External imbalances in New Zealand

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1 Introduction

During the last three years New Zealand has faced increasingly large external imbalances. [1] The current account deficit has increased from 4.3% of GDP in 2003 to almost 9.0% of GDP in 2005. During the same period the country's net international investment position (NIIP) has gone from a negative level equivalent to 78.5% of GDP to negative 89% of GDP. Also, some of the most important macroeconomic variables, including interest rates and the exchange-rate, have experienced a higher degree of volatility than in other commodity countries such as Australia and Canada. Much of the growth in New Zealand's external imbalances has been fuelled by a rapid real estate boom that has allowed consumers to withdraw significant amounts of money from their homes' equities, and increase consumption.[2] These developments have generated concerns among experts and observers. According to a recent article in the *Financial Times* (March 31st, 2006, emphasis added):

"Countries with large external imbalances such as Iceland and *New Zealand*, as well as Hungry…Turkey, Australia and South Africa, are seen as most vulnerable as foreign investors head for the exits."[3]

In an effort to cool down the economy, and to reign-in the rapid growth of housing prices, the Reserve Bank of New Zealand has raised its official policy interest rate (the OCR) several times since January 2003. At 7.25%, New Zealand currently has one of the highest policy interest rates in the world. According to JP Morgan's *Global Data Watch*, on May 19th 2006, only Brazil, Indonesia, the Philippines and Turkey, among all large countries monitored by the investment banks, had higher policy interest rates than New Zealand.

Although during the last few months the macroeconomic picture has changed somewhat – the NZD has weakened and increases in housing prices have moderated – a number of important policy questions remain. Perhaps the most important one is whether the very large current account deficit of 9% of GDP is sustainable. If it is not, as many analysts have argued, the next question is what will adjustment look like. Will it be smooth and gradual, and thus with little or no real costs? Or, will it be abrupt and severe? Another way of putting this issue is whether New Zealand faces a (relatively) high probability of experiencing a "*sudden stop*" in capital inflows, and an abrupt reversal in the current account deficit.[4]

Other important policy issues are related to the relationship between economic policy and external imbalances. In particular, has macroeconomic policy contributed to the creation of these external disequilibria? And, has monetary policy lost some of its power in the last few years? This latter question emerges from the fact that, in spite of the increase in the OCR policy rate by 225 basis points between January 2004 and December 2006, longer term rates, including interest rates on mortgages, have changed with considerable delay and to a much lesser extent. A central question, thus, is whether New Zealand should contemplate some changes in its monetary policy framework, and/or on monetary policy implementation. Other specific questions that have emerged from recent economic developments and debates include:

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[1] See the IMF's most recent reports for a broad analysis of New Zealand's macroeconomic position and challenges; IMF (2006a, 2006b). See also IMF (2004a, 2004b).

[2] See, for example, Robinson, Scobie and Hallinan (2006).

[3] *Financial Times*, "Iceland Acts to Head off Currency Crisis," March 31st, 2006. In http://news.ft.com/cms/s/9d6a950e-c053-11da-939f-0000779e2340.html. Emphasis added.

[4] The most recent IMF reports on New Zealand ask whether the current account poses macroeconomic risks to New Zealand; IMF (2006a, 2006b). On "sudden stops" and external adjustment see, for example, Edwards (2004) and Calvo *et al* (2004).

- Is the higher volatility in exchange-rates and interest rates observed in New Zealand the result of a lack of synchronization between the New Zealand business cycle and the business cycle in the major economies (e.g. the G-3), or is it a reflection of structural weaknesses in New Zealand, including the fact that it is a very small, very open, commodity-exporting economy?
- Does the close economic relationship between New Zealand and Australia play a role in explaining the large and persistent imbalances?
- Should a small country such as New Zealand adopt the Greenspan view on asset prices, and ignore a property boom when conducting monetary policy?

The purpose of this paper is to analyse the potential consequences of New Zealand's external imbalances. A particularly important issue addressed in the paper is the possible nature of future external adjustments. More specifically, I investigate the probability that New Zealand will undergo a costly adjustment characterized by an abrupt and large current account reversal. This is an important question, since, as I argue in Section 2, there are strong indications that the current magnitude of the external imbalance in New Zealand is not sustainable through time.

In order to achieve sustainability, the current account deficit will have to decline by 3 to 5 percentage points of GDP. It makes a difference whether this adjustment is gradual or abrupt; there is ample evidence that suggests that abrupt current account adjustments (or reversals) are costly, in terms of lower GDP growth. I deal with the question of the probability of experiencing an abrupt adjustment in the following way: I analyse the main characteristics of countries that in the past have suffered "sudden stops" and abrupt current account reversals. More specifically, I use random-effect probit models to estimate the determinants of the probability of experiencing a major reversal. Following this, I estimate the probability of reversals using New Zealand specific data at different points in time. I compute this probability using New Zealand data for the early 2000s, when the current account deficit was 2.8 per cent of GDP (a figure slightly lower than what many analysts consider to be sustainable), and 2006, when the current account deficit is over 9 per cent of GDP. This exercise allows me to evaluate whether, according to the model, the probability of New Zealand experiencing an abrupt and costly reversal has increased significantly in the last few years. The paper also deals with monetary policy and its effectiveness in a context of large external deficits.

The rest of the paper is organized as follows: In Section 2 the evolution of New Zealand's current account balances during the last two decades is analysed (the starting point of the analysis is 1985, when the NZD was floated). I deal with real exchange-rate trends, and with the evolution of different external accounts. I focus on the recent evolution of New Zealand's net international investment position (NIIP), and discuss some recent computations on the sustainable level for New Zealand's current account. In Section 3 an international comparative analysis of New Zealand's current account balance is provided. I show that the persistence and magnitude of New Zealand's deficit has virtually no comparison in the world. I also provide some computations on the consolidated current account deficit of Australia-New Zealand. I show that although this consolidated deficit is still large from an international perspective, it is smaller than the current New Zealand deficit.

Section 4 asks whether New Zealand's large external imbalances should be a cause for concern. Recent evidence presented in Calvo *et al* (2004), Edwards (2004, 2004a, 2005a, 2005b) and Frankel and Cavallo (2004) suggests that countries that experience sudden declines in capital inflows and/or *abrupt* current account reversals have suffered significant reductions in the rate of economic growth. In this Section I use a multi-country data set to evaluate the probability that New Zealand will face an abrupt reversal in its current account in the near future. A number of important macroeconomic policy issues related to the external sector in Section 5. In particular, I analyse New Zealand's monetary policy framework and I ask whether the RBNZ should directly consider exchange-rate developments when determining the OCR. Finally, I offer concluding remarks in Section 6, touching briefly on other policy options, including the merits of New Zealand and Australia having a common currency.

2 Twenty years of current account balances and the exchange-rate behaviour in New Zealand

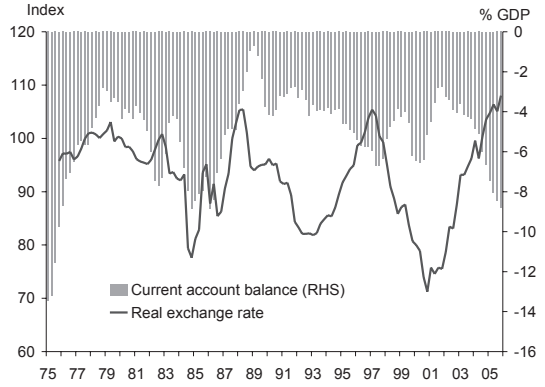
In this Section I analyse the evolution of New Zealand's current account and trade weighted real exchange-rate. The analysis starts with 1985, the year New Zealand adopted a floating exchange-rate. The Section is divided in three parts: [5] First, I discuss the evolution of the real exchange-rate (RER) and current account during the last two decades. I argue that it is possible to divide the last twenty years of RER behaviour into seven distinct phases. Second, I discuss the most recent data on New Zealand's current account, including its sources of financing. Here I point out that in New Zealand, as opposed to the US for example, the income account (which measures net interest, dividend, profits remittances and transfers to the rest of the world) has been the main source of disequilibria. More recently, however, New Zealand has experienced an important deterioration in its trade account balance. Finally I deal with the recent evolution of New Zealand's net international investment position.

The current account deficit and seven phases of real exchange-rate behaviour in New Zealand

In Figure 1 quarterly data for New Zealand's current account balance as percentage of GDP and the evolution of the trade-weighted index of the New Zealand dollar real exchange-rate are presented for the period 1975-2005. In this Figure, as in the rest of this paper, an increase in the RER index represents a real exchange-rate appreciation, while a decline in the index captures a depreciating trend. Several interesting features emerge from Figure 1:

Figure 1

Real exchange-rate and current account balance, 1975-2005



Source: Statistics New Zealand

- First, it shows that deficits have been a "normal" state of affairs in New Zealand for the last 20 years. In fact, going back for another ten years, one finds that in the second half of the 1970s current account deficits exceeded the 12% of GDP mark!
- Second, this Figure shows that while recent deficits have been very large indeed (in the order of 9% of GDP in late 2005) they have historical precedents. Current account deficits reached that level (briefly) in early 1986.
- Third, in the last twenty years there have been *four* episodes of retrenchment in the current account deficit.
    - o The first of these retrenchment episodes took place between March 1986 and March 1989, when the deficit shrunk from 8.7% of GDP to a mere 0.7% of GDP; this has been one of the *largest current account reversals* in the modern economic history of advanced countries.
    - o The second external adjustment episode was brief and modest, and occurred between June 1990 and December 1991, when the deficit went from 4.2 to 2.8% of GDP.
    - o The third retrenchment was in the September 1997-June 1999 period; the deficit declined from 6.7 to 4.0% of GDP.

[5] An interesting exercise, but one that is beyond the scope of this paper, is to compare exchange-rate volatility (both unconditional and conditional) in New Zealand to that of other commodity currencies such as the Australian dollar and Canadian dollar.

- And the final deficit reduction episode took place during June 2000 and December 2001, when the deficit declined from 6.5% to 2.8% of GDP.

- It is interesting to note that two of the current account retrenchment episodes discussed above were significant, exceeding 3.5% of GDP; these adjustment episodes, however, were stretched over a period of several years.

- Figure 1 also shows that during the period under study the RER index experienced significant movements: its mean was 91.0, its minimum 71.3, and its maximum was 108.0. The standard deviation of the RER index was 8.9.

- Figure 1 shows a pattern of mild negative correlation between the trade-weighted real value of the New Zealand dollar and the current account balance. Periods of strong dollar have, overall, tended to coincide with periods of (larger) current account deficits. The contemporaneous coefficient of correlation between the (log of the) RER index and the current account balance is –0.22; when lead-lag structures are considered, the correlation coefficient declines. This correlation between the trade weighted value of the currency and the current account is lower in New Zealand than in the US, where the contemporaneous correlation coefficient is -0.53, and the three quarters lagged correlation is -0.60. This may be explained by the fact that in New Zealand the main component of the current account deficit is the incomes account, while in the US it is the trade account. In New Zealand the simple contemporaneous correlation between the (log of the) real exchange-rate and the trade account-to-GDP ratio is -0.41.

An analysis of the data in Figure 1 indicates that it is possible to distinguish *seven* distinct phases in New Zealand dollar real exchange-rate behaviour for the twenty-year period 1985-2005. A brief analysis of these seven phases provides a summary of the history of New Zealand's external sector since the inception of floating in 1985:

- **Phase 1:** *March 1985-December 1985*. This phase was very short and includes the early months of floating. It was characterized by a steep accumulated appreciation of the NZD of 17.3%. During this short phase the current account deficit was very large.

- **Phase 2:** *December 1985-December 1986*. This was also a very short phase. During these 12 months the NZD experienced a 9.4% cumulative depreciation. During this phase the current account deficit began to decline.

- **Phase 3:** *December 1986-June 1988*. This is the last of the "short" phases that occurred during the early years of floating. During this period the NZD real exchange-rate experienced a rapidly *appreciating* trend. The trough-to-peak change in the index was 22.3%. Real exchange-rate volatility, measured as the standard deviation of the monthly log differences of the RER index, was 0.023. Interestingly, during this phase the NZD strengthened in real terms at the same time as the current account deficit was declining in a very significant fashion.

- **Phase 4**: *June-1988-March 1993*. This is the first of four "long" phases in RER behaviour; it is a depreciating phase. As may be seen from Figure 1, between December 1988 and September 1990 the RER was quite stable, having reached a (temporary) plateau of sorts. At that point, however, the depreciating trend resumed. The peak-to-trough accumulated change in the trade weighted RER index during this period was -22.4%. During the early part of this Phase the current account deficit widened. Starting in late 1990, however, the deficit stabilized at slightly below the 4% of GDP mark. During this period the standard deviation of the monthly log differences of the RER index was 0.022.

- **Phase 5:** *March 1993-March 1997.* This phase is characterized by a trough-to-peak real exchange-rate *appreciation* of 28.9%. The strengthening of the currency was accompanied by a significant widening of the current account deficit. Interestingly, during this phase real exchange-rate volatility declined significantly; the standard deviation of the monthly log differences of the RER index was 0.011. This is significantly lower than (real) exchange-rate volatility in other commodity

countries such as Canada and Australia (Edwards 2006).

- **Phase 6:** *March 1997-December 2000*. This is phase is characterized by a trough-to-peak real exchange-rate *depreciation* of 32.4%. During the early part of this phase the current account deficit retrenched to 3.9% of GDP in December 1998. It then widened until it reached 6.5% in June 2000. During this period unconditional real exchange-rate volatility increased to 0.023.
- **Phase 7:** *December 2000-December 2005*: This phase lasted the longest. During this period the real exchange-rate appreciated by an impressive 51.5%, and real exchange-rate volatility increased to 0.029. From the third quarter of 2001 through December of 2005 the current account deficit increased steadily from 2.8% of GDP to almost 9% of GDP. During this phase the real exchange-rate index experienced its highest degree of volatility, with a standard deviation of the log difference of 0.033.

Decomposing the current account balance

Data decomposition

Going beyond the current account, in Figure 2 data from 1987 through 2004 is presented for: (a) the balance of trade of goods and services as a percentage of GDP; (b) the income account, also as a percentage of GDP, and (c) the transfers account as a percentage of GDP.

A number of important facts emerge from these Figures. First, until September 2004 the *trade account* was mostly in surplus. There were only two brief periods (in 1990 and 1999-2000) when there were small deficits (below 1 per cent of GDP). However, since December 2004 (and until the time of this writing) the trade deficit has increased significantly, reaching its highest level since the adoption of floating exchange-rates. This recent emergence and prominence of the trade deficit suggests that in the recent years there may have been a structural change in macroeconomic relations in New Zealand. The recent work by Kim, Hall and Buckle (2006) and Munro and Sethi (2006) suggest that a structural change in the economy's ability to "smooth consumption," may indeed have occurred. I discuss this issue in greater detail in Section 4 of this paper.

Figure 2

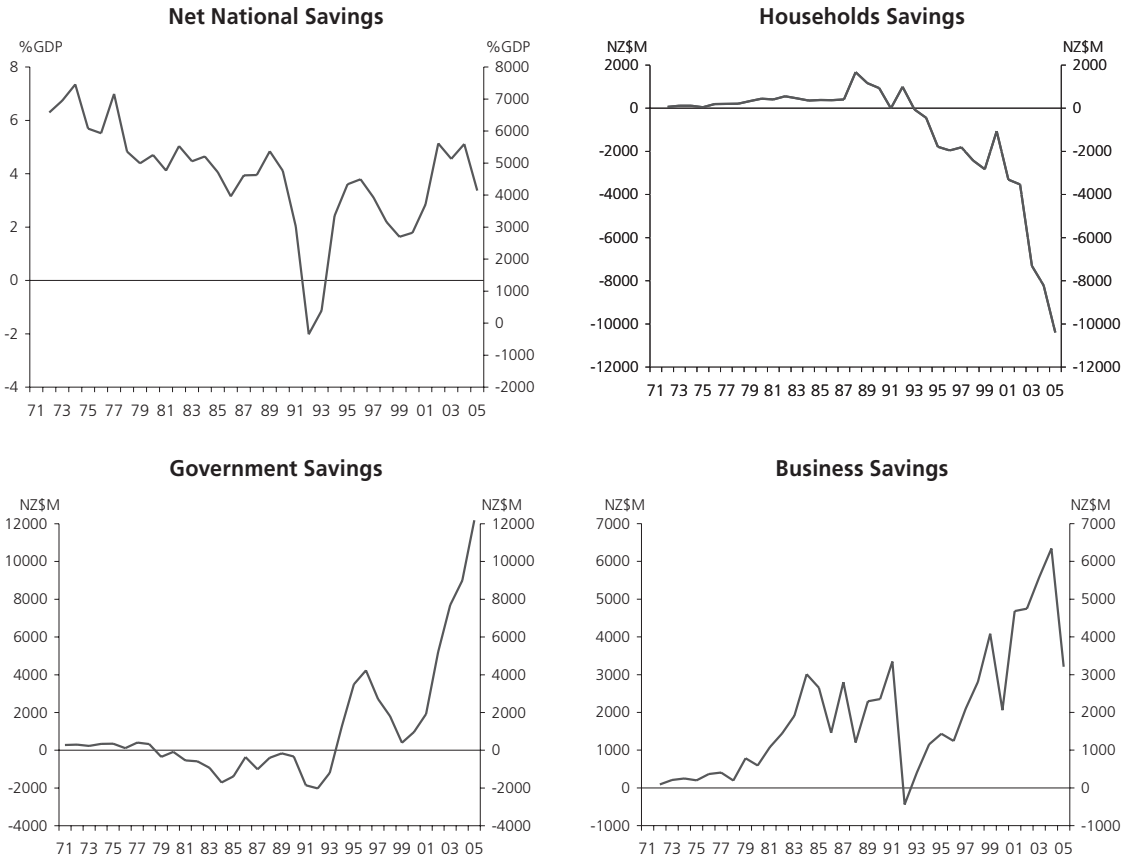
Components of the current account balance, 1987-2005

Source: Statistics New Zealand

Second, the *incomes account* has experienced very large deficits, and throughout most of the period under study it explains, more than fully, the current account deficit (second panel, Figure 2). Only in the last year or so the income account deficit has been lower than the overall current account deficit. The historically very large deficit in the

Figure 3

Evolution of net savings, 1972-2005



Source: Claus and Scobie (2002), updated using information from Statistics New Zealand

income account in New Zealand is a reflection of the very large negative NIIP, a subject that I discuss in some detail in the following section. An important question, and one that I explore below, is whether New Zealand's large negative income account balance is related to the close economic ties between New Zealand and Australia. Finally, the third panel in Figure 2 shows that the transfers account has exhibited a relatively stable surplus throughout the period under study.

The evolution of savings and the current account

The deteriorating trade balance since around 2002 coincides with a significant decline in net household savings. In turn, this has been associated with a rapid increase in housing prices.[6] In Figure 3, data on the evolution of net savings for the period 1972-2005 is presented.[7] Several trends are apparent from this Figure. Net national savings have experienced a declining trend. While during the early 1970s net national savings hovered around the 6% of GDP mark, during the last few years they have averaged less than 4% of GDP. More impressive than this, however, is the fact that (net) household savings have declined very drastically since the mid 1990s, and in particular since 2002. This rapid collapse in household savings has been partially offset by a rapid increase in government savings (which have recently surpassed 6% of GDP) and by a recovery of corporate savings since the mid 1990s.

As said above, the drastic decline in household savings has been related to a rapid increase in housing prices and, thus, in household wealth (See Robinson, Scobie, Hallinan, 2006). It is precisely for this reason that a number of analysts have argued that a moderation in New Zealand's current account deficit will require a decline in housing prices.[8] This situation has also prompted the question of whether the Reserve Bank of New Zealand should explicitly take

6 On the recent evolution of housing prices in New Zealand see, for example, Robinson, Scobie and Hallinan (2006).

7 The historical series are from Claus and Scobie (2002). I have updated them using data from Statistics New Zealand.

Table 1

New Zealand net international investment position

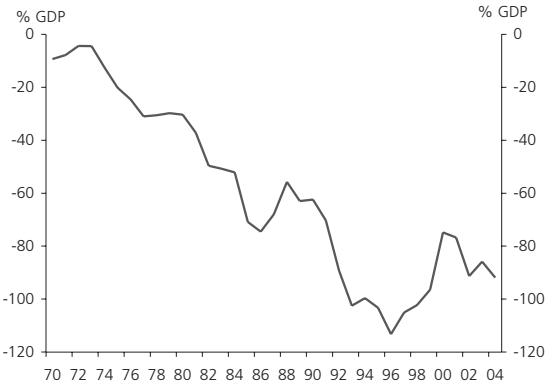
At 31 March (NZ$ million and Percentages)	2001	2002	2003	2004	2005
Direct Investment Abroad	-35,699	-40,565	-42,676	-54,901	-58,239
	40.8	41.0	41.7	49.0	46.2
Portfolio Investment Abroad	-34,400	-33,469	-40,410	-40,086	-43,292
	39.3	33.8	39.5	35.8	34.3
Other Investment Abroad	-29,916	-32,665	-26,353	-24,686	-31,074
	34.2	33.0	25.8	22.0	24.6
Financial Derivatives	3,989	-37	-1,993	-2,510	-2,345
	-4.6	0.0	1.9	2.2	1.9
Reserve Assets	8,566	7,723	9,115	10,093	8,828
	-9.8	-7.8	-8.9	-9.0	-7.0
Net International Investment Position	-87,461	-99,013	-102,318	-112,090	-126,121
NIIP as % of GDP	-76.2	-80.1	-79.3	-81.6	-85.4

Source: Statistics New Zealand

into account real estate prices when conducting monetary policy.[9] In the light of low savings, a significant fraction of expenditure financing has taken place through the offshore capital market, via the issuance of New Zealand dollar denominated bonds, sometimes referred as Eurokiwis, NZD Eurobonds, and NZD Uridashis.[10]

Figure 4

New Zealand net external position, 1970-2004



Source: Lane and Milesi-Ferretti (2006)

The evolution of New Zealand's net international investment position and the financing of recent current account deficits

The counterpart to the large current account deficits of the last thirty years has been an increasingly negative Net International Investment Position (NIIP). Figure 4 presents the evolution of New Zealand's NIIP since 1970. The data have been taken from Lane and Milesi-Ferretti (2006). When alternative New Zealand data sources are used the results are similar: for instance according to New Zealand official statistics in the period 2001-2005 the NIIP was -76%, -80%, -79%, -82%, and -86%, respectively. These

[8] See, for example, Merrill Lynch, "NZD: The Long Slide," *Foreign Exchange Strategy*, 13 April 2006.

[9] This question is not unique to New Zealand. It has been addressed several times in recent discussions on US monetary policy. See, for example, Ben Bernanke's "The Global Savings Glut and the US Current Account Deficit," Speech delivered on March 10, 2005. It may be found at: http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/default.htm.

[10] For details on how the offshore market works, see Drage *et. al.* (2005).

Figures are not very different from those depicted in Figure 3.[11]

Table 1 provides greater detail on the recent evolution of the NIIP, as well as of its most important components; naturally, the year-to-year changes in the different components of the NIIP provide information on the recent sources of financing of the current account deficit. Table 2 presents data on the recent evolution of this financing. As pointed out above, during the last few years an important fraction of foreign financing to cover the current account deficit has been obtained in the offshore bond market or market for NZD denominated Eurobonds *(Eurokiwis)* or NZD denominated *Uradishis*, purchased by retail investors in Japan (Drage *et. al.*, 2005; IMF 2006a, 2006b).

Table 2

Net financial flows, 2003-2005

(NZ$, million)			
Flow	2003	2004	2005
Direct investment	3,252	4,949	4,123
Equity capital	n.a.	n.a.	n.a.
Reinvested earnings	n.a.	n.a.	n.a.
Other capital	5,306	2,586	1,561
Portfolio investment	1,573	7,332	-150
Equity securities	-279	-2,518	-1,728
Debt securities	1,851	9,851	1,579
Other investment	630	479	11,708
Trade credits	n.a.	n.a.	n.a.
Loans	-969	-669	11,138
Deposits	1,364	668	1,078
Other instruments	n.a.	n.a.	n.a.
Reserve assets	-1,345	-685	-3,475
Special drawing rights	-8	-7	-4
Reserve position in the fund	-304	284	361
Foreign exchange	460	-873	-3,627
Other reserve asset claims	-1,491	-91	-205
Total	4,110	12,075	12,206
Current Account Balance	-5,937	-9,385	-13,688

Source: Statistics New Zealand

As discussed in some detail in Section 3 of the paper, New Zealand's NIIP is one of the most negative (relative to GDP) in the world. As a point of comparison the NIIP in the US is currently -30% of GDP, and that of Australia is – 57% (see Table 6). The NIIPs of most other advanced countries are, in fact, positive, denoting that these are net creditor countries. Figure 4 shows that in spite of some wave-like movements, New Zealand's NIIP has exhibited a declining trend through time, becoming increasingly negative.

In a recent important paper Munro (2005) discusses the evolution of the NIIP in New Zealand during the last few years. Her most important findings may be summarized as follows:

- The increasingly negative NIIP of the last few years has been the result of private sector investment.
- New Zealand's public sector net international investment position (including the New Zealand Superannuation) is virtually zero.
- The importance of bank loans has increased very significantly as a source of external liabilities. Indeed, these higher bank loans have financed the real estate boom of the last few years.
- Given the currency composition of international assets and liabilities, New Zealand is not subject to significant "valuation effects" stemming from exchange-rate changes.
- In the last few years the maturity structure of New Zealand's external liabilities has declined.

Modern analyses of *current account sustainability* are based on the notion that *in equilibrium* the ratio of the NIIP to GDP (or to some other aggregate) has to stabilize at *some* level.[12] The level at which the NIIP to GDP ratio will stabilize will depend on the attractiveness of the country's assets to international investors. If the international (net) demand for the country's securities (including debt and equity) is high, the NIIP to GDP ratio will stabilize at a high rate. The opposite will be true if this international demand is low. The sustainable current account to GDP ratio will, then, depend on this long term stable NIIP to GDP ratio, and on the country's long term trend rate of real growth

[11] Using the Lane and Milesi-Ferretti data has two advantages. First, they provide long time series, and second, it is easier to make comparisons across countries.

[12] Milesi-Ferretti and Razin (1996), Edwards (2005). For an illuminating sustainability analysis of New Zealand, see Munro (2005).

and equilibrium rate of inflation. The relationship between the equilibrium and stable ratio of NIIP to GDP, which I will denote as γ, and the sustainable current account deficit ($SCAD$) may be written as follows:[13]

(1) $SCAD = \gamma(g^T + \pi),$

where $(g^T + \pi)$ is the nominal rate of growth of trend GDP, g^T is the long run trend real rate of growth of GDP and π is the long run steady-state inflation rate (which I assume to be equal to the long run international rate of inflation). According to this simple and yet powerful equation, the sustainable current account deficit will depend on both the international demand for the country's assets γ and the country's nominal rate of growth. γ, of course, is not an invariable number; as pointed out above, it is a variable, whose value changes through time, depending on the perceived riskiness and/or attractiveness of the country in question.

Table 3
Sustainable current account deficit under different scenarios

Target IIP	Nominal GDP Growth				
(% GDP)	4.5%	5.0%	5.5%	5.8%	6.0%
80	3.4	3.8	4.2	4.4	4.5
100	4.3	4.8	5.2	5.5	5.7
120	5.2	5.7	6.3	6.6	6.8

Source: Munro (2005)

Munro (2005) presents calculations for the *SCAD* under alternative values of the long run steady state NIIP ratio and nominal rate of growth. Munro's computations are reproduced in Table 3. The results in this Table are particularly interesting, in that they point out that even if the NIIP stabilizes at a significantly more negative level than the current -89%, and if nominal growth is very high by historical standards (say, 5.5% on average), the sustainable current account deficit is still significantly smaller than the current 8.9% of GDP.

The implications of these calculations are simple, and yet very important: even under an optimistic scenario, where the (negative) NIIP stabilizes at a significantly more negative level (relative to GDP), and economic growth is very high, New Zealand will have to go through a substantial adjustment process where the current account deficit will have to decline significantly. For instance, if from Table 3 one takes the combination of a NIIP of -120% of GDP and nominal growth of 5.0% of GDP, the "sustainable" current account deficit is 5.7% of GDP; this means that adjustment will have to exceed 3% of GDP. But what is perhaps more telling is that these figures indicate that under rather small changes in the key parameters, the magnitude of the external adjustment required to bring the current account deficit in line with its long run sustainable level would be nothing short of brutal. Take, for example, the case where the steady state NIIP is -80% (still a remarkably high Figure from international standards) and nominal growth is 5%. This combination implies a *SCAD* of 3.8% of GDP, more than 5 percentage points below its current level!

A key question that emerges from this analysis, and one that I address in great detail in Section 4 of this paper, is whether this external sector adjustment is likely to be gradual (and thus largely harmless from an economic point of view), or abrupt and costly. That is, the question is whether international investors will slowly reduce the rate at which they add New Zealand securities to their portfolios, or whether this process will come to an abrupt and sudden end. Before turning to this important issue, however, I tackle two important questions in the next section of the paper. First, I analyse New Zealand's external position in an international comparative context, and show that New Zealand's case is quite unique. Second, I analyse the way in which New Zealand's special economic relationship with Australia affects the NIIP and current account statistics.

3 The New Zealand current account in an international comparative context

International comparisons

How large are New Zealand's recent current account deficits, from a comparative point of view? How does the persistence of deficits compare with that of other countries? And, how

[13] See Edwards (2005) for a detailed analysis along these lines that incorporates the dynamic effects of changes in γ.

Table 4

Distribution of current account deficits

By region, 1970-2004

Region	Mean	Median	1st Perc.	1st Quartile	3rd Quartile	9th Perc.
	A: 1970-2004					
Industrialized countries	0.6	0.7	-3.8	-1.6	3.0	4.8
Latin Am. and Caribbean	5.4	4.1	-2.5	1.1	8.0	16.9
Asia	3.2	2.7	-7.0	-0.3	6.4	11.4
Africa	6.3	5.3	-3.4	1.2	9.9	16.9
Middle East	0.0	1.4	-18.8	-5.0	6.4	13.6
Eastern Europe	3.9	3.0	-2.4	0.3	6.1	10.7
Total	4.0	3.1	-4.4	-0.1	7.2	13.4
	A: 1984-2004					
Industrialized countries	0.2	0.3	-4.7	-2.3	2.7	4.8
Latin Am. and Caribbean	5.1	3.7	-2.5	1.1	7.0	17.0
Asia	2.4	2.6	-8.2	-0.8	6.1	10.3
Africa	5.9	4.6	-3.5	0.9	9.1	16.2
Middle East	2.3	1.5	-12.4	-4.0	6.3	14.9
Eastern Europe	4.0	3.1	-2.5	0.3	6.6	10.9
Total	3.9	2.9	-4.5	-0.2	6.7	13.0

Source: Author's elaboration based on World Development Indicators

large is the (negative) net international liabilities position in New Zealand when compared, from a historical vantage, to that of other advanced countries? In Table 4, the distribution of current account balances in the world economy, as well as in six groups of nations (Advanced, Latin America, Asia, Africa, Middle East and Eastern Europe) are seen for the period 1971-2004. At almost 9% of GDP, New Zealand's deficit is very large from a historical and comparative perspective. It is in the top decile of deficits distribution for all advanced countries in the first thirty years of floating. As the data in Table 4 suggest, at this point New Zealand's current account balance looks more like a Latin American or Asian country, than like an advanced nation.

During the last 30 years a number of advanced countries, in addition to New Zealand, have had current account deficits in excess of 5% of GDP: Australia, Austria, Denmark, Finland, Greece, Iceland, Ireland, Malta, Norway and Portugal. What is interesting, however, is that very few advanced countries have had current account deficits in excess of 9%: the only cases are Ireland in the 1970s and early 1980s; Malta; New Zealand; Norway and Portugal.

What sets New Zealand truly apart is the historical persistence of its large current account deficits. I present a list of countries with "*persistently high*" current account deficits for 1970-2004 in Table 5. In constructing this table, I define a country as having a "*High Deficit*" if, in a particular year, its current account deficit is higher than its region's ninth decile.[14] I then define a *persistently high deficit* country, as a country with a "*High Deficit*" (as defined above) for at least 5 consecutive years.[15] The list of persistently high deficit countries is extremely short; only two of them are advanced countries, one of which is New Zealand during the 1980s. This illustrates the fact that, historically, periods of high current account imbalances have tended to be short lived, and have been followed by periods

[14] Notice that the thresholds for defining *High* deficits are year and region-specific. That is, for every year there is a different threshold for each region.

[15] For an econometric analysis of current account deficits persistence see Edwards (2004). See also Taylor (2002).

of current account adjustments. At the end of 2006, it is likely that US will be added to this list. This would be quite remarkable, since it would be the first *large* country – either advanced or developing – to ever make it into this category. It is important to note, however, that even if in 2006 New Zealand still has a very large deficit, it will still not be classified as a new "*persistently high episode*." The reason for this is that it requires five years of being in the top 10% of deficits.

Table 5
List of countries with persistent high current account deficits

By region, 1970-2004

Region/ Country	Period
Industrialized Countries	
Ireland	1978-1984
New Zealand	1984-1988
Latin America and Caribbean	
Guyana	1979-1985
Nicaragua	1984-1990 & 1992-2000
Asia	
Bhutan	1982-1989
Africa	
Guinea-Bissau	1982-1993
Lesotho	1995-2000
Middle East	
Lebanon	2000-2004
Eastern Europe	
Azerbaijan	1995-1999

Source: Author's elaboration based on World Development Indicators. A persistent large deficit is defined as one that exceeded the ninth decile for the country's region for at least five consecutive years.

The importance of the data on persistence in Table 5 is that they show that countries that run very large deficits don't do that for very long periods of time. Countries that move to the "*High Deficits*" category stay there for short periods of time. Their external accounts adjust, and then move back to having a more "normal" deficit. A key question is the nature of this adjustment. As a number of authors have found out, countries that go through *abrupt and sudden adjustments* tend to experience significant declines in growth.[16] On the other hand, countries that experience a smooth adjustment do not suffer significant costs in their real economies.

Table 6
Net stock of liabilities: New Zealand and other industrial countries, selected years

(Per cent of GDP)

	1980	1985	1990	1995	2000	2004
Australia	27.8	37.0	47.1	56.8	52.2	57.8
Canada	34.2	34.3	34.9	29.9	7.2	12.5
Denmark	30.9	52.6	41.6	23.8	14.5	12.4
Finland	14.9	19.7	29.1	41.9	151.6	12.1
Iceland	25.5	55.0	48.4	51.6	64.3	92.9
New Zealand	30.3	70.9	62.4	103.3	74.8	91.9
Sweden	8.6	19.2	23.7	36.1	0.6	9.5
United States	-3.7	-0.3	4.6	5.5	16.8	22.6

Source: Lane and Milesi-Ferretti (2006)

In Table 6, NIIP positions for a group of advanced countries that have historically had a large negative NIIP position are seen.[17] The data are taken from the comparative data set compiled by Lane and Milesi-Ferretti (2006). The picture that emerges from this Table confirms that New Zealand represents a unique case in terms of its external position; together with Iceland, it currently has the largest negative NIIP among advanced countries. Moreover, New Zealand's NIIP is significantly higher than that of other advanced nations.[18] As pointed out in the preceding Section, the level at which the NIIP ratio stabilizes determines – jointly with other variables, such as the potential or trend rate of growth, and inflation – the sustainable current account deficit. According to equation (1) above, if, for example, New Zealand's NIIP stabilizes at 100% of GDP, trend growth is 3.5% and inflation is 1.5%, the sustainable current account deficit *(SCAD)* 5% of GDP, four percentage points below it 2005 level.

16 Frankel and Cavallo (2004).

17 For the US the data are from the Bureau of Economic Analysis. For the other countries the data are, until 1997, from the Lane and Milessi-Ferretti data set. I have updated them using current account balance data. Notice that the updated Figures should be interpreted with a grain of salt, as I have not corrected them for valuation effects.

18 During March-May 2006 international investors began to question the sustainability of Iceland's external accounts. This resulted in a decline in the demand for Iceland securities and in a drastic loss in value of the currency. The central bank was forced to face this situation by substantially hiking interest rates. See, for example, Bloomberg, "Iceland's Central Bank Raises Key Rate to 12.25%," May 18, 2006. Story may be found in: http://www.bloomberg.com/apps/news?pid=10000085&sid=as0W.Z2_ykUA&refer=europe.

New Zealand's close economic relation with Australia and the external accounts

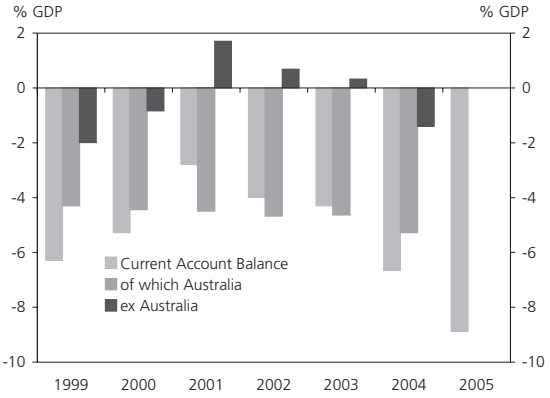
An important characteristic of the New Zealand economy is its (increasingly) close relation to Australia. This is particularly the case with respect to investment in certain industries and sectors. For instance, Australian investors are the predominant owners of New Zealand's banking sector. An important consequence of this close relationship is that it has an impact on the external accounts, and may make the situation appear more difficult than what it really is. At the heart of this issue is the treatment in Balance of Payments accounting of reinvested earnings. These are automatically (and simultaneously) recorded as an outflow in *the investment income account* and an inflow in the *capital account*. This means that if firms use retained earnings as a recurrent source for financing their expansion in the normal course of their business activity, the external accounts will reflect a large current account deficit.

As a way to gauging the importance of the "*Australian connection*" in explaining the magnitude and evolution of New Zealand's current account deficit I analysed the *consolidated* Australia-New Zealand NIIP, as well as the behaviour of New Zealand's current account deficit with Australia.[19]

Table 7 presents New Zealand's NIIP, explicitly detailing Australia's net holdings of New Zealand assets. Three main points emerge from this table: first, New Zealand's NIIP vis-à-vis Australia is negative and equivalent to 24% of GDP; second, the share of the bilateral NIIP relative to Australia (as a proportion of total NIIP) doubled in merely four years; and third, the vast majority of Australia's holdings of New Zealand assets are FDI (almost 50%). This fact is particularly important, as it provides support to the notion discussed above regarding the long-run and ingrained relationship between the two countries. In particular, the predominance of FDI suggests that Australian investments in New Zealand are unlikely to be subject to moody and knee-jerk reactions, and/or to sudden stops.[20]

Table 8 presents the consolidated NIIP for Australia-New Zealand. As may be seen, at 61% of GDP the combined NIIP is still negative and large. It is, however, significantly smaller than New Zealand's NIIP (89%).[21] Figure 5 presents the evolution of the current account deficit between New Zealand and Australia, and Figure 6 displays the components of the bilateral current account deficit between New Zealand and Australia. This suggests that during 2000-2003 the bilateral deficit with Australia more than explained the aggregate deficit. Also, Figure 6 shows that the bilateral investment income deficit is the more important component of the bilateral imbalance between New Zealand and Australia. The main conclusion of this "consolidated analysis" is that once the trans-Tasman relationship is taken into account, New Zealand's external imbalances don't look as large; they are still significant, but not as large as they appear when the aggregate data are considered.

Figure 5
Current account deficit between New Zealand and Australia



Source: Statistics New Zealand
Reserve Bank of New Zealand calculations

[19] I am grateful to Anella Munro for discussing with me this issue and, in particular, for providing me with the calculations on the Australian-New Zealand external accounts.

[20] Whether that is the case of other investments is less clear-cut.

[21] Naturally, it is larger than Australia's NIIP of 57% in 2005. However, since New Zealand economy is smaller than the Australian economy, the increase in the combined NIIP relative to Australia's is not too large.

Table 7

New Zealand's NIIP: total and Australia

	2001	2002	2003	2004	2005
	New Zealand investment abroad				
Direct Investment Abroad	21,198	17,402	17,507	17,413	18,984
of which Australia	9,243	8,396	8,882	9,020	9,847
%	44%	48%	51%	52%	52%
Portfolio Investment Abroad	26,191	28,857	24,882	33,254	35,140
of which Australia	3,058	3,612	2,755	5,844	5,826
%	12%	13%	11%	18%	17%
Other Investment Abroad	16,322	22,702	23,425	23,289	27,164
of which Australia	3,228	1,856	2,792	3,668	5,104
%	20%	8%	12%	16%	19%
Financial Derivatives	12,476	6,074	6,781	6,081	7,841
Reserve Assets	8,566	7,723	9,115	10,093	8,828
Total New Zealand Investment Abroad	84,753	82,757	81,710	90,130	97,957
of which Australia	15,529	13,864	14,429	18,532	20,777
%	18%	17%	18%	21%	21%
	Foreign investment in New Zealand				
Direct Investment in New Zealand	56,897	57,967	60,183	72,314	77,223
of which Australia	17,779	17,693	21,084	31,017	35,220
%	31%	31%	35%	43%	46%
Portfolio Investment in New Zealand	60,591	62,326	65,292	73,340	78,432
of which Australia	3,129	3,735	6,582	8,655	9,034
%	5%	6%	10%	12%	12%
Other Investment in New Zealand	46,238	55,367	49,778	47,975	58,238
of which Australia	7,642	11,383	11,152	10,021	11,815
%	17%	21%	22%	21%	20%
Financial Derivatives	8,487	6,111	8,774	8,591	10,186
Total Foreign Investment in New Zealand	172,214	181,770	184,028	202,220	224,078
of which Australia	28,550	32,811	38,818	49,693	56,069
%	17%	18%	21%	25%	25%
Net International Investment Position	-87,461	-99,013	-102,318	-112,090	-126,121
of which Australia	-13,021	-18,947	-24,389	-31,161	-35,292
%	15%	19%	24%	28%	28%
Gross Foreign Assets/GDP	74%	67%	63%	66%	66%
Gross Foreign Liabilities/GDP	150%	147%	143%	147%	152%
Net IIP/GDP	-76%	-80%	-79%	-82%	-86%
	(of which Australia)				
Gross Foreign Assets/GDP	14%	11%	11%	14%	14%
Gross Foreign Liabilities/GDP	25%	27%	30%	36%	38%
Net IIP/GDP	-11%	-15%	-19%	-23%	-24%

Source: Statistics New Zealand
I thank Anella Munro for providing me these data.

Table 8

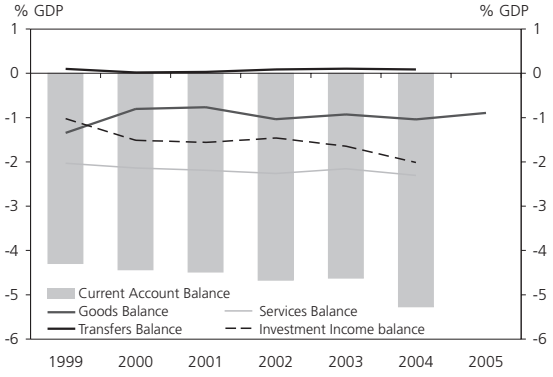
Consolidated Australia-New Zealand (ANZ) international investment position

	2001	2002	2003	2004	2005
	Australia-New Zealand investment abroad				
Direct Investment Abroad	220,440	270,315	219,087	255,288	294,943
of which internal	27,022	26,089	29,966	40,037	45,067
Portfolio Investment Abroad	203,957	226,923	189,782	244,270	272,830
of which internal	6,187	7,347	9,337	14,499	14,860
Other Investment Abroad	107,492	113,817	101,424	114,507	115,954
of which internal	10,870	13,239	13,944	13,689	16,919
Financial Derivatives	54,896	35,008	47,478	53,753	52,881
Reserve Assets	51,359	47,870	45,190	65,225	60,063
Total ANZ Investment Abroad	638,145	693,934	602,960	733,041	796,671
of which internal	44,079	46,675	53,247	68,225	76,846
	Foreign Investment in Australia-New Zealand				
Direct Investment in ANZ	305,488	325,311	332,744	380,309	448,940
of which internal	27,022	26,089	29,966	40,037	45,067
Portfolio Investment in ANZ	615,606	646,163	576,147	721,061	758,120
of which internal	6,187	7,347	9,337	14,499	14,860
Other Investment in ANZ	202,505	201,914	198,142	211,426	222,433
of which internal	10,870	13,239	13,944	13,689	16,919
Financial Derivatives	50,557	35,790	52,308	60,533	53,284
Total Foreign Investment in ANZ	1,174,157	1,209,177	1,159,343	1,373,330	1,482,777
of which internal	44,079	46,675	53,247	68,225	76,846
Net IIP/GDP	-56%	-50%	-56%	-58%	-61%
Gross Foreign Assets/GDP	67%	68%	61%	66%	71%
Gross Foreign Liabilities/GDP	123%	118%	117%	124%	132%
	(excl internal)				
Net IIP/GDP	-56%	-50%	-56%	-58%	-61%
Gross Foreign Assets/GDP	62%	63%	55%	60%	64%
Gross Foreign Liabilities/GDP	118%	114%	111%	117%	125%

Source: Statistics New Zealand, IMF International Financial Statistics, RBNZ estimates
I thank Anella Munro for providing me these data.

Figure 6

Components of bilateral current account deficit with Australia



4 Should New Zealand's large external imbalance be a cause for concern?

In the preceding Sections I have analysed New Zealand's external conditions. Six aspects stand out from this analysis.

- First, New Zealand has historically exhibited very large current account deficits. According to official New Zealand data the *average* deficit for the two first decades of floating was 4.8% of GDP. The smallest deficit was 0.7% of GDP in March 1989, and the largest

was 8.9% of GDP, a level achieved in December 2005. According to IMF data the *average* deficit was somewhat larger, at 5.4% of GDP. But deficits have not only been large, they have also been persistent. As shown in Table 5, New Zealand has been one of the few countries in the world that has had "persistently high" deficits.

- Second, at this time New Zealand has one of the highest current account deficits in the world. In 2005, among the advanced countries, only Iceland and Portugal had comparable deficits.[22]
- Third, the most important component of New Zealand's large current account deficit is the investment income account. In contrast with the US, until recently New Zealand's trade balance was in surplus, and only in 2004 did it turn significantly into deficit.[23]
- Fourth, New Zealand's NIIP is one of the most negative among advanced nations. In part, this negative NIIP is attributable to the special relationship between New Zealand and Australia. However, even when data for these two countries are consolidated the NIIP is very high from a comparative perspective.
- Fifth, New Zealand's bilateral current account deficit with Australia is very high. During 2001-2003 this bilateral deficit explained more than 100% of the overall current account deficit. The most important component of this bilateral deficit is the *investment income account*. This reflects the fact that Australian nationals have very large investments in New Zealand, and is (partially) the consequence of the accounting treatment given to retained earnings.
- Sixth, most analysts believe that New Zealand's sustainable current account deficit is significantly lower than its 2005 level. Although it is almost impossible to know what the precise sustainable level is, most studies put it at between 4.5% and 5.5% of GDP.[24] This number is approximately 4% of GDP lower than the current account balance in 2005.

Given the points made above, it is reasonable to ask whether the current very high deficit of the current account is a cause for concern. A number of authors, most notably Max Corden (1994), have argued that very large current account deficits "don't matter," as long as they are the result of higher (private sector) investment and not the consequence of higher public sector deficits. This is known as the "*Lawson Doctrine*," or as the "*consenting adults*" view of the current account. Since for many years New Zealand has run significant fiscal surpluses, this view implies that the large current account deficit of the last few years should *not* be a cause for concern. According to this view adults know what they are doing, and thus are unlikely to overreact. This means that the likelihood that there will be a sudden change in sentiments in capital markets is small, as is the probability of either a "sudden stop" or an abrupt and costly "current account reversal."

An elegant way of empirically addressing the question of whether large external deficits are worrisome is to investigate if they are consistent with intertemporal optimizing models that posit that savings and investment decisions (and thus the current account) are the result of *optimal* decisions by the private sector. An important and powerful implication of intertemporal models is that, at the margin, changes in national savings should be fully reflected in changes in the current account balance (Obstfeld and Rogoff 1996). Empirically, however, this prediction of the theory has been systematically rejected by the data.[25] Typical analyses that have regressed the current account on savings have found a coefficient of approximately 0.25, significantly below the hypothesized value of one. Many numerical simulations based on the intertemporal approach have also failed to account for current account behaviour. According to these models a country's optimal response to negative exogenous shocks is to run *very high* current account deficits, indeed much higher than what is observed in reality. Obstfeld and Rogoff (1996), for example, develop a model of a small open economy where under a set of plausible parameters

[22] Recent data suggests that in 2006 Spain will be added to this group.

[23] This assertion refers to the recent time. During 1999-2000 the trade balance was slightly negative.

[24] See Munro (2005) for a discussion on alternative estimates for current account sustainability in New Zealand.

[25] See, for example, Ogaki, Ostry and Reinhart (1995), Ghosh and Ostry (1997), and Nason and Rogers (2006).

the steady state trade surplus is equal to 45 per cent of GDP, and the steady state debt to GDP ratio is equal to 15.[26]

The common rejection by the data of the intertemporal (or Present Value) model of the current account has generated an intense debate among international economists. Some have argued that there is a group of "usual suspects" that explain this outcome (Nason and Rogers 2006); others have argued that the problem resides on the low power of traditional statistical tests (Mercereau and Miniane 2004).

In a recent paper using New Zealand quarterly data for 1982-1999, Kim, Hall and Buckle (2006) find that the implications of the intertemporal, present value model, of the current account cannot be rejected. More specifically, they find that there is no evidence of consumption-tilting towards the present in New Zealand. The authors' main conclusions from this research are:

> "(1) Despite substantial deterioration in New Zealand's current account deficits during the late 1990s, its current account movements over our sample period as a whole have been consistent with its intertemporal budget constraint and hence its formal external solvency condition has been satisfied. (2) The data is not consistent with consumption-tilting towards the present. (3) The current account paths predicted by our intertemporal optimisation models have satisfactorily reflected the actual directions and turning points for the consumption smoothing component of the current account." (p. 25-26).

These empirical findings led the authors to conclude that the available evidence suggests that the large deficits are no cause for concern. The large imbalances were the result of optimal decisions, and would revert themselves smoothly in due course.

The Kim, Hall and Buckle (2006) paper, however, did not include data for the 2000-2005 period, when the current account deficit widened significantly. In a recent paper Munro and Sethi (2006) revisit this issue, and provide new results for the estimation of the present value model of New Zealand's current account using data for 1982-2005. Their results support those of Kim, Hall and Buckle (2004), and indicate that the main implications of the present value model cannot be rejected. However, these new results by Munro and Sethi (2006) also suggest that the recent deterioration of the trade account is not consistent with the long-term solvency condition. An important implication of this finding is that New Zealand's external sector will have to go through a significant correction.

In this Section I take a somewhat different approach to the question of whether the large current account deficits in New Zealand should be a cause for concern. I use a broad multi country data set to investigate the determinants of the probability that a country experiences a sudden and large "current account reversal." I then use New Zealand data to evaluate how likely it is that the country will face such a reversal in the near future. I also analyse the evolution of the estimated probability of a current account reversal in New Zealand during the 1999-2005 period.[27]

The importance of analysing the likely nature of New Zealand's future adjustment stems from the fact that abrupt current account reversals have, historically, been associated with interest rate spikes, higher inflation, rapid currency depreciation and, more importantly, a significant decline in the rate of GDP growth.[28] According to Edwards (2005a), reversals have historically been associated with real depreciation ranging between 15% and 40%, and interest rates increases in the 240 to 570 basis points range. In addition, regression analyses in Edwards (2005b) indicate that countries that experience large and abrupt current account reversals have had, on average, a decline in GDP per capita growth that ranges from 2.5% to 5.5%.

[26] Obstfeld and Rogoff (1996) do not claim that this model is particularly realistic. In fact, they present its implications to highlight some of the shortcomings of simple intertemporal models of the current account.

[27] The latest IMF reports on New Zealand (IMF 2006a, 2006b) analyse whether the large current account deficit poses risks for the country. Although there is no empirical investigation, the authors of the report review work on reversals. On the bases of that review the IMF (2006b, p. 11) conclude that "the current account deficit poses no immediate threat to macro stability."

[28] Calvo *et al* (2004), Edwards (2005b), and Frankel and Cavallo (2004). See the discussion below for a comparison of GDP growth in New Zealand during reversal and non-reversal years.

Table 9

Incidence of current account reversals, 1972-2004

Region	No Reversal	Reversal
Industrial countries	94.7	5.3
Latin American and Caribbean	80.3	19.7
Asia	82.1	17.9
Africa	77.2	22.8
Middle East	83.5	16.5
Eastern Europe	83.9	16.1
Total	82.8	17.2
Observations	3.491	
Pearson		
Uncorrected chi2 (5)	90.58	
Design-based F(5, 14870)	18.11	
P-value	0.000	

Data and empirical model

In this study I define a "current account reversal" (CAR) episode as a reduction in the current account deficit of at least 3% of GDP in a one year period.[29] Table 9 presents data on the incidence of current account reversals for six groups of countries. As may be seen, for the overall sample the incidence of reversals is 17.2%. The incidence of reversals among the advanced countries is smaller, however, at 5.3%. The advanced countries that have experienced current account reversals during the period under study are:

- Austria (1978, 1982),
- Canada (1982, 2000),
- Finland (1976, 1977, 1993),
- Greece (1986),
- Iceland (1978, 1983, 1986, 1993),
- Ireland (1975, 1982, 1983),
- Italy (1975, 1993),
- New Zealand (1975, 1976, 1983, 1988),
- Norway (1978, 1980, 1989),
- Portugal (1982, 1983, 1984, 1985),
- Switzerland (1981).[30]

As may be seen, during the last 35 years New Zealand experienced abrupt and significant current account reversals on four occasions. Only Iceland and Portugal have experienced as many reversals.[31] It is interesting to note that the average rate of growth of per capita GDP in New Zealand during the four reversal years (1975, 1976, 1983 and 1988) was negative at around -1%. This is significantly lower than the average growth for the "non-reversal" years at 1.5%.[32] Moreover, in New Zealand, average real GDP per capita growth was also negative (-0.26%) one year after the reversals.

In the regression analysis reported in this Section I focus on countries with a GDP in 1995 of at least USD 52 billion. This allows me to focus on a group of countries that are somewhat homogeneous. However, in the discussion presented below I also discuss results obtained when a large group of countries is included in the analysis. The basic empirical model is a variance component probit, and is given by equations (2) and (3):

$$\rho_{tj} = \begin{cases} 1, \text{ if } \rho^{*}_{tj} > 0, \\ 0, \text{ otherwise.} \end{cases} \quad (2)$$

$$\rho^{*}_{tj} = \alpha\omega_{tj} + \varepsilon_{tj}. \quad (3)$$

Variable ρ_{tj} is a dummy variable that takes a value of one if country j in period t experienced a current account reversal (as defined above), and zero if the country in question did not experience a reversal. According to equation (2), whether the country experiences a current account reversal is assumed to be the result of an unobserved latent variable ρ^{*}_{tj}. In turn, ρ^{*}_{tj} is assumed to depend linearly on vector ω_{tj}. The error term ε_{tj} is given by a variance component model: $\varepsilon_{tj} = \nu_{j} + \mu_{tj}$. ν_{j} is iid with zero mean and variance σ_{ν}^{2}; μ_{tj} is normally distributed with zero mean and variance $\sigma_{\mu}^{2} = 1$. The data set used covers 44

[29] Later I also discuss results obtained when alternative definitions of reversals are considered in the probit analysis.

[30] In the analysis the basic cross-country data were obtained from the IMF's International Financial Statistics, and from the World Bank's World Development Indicators. The Figures may be slightly different from national sources' data. See Edwards (2005b) for alternative definitions of reversals.

[31] In its recent report on New Zealand the IMF (2006b) analyses whether the reversal in Finland in 1993 (as well as the milder adjustment in Sweden) offer lessons for New Zealand.

[32] See Edwards (2004) for a treatment of regression analysis of the effects of reversals on GDP growth.

countries, for the 1970-2004 period; not every country has data for every year, however. See Edwards (2005b) for exact data definition and data sources.

In addition to the random effects model, I also estimated fixed effects and basic probit versions of the probit model in equations (2) and (3).[33] One of the advantages of relying on a probit model, such as the one described above, is that they are highly non-linear. More specifically, the marginal effects of any independent variable on the probability are conditional on the values of *all* covariates. This means that if the value of any of the independent variables changes, the marginal effect of any of them on the probability of the outcome variable will also change.

In determining the specification of this probit model I followed the literature on external crises, sudden stops and reversals. In the basic specification I included the following covariates, which have data for a large number of countries and years:[34]

(a) The ratio of the current account deficit to GDP, lagged one period.

(b) The lagged ratio of the country's fiscal deficit relative to GDP.

(c) An index that measures the effect of "contagion." This index is measured as the relative occurrence of sudden stops in the country's reference group of counties. It is calculated, for each year and group, as the proportion of countries that experienced a "sudden stop." In this calculation data for the country in question are excluded. In that sense, then, this "contagion" index measures the relative occurrence of sudden stops in the country's immediate reference group. For New Zealand the reference group is the "advanced countries." In the case of New Zealand, for 1970-2004 the contagion variable has an average value of 0.064, and a standard deviation of 0.047. The lowest value of the "contagion" variable for New Zealand is zero (obtained in several years) and the highest is 0.19 (1973 and 1995). I expect the coefficient of this "contagion" variable to be positive, reflecting the fact that when a similar country experiences a "sudden stop," capital flows to the country in question will tend to decline increasing the likelihood of a massive current account correction.[35]

(d) Changes in the logarithm of the terms of trade (defined as the ratio of export prices to import prices), with a one year lag.

(e) The country's initial GDP per capita (in logs). This measures the degree of development of the country in question. If more advanced countries are less likely to experience a reversal, its coefficient would be negative.

In addition to the base estimates with the covariates discussed above, I estimate a number of regressions that further include (some combination) of the following covariates:[36]

(f) The one-year lagged rate of growth of domestic credit. This is a measure of the monetary policy stance.

(g) A dummy variable that takes the value of one if that particular country had a flexible exchange-rate regime, and zero otherwise.

(h) An index that measures the extent to which the country is dollarized. If countries subject to "original sin," that is, countries that are unable to borrow in their own currency are more prone to experience current account reversals, its coefficient should be positive. The data for this index were taken from Reinhart, Rogoff and Savastano (2003).

(i) An index that measures cases of significant real exchange-rate appreciation. This index takes the value of one if in a three year period the accumulated real exchange-rate appreciation exceeds 30%.

(j) And, an index that takes the value of one if the country in question is a "commodity country," and zero otherwise.

[33] In the 'basic probit" estimation, the error term is assumed to have the standard characteristics.

[34] See, for example, Frankel and Rose (1996), Milesi-Ferretti and Razin (2000) and Edwards (2002).

[35] There are six groups. Five of them are strictly regional, while the sixth refers to "advanced" nations and, thus, covers more than a region. New Zealand belongs to the "advanced" countries group.

[36] Most of these variables have a lower number of observations than those in (a)-(e) above.

Table 10
Determinants of current account reversals
Random effects probit regressions

	(10.1)	(10.2)	(10.3)	(10.4)	(10.5)	(10.6)
Current-Acc. deficit to GDP	0.177		0.183	0.174	0.171	
	(8.65)***		(8.27)***	(7.82)***	(6.57)***	
Fiscal deficit to GDP		0.039	0.002		0.012	0.033
		(2.56)***	(0.13)		(0.62)	(1.95)*
Contagion	1.960	2.408	1.731	2.224	1.956	2.360
	(2.74)***	(3.60)***	(2.35)**	(2.78)***	(2.20)**	(2.93)***
Terms of trade change	-0.012	-0.018	-0.012	-0.011	-0.013	-0.020
	(2.27)**	(3.59)***	(2.25)**	(1.93)*	(1.77)*	(3.26)***
Initial GDP per capita	-0.053	-0.115	-0.062	-0.014	-0.081	-0.115
	(1.02)	(2.09)**	(1.17)	(0.23)	(1.06)	(1.94)*
Flexible				-0.397	-0.398	-0.264
				(2.38)**	(2.18)**	(1.62)
Commodity					0.089	
					(0.45)	
Domestic credit growth					0.0002	0.0001
					(1.36)	(1.01)
Dollarization index					-0.188	
					(0.82)	
Appreciation					-0.280	
					(1.15)	
Pseudo-R2	0.32	0.33	0.3	0.37	0.39	0.33
Observations	881	822	822	741	599	608
Countries	42	40	40	42	35	36

Absolute value of z statistics is reported in parentheses; all regressors are one-period lagged; constant term is included, but not reported. *** significant at 1%; ** significant at 5%; * significant at 10%.

Unfortunately, it is not possible to analyse formally the way in which the close relationship between two countries, such as the one between New Zealand and Australia, affects the probability of a current account reversal. There are no readily available data on cross-country assets holdings such as that discussed in Section 3 of this paper. However, it is possible to perform some indirect tests on the way in which the trans-Tasman relationship between New Zealand and Australia is likely to affect the probability of a hard landing or abrupt current account reversal. I do this at the end of Section 4, where I discuss the role of FDI on these probabilities.

Basic results

The basic results obtained from the estimation of this probit model for a sample of 44 countries are presented in Table 10. In equations (10.1) and (10.2) the coefficients of both the current account deficit and the fiscal deficit are significantly positive, indicating that an increase in these imbalances increases the probability of the country in question experiencing an abrupt current account reversal. All the other regressors in equations (10.1) and (10.2) have the expected signs, and are significantly estimated at conventional levels. The results confirm the presence of a "contagion" effect, and that a deterioration in the terms of trade increases the probability of a reversal. These results also indicate that counties with a higher (log of) GDP per capita have a lower probability of a reversal. When these

equations were estimated using a fixed effects procedure, the results were very similar.[37]

In equations (10.1) and (10.2) the fiscal and current account deficits variables were introduced separately in the estimation. In equation (10.3) I present estimates when both variables are included in the same probit equation. As may be seen, in this case the coefficient of the (lagged) current account deficit continues to be positive and significant. However, the coefficient of the fiscal deficit ceases to be statistically significant. This result is rather intuitive: higher fiscal imbalances that are not associated with a deterioration of the external accounts, do not affect in a significant way the probability of an abrupt current account reversal.[38] Equation (10.4) indicates that countries with a flexible exchange-rate regime have had a lower probability of experiencing an abrupt and significant current account reversal.

In equations (10.5) and (10.6) I report estimates with additional covariates. The results are suggestive and confirm that countries with flexible exchange-rates have been less likely to experience an abrupt current account reversal; they also indicate that a more expansive monetary policy has had a positive, although statistically marginal, effect on the probability of a sudden current account reversal. Interestingly the commodity, appreciation and dollarization variables are not significant in the estimation of the current account reversal equations. All the estimated models presented in Table 10 performed quite well; the pseudo-R2 ranged between 0.3 and 0.4.

Robustness analysis

Standard robustness tests were performed, including estimating the equations for alternative time periods and alternative data sets (larger number of countries). I also re-estimated the model excluding outlier observations. Generally speaking, the results obtained suggest that the results reported in Table 10 are robust to specification, time period, country coverage, and the exclusion of "extreme values" of the different variables. I also considered alternative specifications, and included additional variables that (potentially) capture the extent of external imbalances.

The results presented in Table 10 consider the current account deficit as the measure of external imbalances, and don't control by the country's initial NIIP. That is, it makes no distinction between countries with a large deficit and a very negative initial NIIP, and one with a very large deficit and a low initial NIIP. When the value of the initial NIIP to GDP ratio was included as an additional regressor its coefficient was negative, as expected, indicating that a more positive NIIP would tend to reduce the probability of a current account reversal. However, the coefficient for this variable was statistically insignificant. Moreover, its inclusion did not affect in any way the analysis on marginal effects reported below.

As an additional robustness test I also considered alternative definitions of "current account" reversals. In particular, I re-estimated the probits when a reversal was defined as being a 4% reduction in the current account deficit in one year. The results obtained (available on request) are very similar to those reported here. The main difference is that when this stricter definition is used, the estimated coefficient of the initial (log of) GDP per capita was significantly negative.

Evaluating the effect of a larger external imbalance on the probability of a major current account adjustment in New Zealand

The results reported above show that larger external imbalances – measured by the (lagged) current account to GDP ratio – have been associated with a higher probability of experiencing an abrupt (and costly) current account reversal. However, the probit estimated coefficients reported above are difficult to interpret; it is not possible to know how the recent rapid growth in the current account deficit has affected the probability that New Zealand will face a current account reversal.

[37] In the fixed-effects estimation I used dummies for the different regions. In this case (the log of) initial GDP became insignificant. The reason for this is that the regional dummies capture income per capita differentials.

[38] The significant positive coefficient of the fiscal deficit in (10.2) is picking up the effect of the omitted current account variable.

Marginal effects

In order to address the interpretation issue I report the estimated marginal effects (and standard error) computed from one of the probit regressions reported above (equation 10.4). The marginal effects are estimated as the derivatives of the cumulative normal distribution with respect to the corresponding regressor. These derivatives are then evaluated for given values of the independent variables. An important property of probit models is that marginal effects are highly nonlinear and are conditional on the values of *all* covariates. If the value of any of the independent variables changes, the marginal effect of any of them on the probability of the outcome variable will also change.

In the exercise reported in this Section I attempt to answer the following specific question: "At the margin, by how much have increases in the current account imbalances affected the probability of an external crisis in New Zealand." In order to address this issue I follow a two steps strategy. First, I evaluate the marginal effects at the values of the covariates that prevailed in New Zealand in the early 2000. In particular, I use a value of the current account deficit of 2.8% of GDP, which corresponds to the year 2001. (For the other covariates I use the following values: *Contagion=0.01; dlogtt=.03; logGDP0=9.43084; Flex=1*). Second, I re-evaluate the marginal effects using a significantly higher value of the external imbalance. More specifically, I use a value of the current account deficit of 9% of GDP, which corresponds to New Zealand's deficit in 2005-06. In order to focus the analysis on the effects of the external disequilibria, in this second evaluation I maintain the assumed values of the rest of the covariates.

Table 11
Current account reversals: marginal effects and predicted probability

Variable	(11.1)	(11.2)
	"Early 2000"	High Imbalance
Current-Account deficit to GDP	0.012 (2.98)***	0.050 (3.80)***
Contagion	0.148 (2.59)**	0.638 (2.88)**
Changes in terms of trade	-0.001 (1.51)	-0.003 (1.78)*
GDP per capita	-0.001 (0.23)	-0.004 (0.23)
Flexible	-0.038 (2.27)**	-0.131 (2.40)**
Predicted Probability	0.029	0.208

Absolute value of z statistics are reported in parentheses.
*** significant at 1%; ** significant at 5%; * significant at 10%.

The results obtained from the computation of marginal effects are presented in Table 11. I present two sets of estimates : "*Early 2000*" and "*High Imbalance*." The first column contains the marginal effects obtained when equation (10.4) is evaluated using the values of the covariate corresponding to New Zealand in the early 2000s.[39] Four results stand out from Column 1:

- All, but one, of the marginal effects are significant at conventional levels.
- The marginal effect of the current account deficit is significantly positive. Its point estimate, however, is rather low. A marginal increase in the deficit from its initial value of 2.8% of GDP increases the probability of reversal by only 1.2 per cent.
- For this specific configuration of values of the key variables, the marginal effect of the contagion is rather

[39] In these estimates the current account deficit – the variable of greatest interest – is given a value of 2.8% of GDP; this corresponds to the current account deficit experienced by New Zealand in 2001. When alternative specifications of the probit equation are used to evaluate the marginal effects, the results are very similar to those discussed here.

large; the point estimate is 0.15, indicating that an increase in sudden stops in similar countries increases the probability of a reversal crisis by 15 per cent.

- According to the estimate for "*flexible exchange-rate*" a country that, with other things given, moves from a pegged to a flexible exchange-rate regime reduces its probability of a crisis by 4.4%.

The marginal effects in the second column of Table 11 also correspond to equation (10.4), but they have been evaluated for a value of the current account deficit of 9% of GDP. All other covariates continue to have the same values as in the first column. The differences between the "*High Imbalance*" marginal effects in Column 2 and the "*Early 2000*" marginal effects in Column 1 are very interesting and may be summarized as follows:

- The marginal effect for the current account deficit is four times higher in the "*High Imbalance*" case (Column 2) than in the "*Early 2000*" case (Column 1). The point estimate, however, is still on the low side: 0.050.
- The most important difference between these two estimates has to do with the marginal effect of "*contagion*." A country with a 9% of GDP current account deficit is significantly more vulnerable to contagion than a country with only a 2.8% current account deficit (other things being the same). The differences in the marginal effect for contagion in these two estimates are indeed startling: the point estimate increases from 0.15 to 0.64. Interestingly, these marginal effects for contagion are not very sensitive to the assumed value of the contagion variable itself; when I repeated this exercise using a value of 0.0 for contagion, its marginal effect was 0.14 for the "*Early 2000*" case and 0.63 for the "*High Imbalance*" case.
- The marginal effect of the "flexible exchange-rate" variable goes from -0.044 to -0.13. That is, the benefits of adopting a flexible exchange-rate regime are *three times higher* for countries with (very) large current account deficits than for countries with moderate deficits.

The results discussed above suggest that, although a higher current account deficit increases significantly the *marginal probability* of a reversal crisis, this is not its main effect; indeed, its marginal effect is *only 5%*. From New Zealand's point of view, the main consequence of the recent increase in the current account deficit is a very significant increase in its degree of vulnerability to contagion.

The discussion presented above has focused on the *marginal effects* of changes in the current account deficit on the probability of experiencing a current account reversal. A related question, and one that is perhaps more relevant from a policy point of view in New Zealand, is how the rapid increase in the current account deficit has affected the overall predicted probability of an abrupt current account reversal in New Zealand. This question is addressed in the last row of Table 11, where I report the predicted probability for the "*Early 2000*," and "*High Imbalance*" cases. As may be seen, the increase in the predicted probability of an abrupt current account reversal is significant. It goes from 3% in the "*Early 2000*" case (a scenario associated with New Zealand in the early 2000s) to 21% under the "*High Imbalance*" scenario.

"Maxi" current account reversals

The results reported in Tables 10 and 11 are for current account reversals of at least 3% of GDP. Historically, however, a number of countries have experienced more severe adjustments of, say, 5% of GDP in one year. This is usually the case when the international capital market turns viciously against a country, forcing it to adjust severely. As Frankel and Cavallo (2004) and Edwards (2004) have shown, these more severe reversals are more costly in terms of GDP collapse. In order to address this issue I estimated random effect probit equations of the type given by equation (3) for an alternative and stricter definition of current account reversal of 5% of GDP in one year. The regression results are in Table 12; the estimated marginal effects and predicted probabilities computed from equation (12.1) are presented in Table 13, overleaf.

As may be seen, qualitatively speaking the probit results are very similar to those in Table 10 for the 3% definition

Table 12

Determinants of current account reversals:
reversal 5%, random effects probit regressions

	(12.1)	(12.2)	(12.3)
Current-Account deficit to GDP	0.138	0.147	0.144
	(5.41)***	(5.25)***	(5.21)***
Fiscal deficit to GDP		-0.010	-0.015
		(0.53)	(0.70)
Contagion	3.117	2.917	2.896
	(3.53)***	(3.14)***	(3.06)***
Terms of trade change	-0.009	-0.010	-0.009
	(1.36)	(1.43)	(1.35)
Initial GDP per capita	-0.116	-0.132	-0.195
	(1.41)	(1.57)	(2.17)**
Flexible	-0.455	-0.506	-0.557
	(2.10)**	(2.23)**	(2.44)**
Commodity			0.131
			(0.57)
Appreciation			-0.215
			(0.76)
Dollarization index			-0.406
			(1.54)
Pseudo-R2	0.31	0.31	0.34
Observations	741	694	685
Countries	42	40	39

Absolute value of z statistics is reported in parentheses; all regressors are one-period lagged; constant term is included, but not reported. *** significant at 1%; ** significant at 5%; * significant at 10%.

of reversals. The signs of the estimated coefficients are the same, and virtually the same variables are significant.

The marginal effects and predicted probabilities, however, present some differences. For every covariate the marginal effect in Table 13 is substantially lower than in the previous analysis. As an illustration, under the "*High Imbalance*" case the marginal effect of the (lagged) current account deficit is now a mere 1.4%. From a policy perspective, perhaps the most important result in Table 13 refers to the predicted probabilities of a "5% current account reversal," for a New Zealand-like country. As may be seen, the predicted probability in the "*Early 2000*" scenario is less than one per cent (0.6%); under the "*High Imbalance*" scenario the predicted probability of a "5% current account reversal" is a mere 5%.

The role of FDI

An interesting question is whether a large FDI component in capital inflows has an effect on the probability of experiencing a reversal. This is potentially important since New Zealand has traditionally had a large, positive and steady flow of FDI, mostly coming from Australia. For the complete period, for example, the mean FDI to GDP ratio for New Zealand was 3.0%, and the standard deviation was 1.72. For all Advanced Countries the mean was 1.80% with a standard deviation of 3.0%. When the FDI to GDP ratio is added to the random effects probit equations, its estimated coefficient is negative and its p-value is 0.08.[40]

[40] This result is obtained when the FDI to GDP ratio is added to the specification in equation (10.1). When added to the other specifications in Tables 10 and 12, the results are similar. Notice that when this variable is added to the regressions the number of observations falls by approximately 50%.

This suggests that, with other things given, countries with a higher flow of FDI will tend to face a lower probability of experiencing a current account reversal.

Table 13
Current account reversals: marginal effects and predicted probability, reversal 5%

Variable	(13.1)	(13.2)
	"Early 2000"	High Imbalance
Current-Account deficit to GDP	0.002	0.014
	(1.65)*	(1.83)*
Contagion	0.052	0.311
	(1.77)*	(2.29)**
Changes in terms of trade	-0.0002	-0.001
	(1.03)	(1.20)
GDP per capita	-0.002	-0.011
	(1.43)	(1.58)
Flexible	-0.013	-0.065
	(1.80)*	(1.99)**
Predicted Probability	0.006	0.047

Absolute value of z statistics are reported in parentheses. *** significant at 1%; ** significant at 5%; * significant at 10%.

In order to investigate further the role of FDI, I computed the marginal effects and predicted probability of reversal under two assumptions for FDI behaviour. The first assumption is that the "*high imbalance*," which as before is assumed to be characterized by a current account deficit of 9% of GDP, is fully financed by FDI flows. In the second scenario, none of the "*high imbalance*" is financed by FDI flows.[41] The results obtained highlight the importance of FDI. When the deficit is fully financed with FDI the predicted probability of reversal is 12.1%; when FDI declines to zero, the predicted probability increases to 27%. There is also an effect on the marginal contribution of the current account deficit: when FDI fully finances the imbalance, a marginal increase in the deficit raises the probability of reversal to 4%; when there are no FDI flows the marginal effect of the deficit increases to 6%. These results shed some light on the importance of the trans-Tasman relationship between Australia and New Zealand discussed in Section 3 of this paper. As may be seen in Table 7, the stock of Australian FDI represents almost 50% of all FDI in New Zealand. Moreover, FDI is more than 60% of all Australian assets in New Zealand. The centrality of Australian FDI in New Zealand, and the probit analysis suggests that the trans-Tasman connection will, overall, tend to reduce the probability of New Zealand facing a hard landing.[42]

5 Monetary policy, external imbalances and other policy issues

Monetary policy

In the preceding Sections I analysed the recent evolution of New Zealand's external imbalances, and I showed that this is a unique case, in several respects. I also showed that, according to an econometric analysis of the determinants of current account crises, the recent worsening in the current account balance has increased New Zealand's external sector vulnerability and, in particular, the probability of being subject to contagion. Although at this time the predicted probability of experiencing an abrupt current account reversal of at least 3% of GDP is not at an overly critical level, it is estimated at a quite high 21%. On the other hand, my estimates indicate that even under with a very large 9% current account deficit, the predicted probability of a much more severe "5% current account reversal" is only 5%.

In this Section I address briefly an important issue related to the relationship between monetary policy and the external sector: The question is whether the RBNZ would benefit from formally considering exchange-rate developments

[41] That is, in the first scenario the predicted probabilities and marginal effects are evaluated at values of the current account deficit of 9% and of FDI of 9%; in the second scenario, the deficit is 9% and the FDI ratio is zero.

[42] On the other hand, given the importance of the "contagion" variable in this analysis, if Australia herself is subject to a "sudden stop," New Zealand is highly likely to go through a hard landing and an abrupt reversal. Assessing the likelihood that Australia will experience a sudden stop is beyond the scope of this paper.

when deciding on the level of the OCR? [43] The traditional literature on inflation targeting, both theoretical and applied, has ignored this exchange-rate question. Most of this literature has relied on discussions on how the central bank should adjust the monetary policy interest rates. The Taylor rule provides a powerful guidance for addressing this issue. The seminal book by Mike Woodford, *Interest and Prices* (2003), which provides firm analytical underpinnings for interest rate-based monetary policy and discusses a number of Taylor based rules, does not deal explicitly with exchange-rates; the index has no entries for "exchange-rate(s)," "devaluation," or "pass-through." There is one entry for "open economy," although no open economy model is presented, and the discussions on optimal policy rule do not consider the (potential) role of open economy variables. (To be fair, however, one could interpret the discussion in Section 2.1 of Chapter 7, on cost-push shocks, as including shocks stemming from exchange-rate depreciation.) The chapter on "*Design and Implementation*" (Chapter 3) of the influential and pioneering book by Bernanke *et al* (1999) does not discuss at the analytical level whether exchange-rate considerations should be explicitly incorporated into the policy rule in an inflation targeting (IT) setting. In the chapter on Israel, Australia and Spain the authors discuss how Spain and Israel gradually relaxed exchange-rate bands when they adopted IT, and they explain that in both of these countries the authorities decided "not to respond to short term exchange-rate fluctuations" when making monetary policy decisions (Bernanke *et al*, 1999, page 205). There is no explicit discussion, however, on whether the authorities should explicitly and directly consider exchange-rate developments when setting the policy rate. And yet, this is an important question for central bankers from around the world, including in New Zealand.

From a technical point of view the discussion of the relation between central bank policy and the exchange-rate may be framed explicitly in terms of the Taylor rule in a small open economy. In 2001 Taylor himself posed the problem as follows:

"How should the instruments of monetary policy (the interest rate or a monetary aggregate) *react to the exchange-rate?"* (Taylor, 2001, p. 263. Emphasis added)

In order to address this question more formally, consider the following equation:[44]

(4) $i_t = f\pi_t + gy_t + h_0 e_t + h_1 e_{t-1}$

Where i_t is the short term interest rate used by the central bank as a policy tool, π_t is the deviation of the rate of inflation from its target level (possibly zero), y_t is the deviation of real GDP from potential real GDP (often called the output gap), and e_t is the log of the *real* exchange-rate in year t.[45] f and g are the traditional Taylor rule coefficients; h_0 and h_1 are the coefficients of the current and lagged log of the real exchange-rates in the expanded Taylor rule, and are the main interest of this discussion. If $h_0 = h_1 = 0$ exchange-rate developments should not be incorporated in the policy rule, and the Taylor rule reverts to its traditional form.

It is conceivable, in principle, that in a small open economy the optimal monetary policy rule (that is the policy that maximizes the authorities' objective function) is one where both h_0 and h_1 are different from zero. Interestingly, if $h_0 > 0$ and $h_0 = -h_1$, then the rule implies that monetary policy should react to changes in the (real) exchange-rate. Notice that the formulation in equation (4) does not imply, even when h_0 and h_1 are different from zero, that the monetary authorities should defend a certain *level* of the exchange-rate. If the optimal policy calls for intervention, that is for h_0 and h_1 different than zero, and if the monetary authorities do follow this policy, a casual observer may conclude that the country in question is subject to "fear of floating." This, however, would be an incorrect inference, as the country in question would be practicing "optimal flotation."

[43] It is not my intention, however, to provide a comprehensive survey on the topic of central bank intervention. The literature is voluminous country-specific, and continues to grow every day; interested readers are directed to, among others, Dominguez and Frankel (1993), Taylor (2004), Kearns and Rigobon (2005), Neely (2001), Sarno and Taylor (2001). For an excellent analysis of different central bank policies, including Chile's case, see Tapia and Tokman (2004). On New Zealand's policy of RBNZ foreign exchange intervention see Eckhold and Hunt (2005).

[44] This is the precise equation presented by Taylor in his discussion on the subject.

[45] In this formulation an increase in e denotes a real exchange-rate appreciation.

Recently McCallum (2006, 2005) has argued that very open small economies may benefit from replacing Taylor's rule, either with or without an exchange-rate term, with an "exchange-rate rule" of the following form:

(5) $$\Delta e_t = \Delta q - \Delta p_t + \mu_1(\Delta p_t - \pi^*) + \mu_2(y_t - \bar{y}) + \eta_t$$

where e is the nominal exchange-rate, expressed as foreign currency units per unit of home currency; Δq is the average long run rate of real exchange-rate appreciation, and Δp_t is actual inflation. Deviations of inflation from target and the output gap have been written in an explicit way. η is a random term, and μ_1 and μ_2 are greater than zero. In this model, when inflation exceeds its target the authorities manipulate the nominal exchange-rate in order to generate an appreciation, through purchases (or sales) in the money market or foreign exchange market.[46] It is important to notice that in McCallum's model, the policy rule in equation (5) is not intended to maintain the exchange-rate at any particular level. It is simply an alternative way of achieving the monetary authorities' objectives. Using a simple simulation model, and parameter values consistent with the case of Singapore (that is for a very open economy) McCallum (2006) argues that the exchange-rate based policy rule (5) outperforms a more traditional Taylor-type rule. According to these computations, however, countries with a ratio of exports to GDP similar to that in New Zealand (in the vicinity of 0.3) the interest rate based rule will tend to yield a greater degree of macroeconomic stability.

Taylor (2002) reviewed 19 *recent* models developed to analyse inflation and monetary issues. Of these, only 5 assumed that the exchange-rate affected aggregate demand, and only six assumed that exchange-rate change was a factor in the process of price determination. This illustrates quite starkly the fact that many influential researchers continue to think in terms of closed economy monetary models.

At the end of the road, whether h_0 and h_1 should indeed be different from zero is a country-specific empirical question, that should be dealt with by analysing country specific evidence – both historical and based on simulation exercises. After much reflecting on this subject I find it difficult to disagree with Taylor (2001) when he expresses some scepticism on the *general* merits of adding the exchange-rate into the interest rate equation. This is for, at least, two reasons. First, and as pointed out earlier, in properly specified models, the exchange-rate already plays an *indirect* role through its effect on π_t and y_t; second, adding the exchange-rate (or any other asset price, for that matter) into the Taylor rule is likely to add considerable volatility to monetary policy. This conclusion is similar to that of Mishkin and Schmidt-Hebbel (2001) who provide an extensive discussion on the subject. According to them, when implementing policy, central banks should consider the effects of exchange-rate fluctuations on inflation and the output gap, but should not consider an independent role for e_t. According to them, "targeting on an exchange-rate is likely to worsen the performance of monetary policy."

Generally speaking, and unless there is strong evidence to the contrary, I believe that this general principle that states the exchange-rate should not have a *formal and independent* role in the Taylor rule also applies to the case of New Zealand.[47] This does not mean, however, that the monetary authorities should be oblivious of real exchange-rate developments. Indeed, if there is evidence that the exchange-rate becomes *significantly* out of line with respect to the value dictated by fundamentals it is likely to be welfare enhancing to intervene directly in the foreign exchange market, either buying or selling foreign exchange. In 2005 New Zealand unveiled a specific foreign exchange intervention policy.[48] According to this framework, the Reserve Bank of New Zealand will intervene if four criteria are met: (1) the exchange-rate is exceptionally high or low; (2) the exchange-rate is unjustified by the level of fundamentals; (3) intervention should be consistent with the Policy Targets Agreement (PTA), or inflation target; and (4) conditions in the market should be opportune and there should be a reasonable probability of success. These intervention principles make eminent sense: while they acknowledge that on occasion exchange-rate misalignment may be acute and costly, at the same time they recognize that intervention in the foreign exchange market should be

[46] See McCallum (2005b) for a discussion of these issues from Japan's perspective.

[47] Of course, exchange-rate developments do play an important indirect role through their impact on inflation and the level of economic activity.

[48] See Eckhold and Hunt (2005).

a rare event, and one that should not be taken lightly. I don't see reasons at this time for changing this policy.

Further reflections

Although this paper has covered a significant amount of ground, there are many policy issues related to New Zealand's external sector and monetary policy that have not been addressed. In the rest of this Section I present some brief reflections on two of these issues. These remarks are not exhaustive; my purpose in presenting them is to raise as many questions as to provide some tentative answers.

During the last 3 years there has been a growing perception among analysts and observers that New Zealand has had some difficulties with the implementation of monetary policy. These have been reflected by an increased volatility of some of the more important macro variables, including interest rates, exchange-rates and nominal GDP. The rapid increase in housing prices revealed potentially important macro imbalances. Heightened volatility during this period seems to have been higher in New Zealand than in other commodity-currencies countries, including Australia and Canada. In addition, there has been a perception that during the last few years the RBNZ has faced some difficulties in implementing monetary policy. Increases in the OCR were not translated into desired changes in longer term interest rates, and did not seem to have the expected (and desired) effect on mortgage rates, external imbalances and or aggregate demand. (To be fair, this has not been unique to New Zealand. In the US, a 400 bps increase in the Federal Funds rate has barely been translated into a 20 bps increase in the longer term 10 year rate. Former Fed Chairman Greenspan referred to this as a "conundrum.")

Although the macro picture in New Zealand has changed somewhat (the NZD has experienced some weakening and increases in housing prices have moderated) a number of important policy questions remain open. The most important of these questions is whether, in light of the macro developments of the last few years, there should be significant changes in the way New Zealand implements monetary policy. An even more profound question is whether New Zealand should form a monetary union with Australia.[49] For all practical purposes this would imply adopting the Australian dollar, as it is extremely difficult to think that Australia will give up its own currency. In my judgement, the answer to both of these questions is "no"; I believe that the current policy framework should not be subject to major changes, and I believe that New Zealand should continue to have its own currency. In what follows I elaborate on these two points.

There is significant evidence suggesting that the current Inflation Targeting framework used by the RBNZ has worked well. Indeed, New Zealand has been a case that is studied with care and admiration by central bankers from around the world. Many of the main characteristics of New Zealand's system are considered to be among the most desirable in countries that adopt an IT system. Having said this, there are some minor points that deserve attention and further study. Here by "minor" I don't mean "unimportant," I mean that these issues do not affect the most important characteristics of the current policy framework. More specifically, I believe that some idiosyncratic aspects of the New Zealand economy should be informally considered in the policy process. By "informally" I mean that these should be important inputs in the policy making process, perhaps more important than what they have been until now; at the same time I mean that they should not be incorporated formally into a Taylor rule type of equation.[50] Some of the most important aspects that, in my opinion, should be considered in the undertaking of monetary policy are:

- Greater attention should be given to the relationship between New Zealand's business cycle and the business cycle in the major economies (e.g. the G-3 and Australia). In particular, the increased sensitivity of (short term) capital flows to interest rate differentials, the so-called "carry trade," should be taken into account when formulating policy.

[49] The monetary union issue has been analysed by Bjorksten *et al* (2004), Drew *et al* (2003), and Grimes (2005a, 2005b, 2006).

[50] At any rate, it is important to emphasize that the Taylor rule has always been meant as providing broad guidance to the policy making process.

- The RBNZ should consider being more "patient" and reducing the number of times when it undertakes policy action. In that regard, coordinating the number and dates of policy meetings with those of the most important foreign central bank makes eminent sense. "Patience" also means not overreacting to changes in capital flows in the short run.
- It is unlikely that a small country such as New Zealand can successfully adopt the Greenspan view on asset prices, and ignore significant property booms. The main reason for this is that consumers' expenditure decisions are significantly more dependent on housing wealth than in the US. Thus, a rapid increase in housing prices would result in rapid increases in aggregate demand and in inflationary pressures.
- The increased degree of flexibility in the Inflation Targeting framework may have contributed somehow to the increased macroeconomic volatility. In particular, changing the inflation target to 1-3% and adding "over the medium run" may have given the signal that the RBNZ was becoming weak on inflation-fighting.

From a monetary policy point of view, asking whether New Zealand should form a monetary union with Australia makes sense. At some level there are good reasons for thinking that the answer may be "yes." After all, New Zealand and Australia seem to satisfy a number of the so-called Optimal Currency Area (OCA) criteria. However, given the good marks given to New Zealand's monetary policy, and the fundamentally important role played by flexible exchange-rates in helping accommodate external shocks, the costs of giving up the currency would exceed the benefits. Many analysts have the view that countries that belong to a monetary union are not subject to major external crises in the form of "sudden stops" or "current account reversals." However, as I show in a recent paper (Edwards, 2006b), historically this has not been the case. Indeed, a number of currency union countries have been affected by these types of crises. Moreover, in that paper I show that many of the costs of these crises, measured as the decline in the rate of growth of GDP, are significantly larger in currency union countries than in nations that have a currency of their own.

6 Concluding remarks and summary

This paper has dealt with a number of issues related to New Zealand's external accounts. I have shown that in a number of ways New Zealand's situation is unique in the world economy. The most important conclusions from the analysis may be summarized as follows:

- During the last thirty five years New Zealand has been one of the few countries with persistently high current account deficits.
- During this period it has also been subject to a number of adjustments, including some characterized by large and rapid current account reversals (1975, 1976, 1983, and 1988).
- The recent levels of the current account deficit are very large, both from a historical and comparative perspective. Indeed, at 9% of GDP, they are larger than most estimates of the "sustainable" current account deficit.
- New Zealand's large negative Net International Investment Position (NIIP) is currently 90% of GDP. This is a very large Figure, both from a comparative perspective, as well as when compared with the evolution of the NIIP for New Zealand.
- In contrast with the US the main source of New Zealand's current account deficit is not the trade deficit. Indeed, until recently the trade balance was in surplus. The main source of New Zealand's current account deficit is the investment incomes account.
- Having said this, in recent years the trade balance has turned into deficit, contributing to the large overall current account imbalance.
- To an important extent the (very) negative NIIP and (very) large current account deficit may be explained by New Zealand's very close economic relationship with Australia. In particular, the significant presence of Australian FDI in a number of sectors (including banking) explains the large negative investment incomes account. (Remember that in balance of payments accounting, reinvested earnings of foreign owned

companies are treated simultaneously as an outflow in the investment incomes account and as an inflow in the finance account).

- Once the data are adjusted by the effects of the *"Australian (or trans-Tasman) connection*," both the NIIP and the current account look less "threatening."
- However, even after making the "trans-Tasman" adjustment the current account balance appears to be significantly larger than what is sustainable. This implies that at some point in the future New Zealand will have to go through an external adjustment process. A key question is whether this adjustment will be gradual, and thus costless, or whether it will be abrupt and (very) costly.
- In order to address this issue I estimated a number of probit models to analyse the determinants of the probability of facing an abrupt current account reversal. I evaluated these models using data for New Zealand in the early 2000s, when the current account deficit was below 3%, and in 2005-06, when the deficit is 9%.
- The main result from this analysis is that the rapid growth in the deficit during the last few years has (greatly) increased New Zealand's vulnerability to "contagion." It has also increased the advantage of the country's current floating exchange-rate regime.
- The evaluation of the "predicted probability" of experiencing an abrupt current reversal indicates that the results depend on the magnitude of the reversal in question. The probability of facing a "3% of GDP" reversal has increased to approximately 20%; on the other hand, the probability of facing a "5% of GDP" reversal as increased to only 5%. In this regard, the current external imbalances should not be a cause for great concern.
- An analysis of the framework used by the RBNZ for conducting monetary policy suggests that this is largely appropriate. In particular, there appears to be no compelling reason at this time for including exchange-rate developments as an independent factor in the monetary policy rule.

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External imbalances in New Zealand by Sebastian Edwards

Discussion by William R. Cline[1] Institute for International Economics

It is a pleasure to be in New Zealand once again and to comment on the paper by Sebastian Edwards. I thank the Reserve Bank of New Zealand in particular for the invitation to participate in this important conference. I will first address the paper, then consider some additional data and analytical questions of my own, and then conclude with policy implications.

The paper

This is another fine Edwards paper. It exemplifies the author's usual cogency, empirical painstaking and econometric dexterity. I agree with the main thrust of the paper, so my comments will focus on differences of emphasis and interpretation. In short, the fundamental message of the paper is that New Zealand's large current account deficit and resulting further increase in already exceptionally high net international liabilities constitute a problem. I agree. Edwards conducts tests that nonetheless reassure him that when the adjustment comes it will be benign. I am not so sure. As a corollary, he implies that nothing special should be done about the external deficit, which by implication will take care of itself; most importantly, nothing should be done that would endanger the nicely working machinery of New Zealand's macro-policy regime centred on inflation targeting. I am skeptical of this implied do-nothing position, although I recognize that finding feasible tools for constructive action is difficult.

One of the most important findings in the paper is Edwards' forthright recognition of the implications of the simple arithmetic of sustainable external debt. The basic premise is that the ratio of net international liabilities to GDP cannot keep rising without limit. If this ratio is to stabilize at 100 per cent of GDP (up from about 90 per cent now), for example, then the current account deficit as a per cent of GDP cannot exceed the nominal growth rate of GDP. This is essentially an accounting identity because for the average debt ratio to stabilize it must equal the marginal ratio. The marginal ratio has the change in net external liabilities in the numerator and the change in nominal GDP in the denominator. Abstracting from valuation changes, the change in net foreign liabilities is the current account deficit. The change in nominal GDP in the denominator equals is GDP multiplied by the nominal growth rate. Dividing both the numerator and denominator by GDP yields the ratio of the current account deficit as a per cent of GDP to the nominal growth rate of GDP. With real GDP growing at about 3.5 per cent and inflation at 1.5 per cent, nominal growth is about 5 per cent. If the net external liability ratio is to be held to 100 per cent, the current account deficit (CAD) will need to fall from 9 per cent of GDP to 5 per cent.

The paper implicitly takes this diagnosis as axiomatic, but it is important to recognize that many economists tend to dismiss the notion of any serious limits on the external current account deficit or net foreign liabilities. Indeed, the Lawson Doctrine holds that so long as the fiscal accounts are not in deficit, any external deficit is no cause for concern because it is the result of private market decisions among "consenting adults." So it is crucial to recognize up front that, in sharp contrast to that doctrine, this paper implicitly argues that there is some ceiling level on the ratio of net international liabilities to GDP that should not be exceeded. By implication, for economic policy to ignore this ceiling is to store up trouble for the future.

Let me make this point more starkly in a fashion that might be used by a devil's advocate questioning New Zealand's remarkable success. Net international liabilities have grown from 30 per cent of GDP in 1980 to about 60 per cent in 1990, 75 per cent in 2000, and 92 per cent in 2004. An economist visiting from Mars could conclude that New Zealand's strong record of sustained growth and control of inflation has been based on "other people's money," and that some other model will need to be found for continued success in the future because there is a limit to such money. This visitor could also make the point that the traditional benign

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form of a large foreign deficit – use of foreign resources for investment in tradables capable of future debt service – seems to have eroded in recent years, as the rise in the current account deficit has substantially exceeded the rise in private investment – much of which in turn increasingly seems to have gone into housing rather than tradables.[2] More fundamentally, with an extremely large deficit on capital services income already, the capital inflow covering the current account deficit is mostly not available to use for real investment because it is earmarked to leave the country again immediately upon arrival to pay for income payments. In other words, large current account deficits comprised almost wholly of net income payments cannot be benign manifestations of future growth from present real capital stock buildup; they are inherently manifestations of the bill coming due on either such buildups in the past (preferably), or on past consumption (less favourably).

The danger of Sebastian's paper is that some may read his key empirical findings as a diagnosis that there is nothing to worry about and that no special changes in policy need be considered. This is because his focus is on whether the adjustment when it comes will be a hard landing involving the type of severe recession in the face of a cutoff of foreign capital witnessed in many international episodes of the Sudden Stop. His econometric means for answering this question is a cross-country logit model explaining Current Account Reversals (CAR), defined as a reduction in a large current account deficit by 3 per cent of GDP in one year. The central finding is that even with a current account deficit of 9 per cent of GDP, the probability of New Zealand's experiencing a CAR is only 21 per cent. So the paper concludes the risk of an ugly rather than benign external adjustment is relatively low.

Questions can be raised about this framework. Ironically, a CAR could be compatible with growth stimulus rather than recession. It is, after all, a surge in exports and decline in imports, which in the first instance boosts real output. The stylized fact of recessionary Sudden Stops hinges on a causal chain from external credit cutoff to a surge in interest rates, collapse in domestic demand and hence collapse in imports. But it is far from clear that this sequence typically applies to industrial countries even in CAR episodes. Indeed, in New Zealand's most recent CAR, when the current account deficit narrowed by 3.7 per cent of GDP from 2000 to 2001, there was positive growth of 3 per cent rather than a recession. This favourable external adjustment reflected the lagged response to an extremely low real exchange-rate in 2000.

A parallel question is whether the model really deals with the differences between industrial and developing countries. For example, in their cross-country study of debt crises, Reinhart, Rogoff, and Savastano (2003) found that whereas the debt to GDP ratio was strongly significant and had the right sign for developing countries, it did not even have the right sign for industrial countries. In the tests in the Edwards paper, the 44 countries include many developing countries, and the great majority of the CAR events are in developing countries. In particular, I wonder whether the high sensitivity to contagion in the current variable values for New Zealand is really appropriate for an industrial as opposed to developing country. Similarly, it seems quite possible that a larger share of the CAR events for industrial countries will have been the consequence of a sharp domestic policy tightening to deal with inflation rather than the result of a shut-down in availability of foreign capital. Of course, it could be argued that if there is insufficient differentiation between industrial and developing countries in the model, there is even less to worry about for New Zealand than identified in the paper's 21 per cent probability, because industrial countries are more resilient. More fundamentally, however, I will argue below that delaying external adjustment can impose a welfare loss from undue burden imposed on the populace in the future relative to the present, even if the eventual adjustment avoids recession.

The paper raises the important question of whether the vulnerability to the current account deficit is overstated because of the large role of reinvested earnings of foreign firms in the capital services deficit. The accounting convention of treating these earnings as an income outflow in the current account matched by a capital inflow in the

[2] Gross fixed capital formation rose by 1.8 per cent of GDP from the 1991-2001 average (22.0 per cent) to 2005 (23.8 per cent), whereas the current account deficit rose from an average of 5.0 per cent of GDP to 8.8 per cent. IMF (2006b). The question of whether a collapse in household saving has occurred is discussed below.

capital account (now "financial" account in IMF parlance) may overstate the economic reality of the income payments burden because of semiautomatic reinvestment rather than repatriation. In 2005, New Zealand's capital services balance was -6.8 per cent of GDP. Of this amount, reinvested earnings by foreign direct investors contributed -2.5 per cent of GDP (Statistics New Zealand, 2006). There may thus be some merit to the notion that the deficit looks more dangerous than it really is. Even so, completely removing reinvested direct investment earnings would only reduce the current account deficit from 9 per cent of GDP to 6.5 per cent, still large by industrial country standards. The paper addresses this issue indirectly, using the argument as a motivation for aggregating the net international investment positions of Australia and New Zealand. When it does so, it finds the aggregate NIIP is -61 per cent of combined GDP. This is broadly consistent with the more direct estimate here, that removing retained earnings from capital income payments cuts the capital services income deficit by about one third, or about the same proportion as the shrinkage from New Zealand's NIIP relative to GDP to that for the two countries combined.

A crucial question in diagnosing New Zealand's rising current account deficit is whether it has been driven by a collapse in household saving. Edwards believes that it has. His Figure 3, which requires his own estimates after 2001 for lack of direct data, shows a plunge in household saving from an average of 1.2 per cent of GDP in 1984-92 to an average of -5.5 per cent of GDP in 2003-05, for a downswing of 6.7 per cent of GDP. But the national accounts do not show a corresponding surge in household consumption, which actually declined from an average of 59.7 per cent of GDP in the first period to 58.9 per cent in the second (IMF, 2006b). In contrast, for the United States, the two series fit each other like a glove.[3] So the household saving data in Figure 3 may be suspect.

After emphasizing the role of the remarkably large dissaving by households in New Zealand's external imbalance, the paper raises the question of whether tighter monetary policy and higher interest rates might curb the housing boom and thereby at least partially restore private saving rates. However, this discussion raises a key point that I will return to below: policymakers do not really know the sign of the current account change in response to an interest rate change. From the standpoint of consumption and investment, a rise in the rate will curb demand and hence reduce imports, raising the current account outcome. However, from the standpoint of the exchange-rate, a rise in the interest rate will likely raise the exchange-rate, making exports less competitive and encouraging imports.

In discussing the recent literature, the paper reports the notion of a shift in the international demand function for a given country's assets (the Gamma function in the paper). This framework makes me uneasy, as it lends itself to a tautological dismissal of any problem on grounds that there is a permanent upward shift in foreign demand for the country's assets and hence in the sustainable ratio of net foreign liabilities to GDP. For example, it is difficult to believe that there was such a shift that was the driving force in the surge in New Zealand's current account deficit from 2.8 per cent of GDP in 2001 to 9 per cent in 2005.

Similarly, the paper's reference to work identifying New Zealand's experience as a case of rational consumption smoothing indicates that whereas earlier work concluded that large imbalances were optimal consumption smoothing and would revert themselves, more recent work while confirming these findings for the past, finds that the recent deterioration of the trade account violates the long-term solvency condition and thus that a significant correction will be needed. This is reassuring about the methodology, because common sense strongly suggests that today's imbalance of 9 per cent of GDP at a time of high rather than low terms of trade is unlikely to represent optimal consumption smoothing. If we believed Edwards' estimate of household saving at -5.5 per cent of GDP, it would be an open and shut case that today's consumption is excessive and is robbing consumption from the future, constituting consumption roughening rather than consumption smoothing. However, as noted earlier, the national accounts series for household consumption shows it no higher as a share of GDP today than the average for the past two

[3] For the same two periods, US personal saving in the national accounts fell from 5.8 per cent of GDP to 0.8 per cent, while household consumption rose from 65.5 per cent of GDP to 70.1 per cent (BEA, 2006, and IMF, 2006b).

decades, so that data make it more difficult to judge that consumption roughening is occuring. In any event it may be more appropriate to speak of absorption roughening, because whether the resources are consumed or placed into investment, it seems highly likely that the external deficit will have to be cut back. Under these circumstances, blessing the deficit with the benign diagnosis that it is a case of consumption smoothing would seem misguided, especially if the Edwards data on saving are correct.

Or again, the literature discussion on the Taylor rule and McCallum's extension incorporating the exchange-rate seems highly inappropriate for New Zealand today. That formulation essentially seeks to use the exchange-rate as an extra tool to curb inflation. But the last thing New Zealand needs now is an even stronger exchange-rate as a means of holding prices down. Argentina tried that approach and it ended badly. This particular Inflation Targeting (IT) treatment of the exchange-rate considers solely its impact on inflation. This is a worrisome sign that in IT regimes policymakers may risk ignoring obvious potential problems – such as an ever escalating and already high foreign liability position – because of the primacy of inflation in the macroeconomic policy targets.

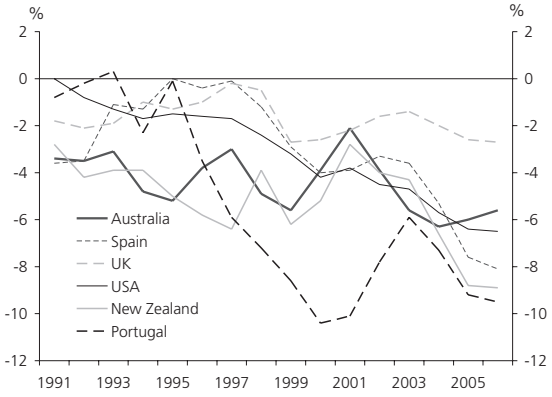
In sum, as always Sebastian Edwards has made an important contribution in this paper. It is particularly important, however, that his strategic message on the unsustainability of the large current account deficit not be drowned out by his tactical message that the eventual adjustment for New Zealand is unlikely to be malign and of the recessionary Sudden Stop variety. It would have been nice to see in the paper some suggestions as to what New Zealand authorities can do to achieve an earlier rather than later external adjustment, in part to reduce the probability that the adjustment turns out malign. But Edwards' main concern seems to be that changing the IT regime and the other features of recent macro policy, including the fiscal surplus, could jeopardize the overall performance of the economy, levying too high a price for a move toward earlier external adjustment.

Further issues and evidence

Let me turn, then, to some informal analysis of my own. One important fact to recognize is that New Zealand is by no means alone as an industrial country that has slid further into external deficit and net liabilities over the past dozen years or so. The case of the United States is well known, but there are four other such economies of note: Australia, Portugal, Spain, and the UK. This year Portugal's current account deficit as a per cent of GDP will slightly exceed even that of New Zealand, according to IMF projections.

Figure 1

Current account balance as a per cent of GDP

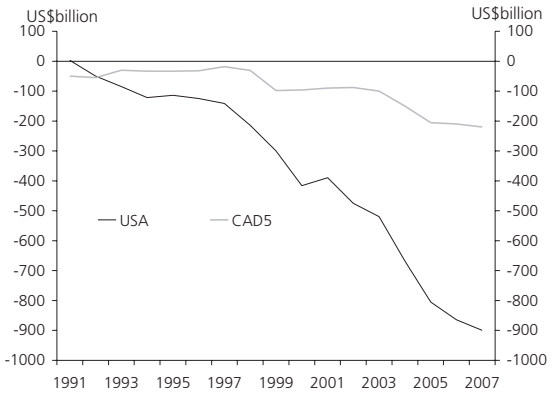


Source: IMF (2006a)

Although the US deficit has become by far the largest in absolute terms, the aggregate deficit of the other five in this group of 6 current account deficit countries has also reached a size of global significance, at about $250 billion annually (Figure 2).

Figure 2

Current account balance of the United States and five other industrial countries ($ billions)

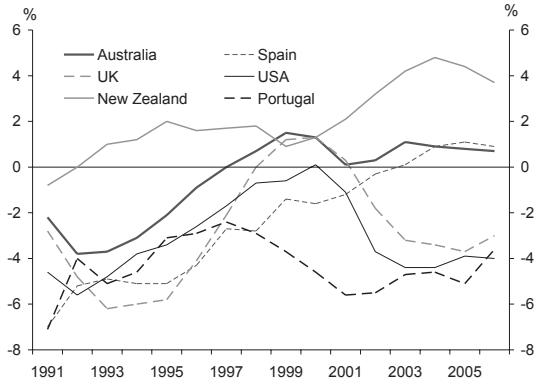


Source: IMF (2006a)

Unlike the United States, New Zealand's rising external deficit has not been accompanied by a rising fiscal deficit. Instead, there has been a rising structural fiscal surplus, a phenomenon also present in Australia and Spain (Figure 3).

Figure 3

Structural fiscal balance as a per cent of GDP



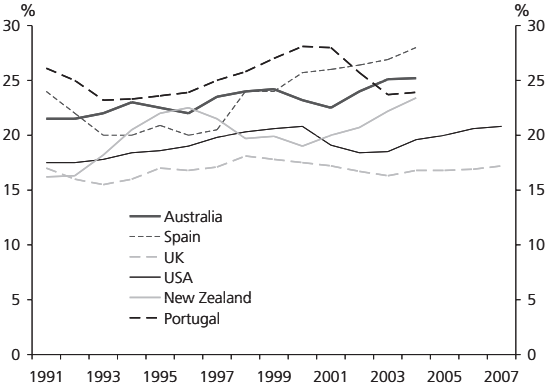
Source: IMF (2006a)

Note, however, that New Zealand's structural fiscal surplus will have dropped by about 1 per cent of GDP from 2004 to 2006 and is projected to ease further next year.

In several of the group of 6 current account deficit industrial countries (CAD6) rising investment has contributed to the widening external deficit, especially in Spain, Australia, and New Zealand (Figure 4).

Figure 4

Gross fixed investment as a per cent of GDP

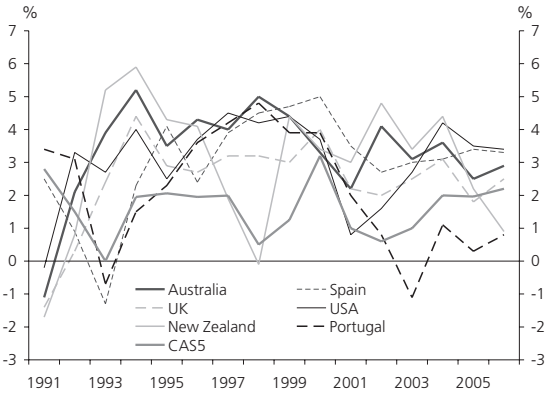


Source: IMF (2006a)

Economic growth has also tended to be faster in this set of industrial countries than in the 5 other largest industrial countries running current account surpluses or not in significant deficit (CAS5: Japan, Germany, France, Italy, and Canada; Figure 5). This difference is clearer when the six countries weighted aggregate growth rates are compared with those of the CAS5 (Figure 6).

Figure 5

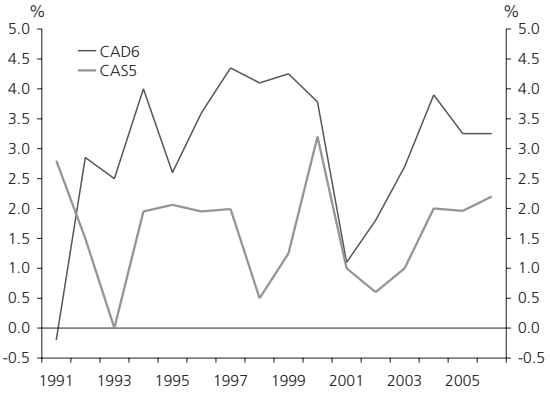
Real GDP growth in major industrial countries (per cent)



Source: IMF (2006a)

Figure 6

Weighted aggregate GDP growth rates of 6 CA deficit and 5 CA surplus industrial economies (per cent)



Source: IMF (2006a)

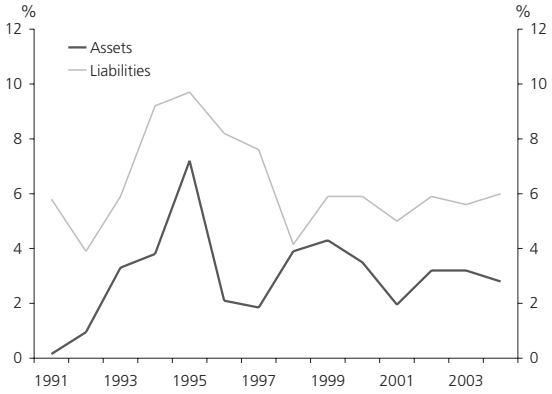
So there is some truth to the argument that the industrial countries that have been running growing current account deficits are drawing resources from the rest of the world because they are investing more and growing faster than the industrial economies that have instead been net suppliers of capital, most notably Japan and Germany. Especially in the case of the United States and arguably for New Zealand as well, however, it is increasingly questionable to justify widening external deficits on this developmental argument, namely that these countries are like developing countries when it comes to their phase in the international debt

cycle. One reason is that the magnitudes are increasingly of questionable sustainability, especially for New Zealand with net international liabilities already at -90 per cent of GDP. Another is that in both the United States and New Zealand it has been more a collapse of household saving than a surge in investment that has driven the rising current account deficits.

Turning to the case of New Zealand, there is an important disadvantageous feature of the current account and net foreign liability trajectories that warrants emphasis. New Zealand has shown a higher rate of return on its external liabilities than on its external assets (Figure 7). This is exactly the opposite pattern from that in the United States, and it means that New Zealand's capital services deficit is larger relative to GDP than would be expected given its net external liabilities.[4] In a sense, the disadvantageous differential rate of return means that New Zealand's net external liabilities are larger, in terms of economic burden, than its net liabilities in accounting terms. Conversely, for the United States the higher return on direct investment abroad than on foreign direct investment in the United States has kept the capital services balance in surplus until last year despite the plunge of the net international investment position to a deficit of 22 per cent of GDP by end-2004 (see Cline, 2005). The adverse rate of return differential for New Zealand is one reason that, as Edwards emphasizes in his paper, the current account deficit has typically been nearly fully attributable to a capital services deficit (Figure 8).

Figure 7

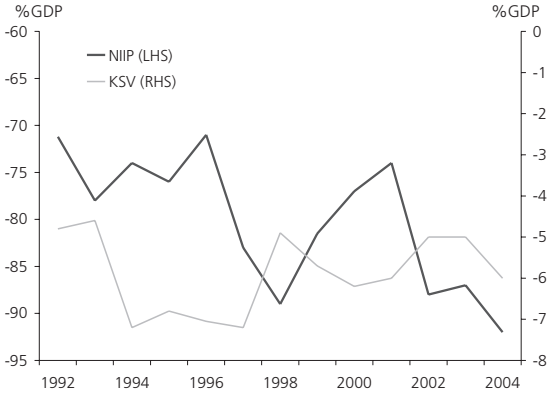
Rates of return on New Zealand's external assets and liabilities (per cent)



Source: IMF (2006b)

Figure 8

Capital services balance (right) and net international investment position (left) as a per cent of GDP



Source: IMF (2006b)

These are the trends and the facts. What about the influence of monetary policy on the external account? I find it problematical that we really do not know even the sign of the current account deficit on a change in the key monetary policy instrument, the interest rate. Consider the contrast between the traditional elasticities approach and the absorption approach to the balance of payments. In the former, the driving influence is the real exchange-rate, which in turn is influenced by the interest rate. In what Paul Krugman has called the "Massachussets Avenue model," there are two trade equations and one exchange-rate equation in a simple system. Exports are a function of

[4] Note that, in contrast to the differential return effect, valuation effects appear to be neutral. At first glance they seem negative also, because in dollar terms the rise in net international liabilities in recent years has substantially exceeded the cumulative current account deficit. It turns out, however, that this is an optical illusion caused by the strengthening New Zealand dollar. In terms of the kiwi dollar, the change in the NIIP from 2000 to 2005 was almost the same as the sum of the current account deficit over that period. The paradox can be understood by thinking about the path of the dollar NIIP if the current account were strictly balanced, there were no external assets, and all external liabilities were expressed in New Zealand dollars. Then the large appreciation of the currency through end-2005 would have caused a large rise in net international liabilities expressed in foreign dollars but no change expressed in New Zealand dollars. (I am indebted to Aaron Drew for pointing out that the valuation erosion in the NIIP was fully explained by the exchange-rate change.) At the same time, the close tracking of the NIIP with the current account in New Zealand dollars does raise the question of whether the official statistical estimates are capturing price valuation effects. If New Zealand assets held by foreigners have been rising in price, then even in New Zealand dollars the net international liabilities should have risen by more than the cumulative current account deficit.

foreign GDP and the real exchange-rate lagged; imports are a function of domestic GDP and the real exchange-rate lagged; and the real exchange-rate is a function of the differential between the domestic and the foreign interest rate. Thus, in the first set of equations in Figure 9, a rise in the domestic interest rate will translate into a widening of the trade deficit as a consequence of a stronger exchange-rate.

Figure 9

The impact of monetary policy on the current account balance

- $X = a + bY_f - cER_L$
- $M = d + eY_d + hER_L$
- $ER = k + v(i_d - i_f)$
- Thus: $\Delta(X-M) = -(c+h)\, v\Delta(i_d-i_f)_L$
- Hence $\uparrow i_d \rightarrow \downarrow (X-M)_{t+lag}$
- But: $C = -fi_d$; $I = -gi_d$
- So $\Delta Y_d = -(f+g)\Delta i_d$ and $\uparrow i_d \rightarrow \downarrow M$
- So $\partial(X-M)/\partial(i_d)$ ambiguous; probably < 0

At the same time, pursuing the absorption approach, a rise in the interest rate will contract domestic demand by reducing interest-sensitive consumption (such as housing) and investment, and the resulting downward pressure on demand will reduce imports, resulting in a reduction in the trade deficit. So unless we know the relative magnitudes of the key parameters, it will be uncertain whether tighter monetary policy will result in a smaller or larger current account deficit. Most likely the exchange-rate and elasticities effects will dominate, and a higher interest rate will aggravate the current account deficit. This in fact is the classic reason why macroeconomic policy assignment tends to use fiscal policy rather than monetary policy to curb demand in dealing with an external deficit. Fiscal restraint has positive (reinforcing) feedback, because tighter fiscal policy reduces the interest rate and hence the exchange-rate. Monetary restraint has negative (undermining) feedback because although it curbs demand, it also worsens relative trade prices by bidding up the exchange-rate.

Policy implications

New Zealand's large current account deficit and external debt *are* a problem, in my view. They are transferring absorption from the future to the present. If we accept Edwards' estimate of large household dissaving, the external deficits are transferring consumption from the future to excess consumption at present. They may or may not lead, in addition, to a hard landing for the economy. The fiscal surplus helps reduce the intertemporal distortion to consumption, but is insufficient to remove it. And the structural fiscal surplus is declining. It makes no sense for New Zealand to be running a large current account deficit when the terms of trade are abnormally high. There is procyclical borrowing, leading to consumption (or at least absorption) roughening instead of smoothing over time.

Despite New Zealand's past success with inflation targeting, completely ignoring the current account deficit and external debt as a policy issue implicitly assumes there will be an early reversal in the CAD back toward lower levels. This can by no means be taken for granted. The high interest rate policy currently being pursued under inflation targeting aggravates the external sector problem by causing an overly strong New Zealand dollar. The strong Kiwi dollar encourages imports and discourages exports. The policy remedy will likely involve a weaker exchange-rate and maintenance or an increase in the fiscal surplus so long as private dissaving is so large.

Although the exchange-rate has weakened from its peak last year, it likely has a considerable ways further to go for consistency with reducing the current account deficit to about 5 per cent of GDP. With a base of 2000 = 100, the IMF's real effective exchange-rate (deflating by consumer prices) for New Zealand stood at 139.4 in the fourth quarter of 2005. In contrast, it was an average of 113 during the period 1992-2003 when the current account deficit averaged 4.6 per cent of GDP (IMF, 2006b). From the fourth quarter of 2005 to mid-2006 the currency fell about 10 per cent against the US dollar. On this basis, it has probably gone only about half way toward a level consistent with a current account deficit of 5 per cent of GDP, and the distance to go may be further after taking account of the higher level of net external liabilities (and hence capital income deficit) today than before.

A weaker exchange-rate could be encouraged by a lower interest rate, but the interest rate appropriately is reserved

for addressing inflation. Jawboning the exchange-rate is one option the authorities already appear to have used with some success in the recent warnings about risk to holders of Uridashi bonds (held by foreigners but denominated in New Zealand dollars). A more active role on exchange-rate intervention might be considered. The Reserve Bank of New Zealand could amend its guidelines for its exchange market intervention, and make it clear that it may engage in sterilized intervention to help prevent appreciation of the exchange-rate and/or to facilitate depreciation in circumstances of persistent large current account deficits. Sterilized intervention would preserve the principle of reserving interest rate policy for price stability. It would at least send a policy signal, and could be effective in affecting the exchange-rate and/ or exchange-rate expectations under certain circumstances. New Zealand has a low level of international reserves, and intervention on the side of avoiding appreciation or facilitating depreciation would provide an opportunity to build up reserves.

Private dissaving reflects the surge in property values, as households see no need to save out of current income when their assets are rising without doing so. The resulting swing into large negative saving seems to have been a major factor driving the external imbalance. It might be thought that an increase in the interest rate is an appropriate response for moderating the housing price boom. However, a rise in the interest rate likely would aggravate the current account deficit problem by boosting the exchange-rate, as more capital enters in response to the higher rate.

Consideration might be given to micro instruments for curbing property value inflation. These could include higher thresholds required for down payments on mortgages as well as changes in zoning regulations that currently restrict the supply of suburban land for housing.

Another area of possible micro action concerns the carry trade in Uridashi bonds. Some consideration might be given to increasing the withholding tax on capital income on non-resident holdings of these and other New Zealand financial instruments. The current withholding tax of 10 per cent on interest paid to residents of most countries with bilateral tax treaties is low and reflects a design intended to maximize inflows of capital. In the future it may be necessary instead to think about how tax policy can moderate such inflows, as a means of helping moderate continued escalation of net international liabilities in a price-based and hence market-friendly way. Although foreign investors in principle can typically take credits against such withholding, it is unlikely that such offsets would be so easy and universal that the effect of a higher withholding rate would disappear.

Finally, New Zealand's economic policymakers could usefully seek to arrive at some consensus about the ceiling net international liabilities relative to GDP they consider safe, and begin to integrate a serious intention of staying within this limit into their overall economic policies. It is implausible that net liabilities should be allowed to rise indefinitely in the name of sole reliance on inflation targeting as the macroeconomic framework. For most countries a 100% of GDP level for net international liabilities would be risky. It is probably safe for New Zealand, but it would seem dangerous for policy makers to sit idly by if the ratio begins to rise much beyond this level.

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