strong and have proven in the past to be resilient to large swings in exchange rates and interest rates. Household balance sheets appear strong in aggregate, but overall debt service burdens are high by historical standards. A significant rise in interest rates or unemployment could strain the finances of those households with high debt service burdens, but stress tests indicate that the financial sector is well-placed to weather such pressures.

B. External Position

4. **Net foreign liabilities edged up in 2005, but remain below earlier peaks.** Net foreign liabilities increased from 80 percent of GDP at end-March 2003 to 89 percent at end-December 2005, the same level as during most of the 1990s. Gross external debt increased from 83 percent of GDP at end-March 1997 to 115 percent at end-March 2001, and has since declined slightly to 107 percent at end-December 2005 (Table III.6).¹³ Banks account for a growing proportion of external debt, as their external debt more than doubled from 25 percent of GDP at end-March 1997 to 65 percent at end-March 2005, and they now account for 58 percent of total gross external debt.

5. **While about half of external debt is short-term, liquidity risks are contained by a number of factors.** In December 2005, 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 C) and the high share of external debt owed to related parties. As of 2000 (the latest year for which data are available), almost 60 percent of external debt was owed to related parties, primarily the owners of the major banks and foreign-owned corporations.

6. **Foreign currency risks are also limited.** The foreign currency component of external debt has declined to 49 percent of total debt at end-December 2005, after peaking at 59 percent at end-March 2001. The risks from foreign currency exposure are mitigated by a substantial degree of foreign exchange hedging, according to an official survey covering

¹³ Data from 2001 are not fully comparable to earlier data due to methodological changes.

nearly all foreign currency debt.¹⁴ Of the foreign currency debt covered by the March 2005 survey, 87 percent had been hedged through natural hedges or financial derivatives (Table III.7). The market for hedging instruments appears to be reasonably deep and has proven to be rather resilient, given the large swings in the value of the New Zealand dollar over the years.

C. Sectoral Balance Sheets

Banking Sector

7. **New Zealand's banking sector continues to perform strongly.** The banking system is concentrated, with four Australian-owned banks holding 85 percent of total assets. The banks are well capitalized, maintaining total capital adequacy ratios above 10 percent, and tier-one capital averaging 8½ percent of risk-weighted assets.¹⁵ The asset quality of the banking system has improved over the last five years, with the ratio of impaired assets to total assets decreasing from 0.6 percent in 2001 to 0.2 percent in 2005, well below levels in other developed countries. Efficiency indicators have also improved, with cost-to-income ratio decreasing from 66 percent in the late 1990s to 47 percent in 2005. Banks remained solidly profitable in the year ended March 2005, with an aggregate return on assets of 1.1 percent, even in the face of continued competitive pressure on lending margins. The overall strength of the banks in New Zealand is reflected in their ratings by the independent credit rating agencies; the four largest banks each have credit ratings of AA-.¹⁶

8. **Some deterioration in bank asset quality can be expected as the economy slows in the near term, but that should not cause stability concerns.** Exposure of banks to residential mortgages has increased since 2001, but that should not create problems for stability, due in particular to banks' conservative lending practices. Banks' average loan-to-value (LTV) ratios are about 60 percent, and most lending with an LTV ratio over 80 percent is covered by mortgage insurance. Mortgages also have features that forestall foreclosure in case of temporary income reductions or unemployment, reducing risks to collateral values. More recently, banks have begun using new higher-risk lending products, such as "low doc" and "100 percent" loans, but appear to be using these products selectively, and at appropriate interest margin for additional risk.

¹⁴ Hedging information is collected by Statistics New Zealand from a survey of corporations. In 2005, the survey covered 87 percent of foreign currency debt.

¹⁵ 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.

¹⁶ New Zealand banks are required to have credit ratings independent of their foreign parents.

III.2. New Zealand: Banks' Financial Soundness Indicators									
End of March Year	1997	1998	1999	2000	2001	2002	2003	2004	2005
<i>Assets composition</i> (in share of total) 1/									
Financial investments	16.0	17.6	16.3	17.5	22.0	19.5	18.2	16.2	16.6
Residential mortgage loans	40.1	37.1	39.6	37.6	34.7	36.2	37.2	40.9	43.2
Other lending	37.8	36.2	37.5	37.9	36.9	38.5	38.3	36.8	34.4
Other assets	6.1	9.2	6.5	7.0	6.5	5.8	6.4	6.1	5.7
<i>Asset quality</i>									
Impaired assets (percent of total lending)	0.69	0.59	0.52	0.42	0.57	0.39	0.32	0.16	0.17
Specific provisions (percent of impaired assets)	36	32	41	38	25	28	34	45	36
<i>Profitability indicators</i> (percent, year average)									
Lending Margin	2.7	2.7	2.6	2.4	2.3	2.3	2.6	2.5	2.5
Return on Average Assets	1.0	0.9	1.0	1.1	1.1	1.2	1.4	1.1	1.1
<i>Capital adequacy ratios</i>									
Total	10.3	10.5	10.6	10.3	10.6	10.9	11.5	10.4	10.8
Tier one	6.7	7.0	7.3	7.0	7.2	7.8	8.4	7.9	8.5
<i>Efficiency indicators</i>									
Operating costs to income	66.4	66.1	57.3	56.9	53.9	47.3	44.4	47.4	47.3
Source: RBNZ Financial Stability Report (November 2005).									
1/ For systemically important banks.									

Non-bank Lending Institutions

9. **Although growing fast, 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 a number of non-bank institutions, such as building societies, the Public Service Investment Society (PSIS), finance companies, and credit unions. Finance companies and building societies have grown significantly faster than the banks in the last five years, and high exposure of some finance companies to property development lending has become the main potential risk, noted by the November 2005 Financial Stability Report. However, the share of non-bank institutions in the financial system remains small, with total assets equal to 7½ percent of banking system assets, and they have stable profits and low impaired assets. These institutions thus should not present a systemic risk in the near future.

III.3. New Zealand: Non-bank Lending Institutions							
End of Year	1999	2000	2001	2002	2003	2004	2005 1/
<i>Finance companies</i>							
Rate of growth of assets	11.2	23.3	29.7	20.2	19.3	19.0	18.5
Return on average assets	...	1.7	1.6	2.1	2.1	2.3	...
Impaired asset expense to loans and advances	...	0.5	0.8	0.8	0.8	0.8	...
<i>Building societies and PSIS</i>							
Rate of growth of assets	9.4	9.0	11.0	13.7	14.5	13.1	13.6
Return on average assets	...	0.8	0.7	0.8	0.9	0.9	0.9
Impaired asset expense to loans and advances	...	0.0	0.1	0.1	0.1	0.1	0.2

Source: RBNZ Financial Stability Report (November 2005).
1/ Data for end-June

Corporate Sector

10. **Overall financial indicators for the corporate sector in New Zealand remain sound.** Rates of return on assets and on equity decreased from their peaks in 2002, but remain at comfortable levels. The corporate sector's aggregate liquidity is sufficiently high, and interest coverage is healthy. Capitalization is also strong, and leverage ratios remain in line with Australia's. Nonetheless, interest rates have risen during 2005, and profit margins are declining as a result of rising input costs. Reflecting the overall slowing of the economy, business confidence indicators have been deteriorating. Hence indicators of corporate financial health are expected to decline somewhat, which may lead to a widening of the historically low spreads on corporate paper, but is unlikely to fundamentally affect companies' liquidity and solvency.

III.4. New Zealand: Corporate Sector Indicators (Aggregate Ratios for Non-Financial Companies, in Percent)						
	1999	2000	2001	2002	2003	2004
Current assets to current liabilities	127.9	115.7	119.1	124.8	130.8	131.1
Own Funds to Total Equity and Liabilities	53.2	52.8	52.9	50.9	52.0	53.1
Interest coverage ratio 1/	3.1	3.2	3.4	5.2	4.5	4.3
Return on equity	11.3	11.2	9.5	13.1	11.7	11.4
Return on assets	6.0	5.9	5.0	6.7	6.1	6.0

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

Households

11. **Household net worth has increased substantially in recent years, providing a buffer against potential declines in house prices.** In 2001-04, household indebtedness rose by 32 percentage points, to 145 percent of disposable income at the end of 2004, a level

similar to Australia, the U.K. and the United States.¹⁷ At the same time, the value of housing assets increased by 170 percentage points of disposable income, and household gearing has remained relatively stable, with debt around 20 percent of assets. However, with house prices high relative to indicators such as rents, construction costs, and household incomes, there are potential downside risks to house prices in coming years.¹⁸ But house prices would need to fall by over one-quarter to reduce household net worth to the end-2001 level.

III.5. New Zealand: Household Sector Balance Sheet Indicators (As of December, in percent of annual disposable income)							
	1998	1999	2000	2001	2002	2003	2004
Net Wealth	406	411	399	394	424	511	538
Total assets	507	519	510	507	547	647	682
Financial	176	182	180	175	172	177	177
Housing	331	337	330	332	375	470	505
Total liabilities	101	108	112	113	123	136	145
Housing loans	83	88	91	92	100	109	117
Other loans	18	20	21	21	23	27	28
Debt/assets, percent	19.9	20.8	22.0	22.3	22.5	21.0	21.3
Debt servicing costs	9.4	8.1	9.1	8.8	9.1	9.6	10.3
Savings rate 1/	-4.6	-1.5	-4.9	-4.9	-11.1	-12.3	-12.4

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.

12. **Many households are exposed to the housing market, and some appear quite vulnerable to higher interest rates.** Households' wealth is heavily concentrated in housing. The share of housing in total households assets increased from 65 percent in 2001 to 74 percent in 2004 (compared to 30-40 percent in the EU), while holdings of equity and other financial assets are quite low by OECD standards. Increased leverage has led to a rise in household interest costs from 8 percent of disposable income in 1999 to 10¼ percent in 2004, and an estimated 12 percent at end-2005. Interest burdens are expected to rise further in 2006 as interest rate increases in 2005 pass into household interest bills. Data from the Household Economic Survey show that only one-third of households have a mortgage, and for those with a mortgage, typical total spending on housing (interest, principal repayments, local

¹⁷ Preliminary data show that household indebtedness reached 150 percent of disposable income at end-2005.

¹⁸ Reserve Bank of New Zealand, *Financial Stability Report*, November 2005, provides indicators of housing valuation.

authority taxes) is 25 to 30 percent of their disposable income. About one-tenth of borrowers—mostly recent house buyers—have total housing costs exceeding 50 percent of disposable income. The consumption expenditure of such households will be more sensitive to mortgage rates, particularly as they will also likely have more limited scope to draw on their housing equity to cope with any reductions in their incomes. Nonetheless, they represent only 3 to 4 percent of households, and they are most likely (as new buyers) to have fixed rate mortgages, allowing these households some time to adjust in order to remain current on their loans.

Stress Tests

13. **The vulnerability of the system as a whole depends on how vulnerabilities in one sector would affect the other sectors of the economy.** With the increased exposure to the housing market, the households' financial position has become riskier over the last few years. Whether this can be seen as a vulnerability for the financial system, however, depends on how an increase in interest rates, a decline in house prices and a subsequent default on some mortgage loans would affect the banking sector. Stress tests of the banking system can be helpful in trying to answer this question.

14. **The results of stress tests suggest that, although some households are vulnerable to interest rate increases, this does not present a threat to financial system stability.** Partly reflecting banks' lending conservatism, and the strength of the corporate sector, stress tests from the FSAP concluded in 2004 indicate that banks would be resilient to significant market and credit risk shocks.¹⁹ In particular, a stress test scenario with a 20 percent decline in house prices, coupled 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. Given this resilience in the face of a significant slump, the banking system should therefore be able to handle some inevitable deterioration of asset quality during the slowdown without major difficulties.

¹⁹ *New Zealand: Financial Sector Stability Assessment*, IMF Country Report No. 04/126. The stress tests were based on 2003 data, but the authorities' analysis suggests that the risks to bank capital have not increased substantively since then.

Table III.6. New Zealand: Decomposition of Gross External Debt 1/

	End-March								
	1997	1998	1999	2000	2001	2002	2003	2004	2005
	(In percent of GDP)								
Total gross external debt	83.1	84.9	95.4	98.8	114.7	114.6	110.9	108.6	112.8
<i>By sector</i>									
Official government	21.2	20.1	17.0	16.3	14.8	15.5	13.7	13.2	11.8
Corporate sector	61.8	64.9	78.4	82.5	100.0	99.1	97.2	95.4	101.0
<i>By sub-sector</i>									
Banks	25.2	32.7	38.5	46.9	54.3	56.1	56.0	59.4	65.4
Other corporate	36.7	32.2	39.8	35.5	45.7	43.1	41.2	36.0	35.6
<i>By relation 2/</i>									
Related party	31.9	43.3	44.7	51.2	...	...	...	...	...
Nonrelated party	29.9	21.6	33.6	31.3	...	...	...	...	...
	(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	100.0	100.0
<i>By sector</i>									
Official government	25.6	23.6	17.8	16.5	12.9	13.5	12.4	12.2	10.4
Corporate sector	74.4	76.4	82.2	83.5	87.1	86.5	87.6	87.8	89.6
<i>By sub-sector</i>									
Banks	30.3	38.5	40.4	47.5	47.3	48.9	50.5	54.7	58.0
Other corporate	44.1	37.9	41.7	36.0	39.8	37.6	37.1	33.1	31.6
<i>By relation 2/</i>									
Related party	38.5	50.9	46.9	51.8	...	...	...	...	...
Nonrelated party	36.0	25.4	35.3	31.7	...	...	...	...	...
<i>By currency 3/</i>									
New Zealand dollar	54.7	53.5	47.2	43.3	42.0	47.9	52.1	50.5	49.5
Foreign currency	45.3	46.5	52.8	56.7	59.4	55.3	47.9	49.8	50.8
U.S. dollar	25.2	28.2	32.2	35.4	38.6	34.0	33.2	32.7	28.8
Japanese yen	5.0	5.0	5.3	7.5	7.6	5.2	3.4	2.0	1.6
Australian dollar	3.8	3.8	4.2	4.7	5.8	6.4	4.9	6.3	7.3
European Euro & UK Pound	7.2	7.0	5.8	5.4	3.7	4.4	4.5	6.3	10.9
Unallocated	4.1	2.6	5.3	3.7	3.8	5.2	1.9	2.5	2.3
<i>By (residual) maturity 3/</i>									
Short term (under 1 year) 4/	47.3	46.7	44.7	50.5	50.4	53.1	48.3	48.8	50.9
Medium term (1-5 years)	26.1	28.1	31.3	32.0	19.5	20.8	20.5	18.5	16.8
Long term (over 5 years)	23.2	24.3	23.3	15.5	23.5	21.0	24.8	26.6	25.9
Unallocated	3.4	0.9	0.8	2.1	6.7	5.1	6.4	6.1	6.4

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/ Data not available for 2001 to 2005.

3/ 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.

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

Table III.7. New Zealand: Hedging of Foreign Currency External Debt

(In billions of New Zealand dollars)

	End-March							
	1998	1999	2000	2001	2002	2003	2004	2005
Foreign currency external debt 1/	43.2	48.7	57.9	69.7	68.4	62.4	67.2	78.5
<i>Of which</i> : covered by SNZ hedging supplement	32.4	38.0	47.0	56.5	61.9	50.9	54.9	67.9
Coverage of supplement (percent)	75.1	78.0	81.2	81.1	90.5	81.5	81.6	86.6
<i>Type of hedge 2/</i>								
Financial derivatives	17.6	24.5	30.6	35.4	39.5	38.4	41.8	43.6
Naturally hedged (against assets/receipts)	13.2	12.4	14.8	21.0	18.9	17.2	17.3	24.7
Unhedged	12.4	11.8	12.5	13.3	10.0	6.9	8.2	10.2
<i>By sector</i>								
Banks	15.9	23.8	31.9	37.7	39.7	36.8	43.3	52.7
Financial derivatives	11.6	19.3	26.0	27.3	27.4	26.1	32.3	31.9
Naturally hedged (against assets/receipts)	4.3	4.4	5.3	10.4	...	9.5	...	...
Unhedged	0.1	0.0	0.6	0.0	...	1.2	...	...
Corporate and official	16.5	14.2	15.0	18.8	22.2	25.7	23.9	25.8
Financial derivatives	6.0	5.2	4.6	8.1	12.1	12.3	9.5	11.7
Naturally hedged (against assets/receipts)	9.0	8.0	9.5	10.6	...	7.7	...	...
Unhedged	1.6	1.0	1.0	0.1	...	5.7	...	...

Sources: Statistics New Zealand; and Fund staff estimates.

1/ Data through 2000 are as published in Total Overseas Debt. From March 2001, FX denominated overseas debt is total debt less SNZ debt less financial derivatives in a net liability position denominated in foreign currencies.

2/ For 2003 - 2005, refers to total FX denominated overseas debt. For previous periods data are FX denominated overseas debt encompassed by the hedging supplement.