

Dennis Rose

Overseas Indebtedness, Country Risk and Interest Rates

Introduction

The origins of the current international crisis lie outside New Zealand, but New Zealand's high level of net international liabilities has long exposed us to the possibility of a sharp correction. In what follows I focus on some longstanding problems, to which I see no easy answers, which are likely to be with us for many years. But first, two introductory comments.

Obviously, what lies ahead is quite uncertain, but it seems clear that the world is entering a prolonged downturn. Falls in equity prices and difficulties in access to credit are compounded by falling price levels and reductions in demand which will flow on to reductions in output, company failures and increased unemployment. How bad it will be we do not know, but financial shocks on the scale that we have observed take years rather than months to work out.

Second, although the international forces acting on our economy are beyond our control, we are able to influence their impact on the New Zealand economy. Mistakes are going to be made, but hopefully we can minimise those by ongoing dialogue within and beyond the policy-making community. At times of crisis those in positions of responsibility are required to make large judgements at short notice. They quite reasonably expect continuing support, but that support needs to be critical. There are difficult and contentious issues in front of us, which demand constructive attention and ongoing dialogue.

Balance of payments deficits and the net international investment position

The Reserve Bank's 2008 Financial Stability Report discusses New Zealand's external position. Three features stand out.

1. Since 2000, and indeed for many years before that, New Zealand's current account balance (the net balance between exports and imports of goods and services and international factor payments) has been in deficit. The deficit deteriorated during the decade and for the last few years has averaged around 8 to 9% of GDP.
2. Current account deficits have to be financed by drawing on overseas capital in one form or another. Total net international liabilities have been slowly rising, from a low point equal to 75% of GDP at the end of 2001 to a contemporary high of 89% in March 2008.
3. The proportion of net international liabilities accounted for by net international debt has been rising relative to that part reflecting equity investment (including foreign direct investment). The ratio of net international debt to GDP has risen from around 60% in 2003 to 83% now.

Debts must of course be serviced. Net international liabilities on the scale reported above imply a heavy servicing requirement. It is a striking fact of recent New Zealand history, again focusing on the period from 2000, that net international investment income payments, which have varied between 6

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and 8% of GDP, are roughly equivalent on average to the balance of payments current deficit as a whole. In contrast, exports and imports of goods and services, whilst fluctuating, have been in approximate balance over this time. In a very real sense New Zealand has been borrowing to pay the servicing requirements of its international debt.

This relationship is also illustrated in the Financial Stability Report (Reserve Bank of New Zealand, 2008, Figure 4.1), which shows the approximately equivalent total values of cumulative current account deficits and the parallel increase in the net foreign liabilities of banks operating in New Zealand. Implicitly, New Zealand has become habituated to a steady inflow of bank-mediated funding from foreign residents to finance continuing balance of payments deficits.

Continued access to this flow has now been put at risk by the international financial crisis. The New Zealand government, following other countries, has introduced opt-in guarantee schemes in an attempt to reassure foreign investors that deposits with New Zealand banks are secure. How effective this will be has yet to be seen. All systems of guarantees have their downsides, including untoward incentive effects, and there must be some risk that the guarantee may be called,

imposing significant costs on government, taxpayers and citizens.

Net international investment positions and interest rates

New Zealand is not alone in having a large ratio of net international liabilities to GDP but, as is apparent from Figure 1, it is among the leaders in the field. Figure 1 is drawn from research in progress on the relationship between net international investment positions and national interest rates (Rose, 2007). The clear implication of the scatter plot of mean values for the period 1980–2004 is that countries with higher levels of net international indebtedness have higher interest rates. Broadly, countries that hold roughly equal amounts of international liabilities and assets can access international short-term money at around 3%. Countries such as Switzerland, which has net assets equivalent to 100% of GDP, can tap into markets at very low rates. Countries such as New Zealand find themselves paying significantly higher rates of interest. Effectively the market is pricing country and/or currency risk into national interest rates.

Whilst the existence of country or currency risk margins is widely noted, much theoretical discussion on the balance



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of payments proceeds as if they did not exist or are of little consequence. Standard textbook models typically see balance of payments deficits as reflecting essentially short-term inter-country differences in investment opportunities and savings patterns. With a common core 'world interest rate', capital flows between countries are seen as responding to those differences, leading to changes in investment, output and income patterns which in time enable the servicing and repayment of debt.

There are substantial elements of truth within this story, but it is not the whole story. A number of writers have suggested that national interest rates will contain risk premia related to national balance sheets, such as are evident in the cross-country data in Figure 1. The key contrast between the core model story and our data-based exploration is the slope of the interest rate function. In the standard model the world interest rate is a constant, horizontal line. Figure 1 shows a sloping function. Interest rates rise with increases in net liabilities.

The standard two-country model focuses on national flows of investment and savings, and the current account balance as the flow difference between them at the prevailing world interest rate. In our graph of the actual data we are looking at the net international investment positions resulting from the accumulation of current account balances over time. It is this long accumulation of a stock of international net liabilities that generates risk premia.

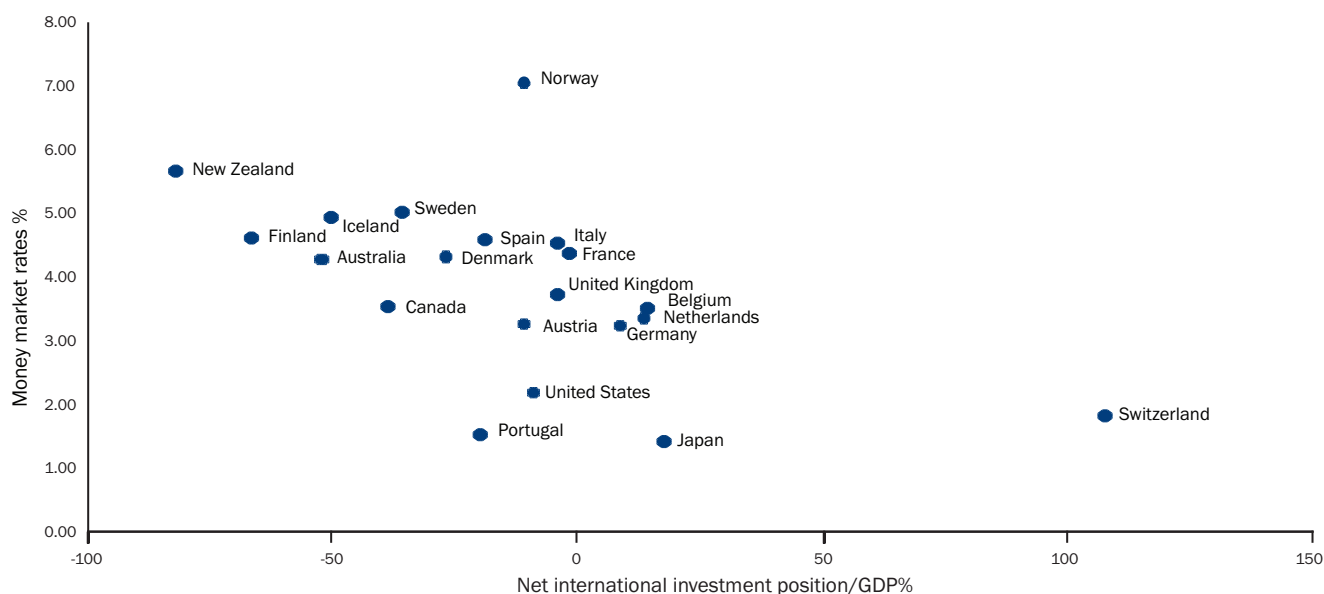
The scale of the effect of net international investment positions on interest rates can only be approximated because interest rates reflect a number of influences, but on my estimation New Zealand's current level of international net liabilities implies a wedge of something like 1½% above the short-term interest rate levels that would prevail were our international liabilities and assets in balance. In fact, New Zealand's short-term interest rates have, since 1990, averaged

some 2¾% above the average level of those prevailing in our TWI partner countries (the United States, Euroland, Australia, Japan and the United Kingdom). What might explain the additional element within the overall differential? Again, many factors are likely to be present, but some of us argue that the central and all but exclusive focus of New Zealand monetary policy on inflation control is a significant cause. Note that this influence reflects both the design of the statutory rules under which the Reserve Bank operates and the choices made by the bank in operating those rules.

I don't propose to develop that argument here. Instead I shall focus on the implications of the large existing real interest rate differential, whatever its cause may be. I note four effects. The importance of each of these needs to be assessed within an appropriate framework.

1. Because the country/currency risk premium increases with the level of debt, the rate of debt service payments increases at an accelerating rate as national debt levels increase. The effective constraint on ever-increasing net international investment position (NIIP)/GDP ratios is imposed by the cost of servicing rather than the interest rate alone.
2. Interest rates present investors with a screening test. The rates of return that an investor expects to realise by undertaking an investment need to be sufficient to service the debt used to finance that investment. High interest rates reduce the number of investments that pass this test and thus act to reduce the level of capital formation. They thus inhibit growth.
3. Rates of return on real productive investments are constrained, at any point in time, by the technologies currently available. High interest rates encourage investors to focus on markets in which there are apparent opportunities for high returns and thus, arguably, bias

Figure 1: Net international investment positions and real interest rates



investment towards areas in which there are prospects for gains from asset inflation rather than from increases in productive capacity.

- High real interest rates have an observable effect on nominal and real exchange rates (the real exchange rate is the nominal exchange rate adjusted for differential movements in prices between New Zealand and the other countries party to the exchange rate).

I make no further comment on the first three effects except to say that I think they are problem areas. The exchange rate linkage, which is illustrated in Figure 2, is, however, central to my story.

Interest rates and exchange rates

The clear implication of Figure 2 is that higher New Zealand interest rates (measured relative to the weighted average of our principal trading partners and displayed on the horizontal axis) induce higher exchange rates. The scale of the effect is substantial and can be approximated by a simple linear regression:

$$RERTWI = 41.08 + 6.853 * INTEREST \quad R^2 \text{ adjusted} = 0.58$$

(0.000) (0.000) *p-values in parentheses*

where RERTWI is the International Monetary Fund’s real exchange rate index for New Zealand scaled to give the same mean as the nominal TWI for the period 1990–2007, and INTEREST measures the difference in real short-term interest rates between New Zealand and in the countries within the TWI basket, appropriately weighted. Real rates are nominal rates deflated by changes in consumer prices.

A one percentage point change in the real interest rate differential (e.g. from 2% to 3%) shifts the real TWI by about 6.9 points relative to its 1990–2007 mean of 60.1. Absent the differential, the TWI would, implicitly, fall to around 41.

These are very substantial effects.

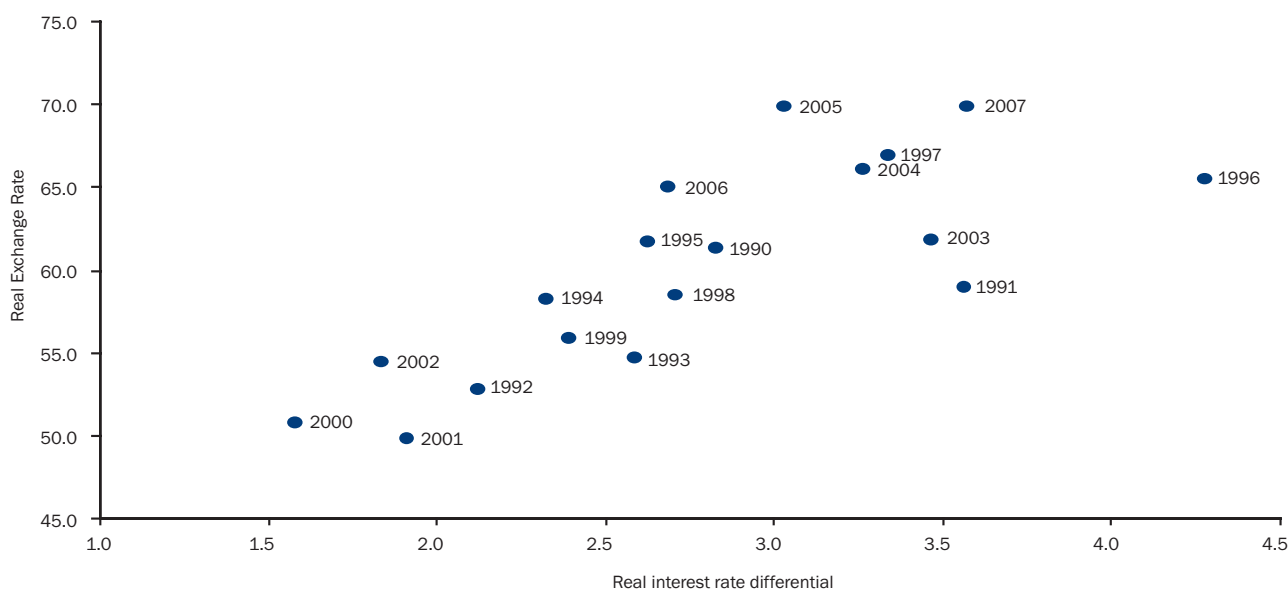
As noted, the interest rate differential reflects a number of influences. On the numbers sketched above the high level of net international liabilities contributes more than half that differential, with the rest being due to monetary policy rules, application of those rules, and other influences whatever those might be.

Exchange rates and the balance of payments

By common consent the exchange rate is an important variable influencing the level and pattern of import and export flows. High exchange rates tend to encourage imports and to discourage exports. However, floating exchange rates are highly variable, so that it is difficult to trace their actual impact on trade flows. In an earlier paper (Rose, 2001) I used lagged relationships over three-year periods in an attempt to see through this short-term variability. I explored the influence of exchange rates as one of a set of competing influences on the levels of exports and imports over three-year time periods. Export and import data were each disaggregated into nine groups. Other modelled factors included the cyclical behaviour of capital formation, the phasing down of import protection and technological change.

The study needs updating but the results remain relevant. The main findings were that exchange rate levels appeared to exert a significant influence on the level of exports but had little influence on imports. Variability in the exchange rate appeared to inhibit exports and, to a lesser extent, to encourage imports. The quantitative effect suggested by the regressions was that a rise in the real TWI by 10 units, e.g. from 50.0 to 60.0, ‘would lead to a deterioration in the balance of payments, stemming from changes in export and import ratios, equal to about 2.7% of total supply or about 3.6% of GDP’. In addition, I concluded that variability in the exchange rate over the reference period of the study, 1988 to

Figure 2: Interest rates and the exchange rate



2000, was likely to have caused an annual negative effect on the balance of exports and imports equal to about 1.5% of GDP. Taken together these are substantial effects, amounting to some 5% of GDP, which as it happens is the average value of the current account deficit for the period 1990 to date.

A scatter plot of the real exchange rate against the current account balance provides another perspective on this story. There is a clear suggestion of a negative relationship between the exchange rate and the balance of payments. A linear function fitted to this data suggests a somewhat weaker influence than implied by my 2001 paper. In this case a 10 point change in the real exchange rate index, around its mean value of 60, would imply a deterioration in the balance of payments by around 2% rather than the 3½% suggested in the previous paragraph.

Clearly, there is a margin of uncertainty here, but even the lower of the two estimates is, in context, a significant number.

The story so far

To this point I have argued that New Zealand's very high level of net international liabilities introduces a risk premium into New Zealand's interest rate structure, which is additional to the upward pressures inherent in the monetary policy framework. Higher interest rates tend to raise the real exchange rate, which in turn acts to increase the balance of payments deficit. We now complete the circle. Balance of payments deficits must perforce be financed, and this financing adds to liabilities and so tends to increase the NIIP/GDP ratio.

Changes in the NIIP/GDP ratio

Again, this is no more than a tendency because the balance of payments is only one of three components driving changes in the ratio of net international assets to GDP. The three components are (1) the rate of change in nominal GDP (which itself is the product of the real rate of growth and the rate of inflation); (2) the capital flows arising from the balance of payments; and (3) revaluations of the opening stocks of international assets and liabilities.

$$\frac{N_t}{Y_t} = \frac{N_{t-1}}{Y_{t-1}} \times \frac{1}{(1+r_t)} + \frac{C_t}{Y_t} + \frac{R_t}{Y_t}$$

where

N_t = net international investment position at end of year t ,

Y_t = gross domestic product in year t ,

r = the annual rate of growth in nominal GDP in year t ,

C_t = capital flows financing the current account balance in year t , and

R_t = revaluations of international assets and liabilities in year t .

Interest rates and other rates of return lie behind each component of this equation. Rates of return are related to the rate of productivity change and thus help determine r . Their importance within the current account balance is an increasing function of the absolute value of the NIIP/GDP ratio. Finally, they are important determinants of the present value of international assets and liabilities so that changes in interest rates and other rates of return are important drivers of R .

Possibly the international crisis will be short-lived, although that seems unlikely. Hopefully our systems will handle it better rather than worse ...

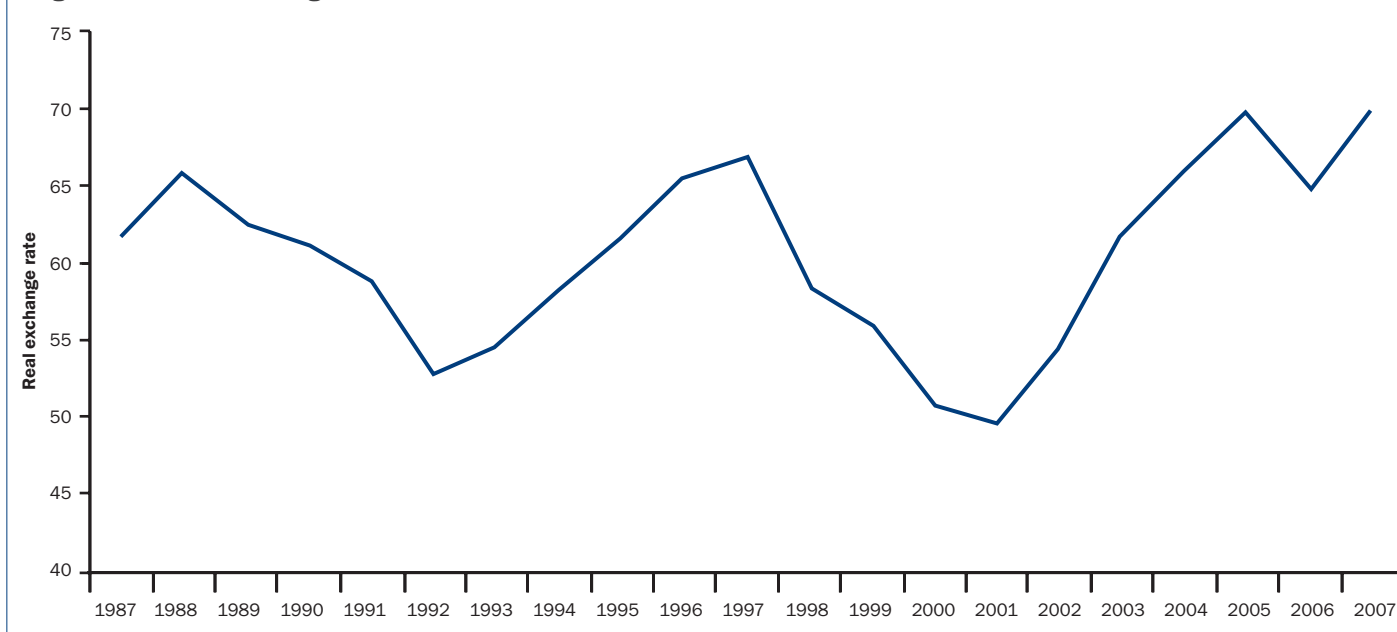
'Wedges' between world and national interest rates contribute to the evolution of net international investment positions, which, in turn, exert a significant influence on national interest rates. This circularity raises questions as to causal direction, but the persistence of NIIP ratios and the short-term and cyclical variability of interest rates suggests that the predominant causation is from the former to the latter.

That said, interest rates do help to determine NIIP positions, both directly through their impact on international factor flows, and indirectly by their influence on exchange rates. This mutually-reinforcing process raises questions about the time spans and processes by which countries such as New Zealand, with large negative NIIP balances, can improve their position.

New Zealand's net international liabilities exceed 85% of GDP and recent current account deficits have averaged around 8% of GDP. The usual inter-temporal borrowing story implies that net international liabilities will at some point begin to reduce. Suppose that we hypothesise movement towards a balanced net external asset position over a 50-year period, and suppose that we could find a financial institution prepared to consolidate the present value of all New Zealand's international liabilities and assets in a single table mortgage at a real interest rate of 5%. Servicing that mortgage would imply that we, our children and our children's children would be required to run a 50-year balance of payments surplus in excess of 5% of GDP.

But this is too pessimistic a conclusion. In reality, inflation will provide part of the answer. Even in contemporary low-inflation environments, inflation undermines the value of debt denominated in nominal terms. Fifty years' inflation at 3% will reduce the real value of a debt by more than three-quarters.

Writing on this topic 12 months ago, I concluded that it seems inescapable that for several decades New Zealand will be exposed to the possibility that one or other external shock

Figure 3: The real exchange rate

will interfere with movement towards a more easily sustainable NIIP position and deliver a destabilising revaluation of international assets and liabilities. That exposure heightens the importance of ongoing attention to issues of prudential management and to international linkages and arrangements that help spread country risk. (Rose, 2007)

We are now experiencing such a shock. Possibly the international crisis will be short-lived, although that seems unlikely. Hopefully our systems will handle it better rather than worse, but clearly we have to expect difficult times.

Implications

Looking through that period of adjustment and beyond, two major issues stand out, both of which require renewed theoretical attention.

1. The current crisis underlines, and indeed amplifies, the risks inherent in running high levels of net international liabilities. What lessons should we draw from that? What policies have contributed to this exposed position and what policies might have avoided it? Looking ahead, what policy adjustments are needed to reduce New Zealand's degree of exposure to external credit shocks? A theoretical puzzle underlies these questions. New Zealand's exposed international investment position is the outcome of a myriad of individual transactions, in which pairs of transactors have agreed to exchange capital sums now against future streams of income. If those transactions were by and large well informed, should we conclude that the overall outcome is in fact acceptable and sustainable? If not, at what points along the way does the logic break down?
2. Secondly, in my view the floating exchange rate regime has itself contributed to the evolution of New Zealand's highly indebted position. Figure 3 displays annual values for the real exchange rate (IMF real exchange rate series scaled to mean of TWI for the same period). The pronounced

cycles in the real exchange rate are themselves a direct disincentive to exporting and, compounding with the wedge introduced to the average exchange rate by New Zealand's risk premium, have contributed directly to our level of international liabilities.

A floating exchange rate has of course many advantages, and I do not suggest we should discard it lightly, or that we have to hand a ready-made, well-articulated alternative. We do not. But I suggest we do need to look carefully at the links between the current floating regime and our debt position, to assess the workings of floating regimes over time spans that include major shocks such as the present, and to devote time to the articulation of alternatives.

So I end with a standard call for more research and discussion on alternative policy regimes. I don't apologise for that. These are theoretically contested areas and it is important that those with different views engage in discussion and debate. Meantime, people in positions of authority in times of crisis must perforce make their judgement calls on the basis of their understanding of relevant theory. The research community's job is to argue, test and develop that theory.

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