
The rationale for holding foreign currency reserves

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In this article we discuss the motivation for New Zealand holding a reserve of foreign currency assets. There are many reasons justifying countries holding foreign currency reserves, and most countries do so. But reserves are costly to hold. It is therefore important to ask whether any of these justifications for holding reserves are valid in the context of New Zealand's current economic and policy circumstances. Our conclusion is that foreign currency reserves are worth having for the following three main reasons:

- *most significantly, because foreign currency reserves would provide an important policy option if New Zealand ever experienced serious liquidity problems in its foreign exchange market; but also*
- *To support investor perceptions of New Zealand's debt servicing capacity; and*
- *to enhance our experience in and understanding of financial markets.*

1 Introduction

Historically, most countries have held foreign currency reserves in support of exchange rate policy. Most often reserves are used to intervene directly in foreign exchange markets to influence exchange rates. In contrast, since New Zealand's currency float in March 1985, our monetary policy approach has eschewed direct foreign exchange market intervention targeted at the level of the exchange rate. Nonetheless, the Reserve Bank's empowering legislation enables the Treasurer to direct the Bank to intervene in the foreign exchange market, and also establishes the Bank's obligation to hold reserves to provide the capacity to implement such a directive. Accordingly, the Bank holds around the equivalent of NZD 4 to 5 billion in foreign currency assets. Predominately, these are held in the form of high quality, marketable securities issued by the G3 Governments of the United States of America, Germany and Japan. The cost of holding these reserves fluctuates from year to year, but the typical annual cost to the Crown of maintaining New Zealand's current intervention capacity is around NZD 5 million.¹

Unlike most other countries, New Zealand borrows the foreign currency used to purchase our foreign reserves. This has some important risk minimisation advantages. Specifically, the maturity and currency of individual foreign currency loans are closely matched by investments in the same currency and at similar maturities. This means that as exchange

rates and foreign interest rates move around, any gains or losses on our foreign currency liabilities tend to be offset by equal and opposite gains and losses on our foreign currency assets. The main exception to this occurs in relation to interest rate movements that reflect changing perceptions of the relative credit quality of the New Zealand Government as a foreign currency borrower. If, for example, investors perceived that lending to the New Zealand Government had become more risky, increased interest rates would be demanded.

Thus, holding reserves leads to both variable and on-going costs. The core issue considered in this article relates to whether the benefits from having reserves justifies their cost. That most countries have decided in favour of holding reserves points to the collective wisdom on the issue. This, however, does not mean that New Zealand should simply go along with the consensus. All countries are different to varying degrees, and it is possible that New Zealand is uniquely placed to forego the option, and the cost, of holding foreign reserves.

For the sake of completeness, we address all the main potential reasons countries might use to justify holding reserves. We, nevertheless, concentrate in particular on a central bank's ability to limit the damage to the economy, which could be caused by dysfunctional foreign exchange markets at a time of financial crisis. This particular focus reflects evolving thinking in relation to the issues associated with malfunctioning foreign exchange markets. A further factor is that many of

¹ This includes financing, personnel, systems and overhead expenses, and is the average annual cost over the five years to June 1998.

the other justifications for holding reserves have been articulated in earlier editions of the Bulletin.²

Our comments beneath are divided into two groups. First, we list together the most compelling justifications for holding reserves, beginning by touching on our concerns about potentially dysfunctional foreign exchange markets, which we judge to be by far the most convincing justification in the New Zealand context. This is followed by brief comment on two other significant justifications for holding reserves. The first relates to the possible need to hold reserves simply because investors believe that countries **should** have reserves, irrespective of whether reserves actually contribute to economic efficiency and growth potential. Our final comments in this part of the discussion deal with the skills uptake, information and knowledge-generating advantages associated with reserves management that contribute to our ability to undertake other of the Bank's responsibilities.

This is followed by a discussion of the second group of reasons that have been used to justify foreign reserves in New Zealand and elsewhere. Some of these do not apply to New Zealand's current situation, while others can be considered as subsidiary reasons in the context of New Zealand's current economic and policy circumstances. Finally, we set out our conclusions.

2 Main reasons for holding foreign currency reserves

Foreign exchange market stability

Financial system stability is one of the Bank's prime policy interests, and most accept the rationale for a public policy interest in the subject. Underlying the public policy interest in financial system stability are two understandings: that financial markets are probably inherently more vulnerable to shocks and crises than other markets; and that significant social/externality costs can occur when the normal functioning of financial markets breaks down.

Based on these considerations, the Bank engages in supervision and regulation of the banking system, and has very considerable powers of intervention in the event of serious

disruption in the financial system. Similar considerations also apply to the foreign exchange market, which has the potential to become very unstable or dysfunctional in the face of certain types of major economic shock.

We expand on this issue beneath. First, there is a discussion of various factors that make the efficient functioning of foreign exchange markets vulnerable to extreme shocks. But vulnerability does not automatically imply the potential for serious harm. Users of the foreign exchange markets who are exposed to the costs of market malfunction might in principle be expected to build in protections or insurance against malfunction. This is an area where a potential disconnection between perceived costs and actual costs becomes important, if such a disconnection leads to underinsurance. In economists' jargon this raises the possibility of externalities, which is the subject of the second section. Finally, we turn to the question of the likely character of a dysfunctional foreign currency market, as well as to the public policy implications of such an event.

The microstructure of the foreign exchange market: response to extreme shocks

At the outset it is worth noting that most financial markets are fragile at least to some degree. They do not always smoothly converge onto an equilibrium consistent with the economy's fundamental position. Over the centuries speculative bubbles have been observed across many different markets. In recent months, in Asia in particular, we have observed dramatic examples of financial market breakdown with severe economic consequences.

While foreign exchange markets share the potentially destabilising characteristics of financial markets in general, there are additional distinct features that probably make the foreign exchange markets more vulnerable to shocks than other parts of the financial system. A key aspect is the extent to which foreign exchange markets act as networks. In networks that are failing under pressure, the scale of the resulting malfunction rises disproportionately with the share of the network out of action. Thus while small shocks can generate somewhat exaggerated impacts on financial market prices, very large (and atypical, hence not usually observed) shocks can generate extreme impacts.

² See *Reserve Bank Bulletin* June Quarter 1995

To elaborate on these points:

- It is becoming clear from microstructure studies that foreign exchange market intermediaries individually take low exposures³ and therefore have a low capacity to absorb shocks. Individual intermediaries also utilise tight inventory control techniques⁴ as well as stop-loss devices, while they also rely on passing positions to other intermediaries, using price adjustment to induce trading.⁵ At the same time, collectively the intermediaries network extensively such that in total the market is able to shift risks efficiently, in normal circumstances. In essence, rather than acting as a shock absorber, the market appears to act as an efficient transmitter of shocks to end holders of exchange rate positions.
- Price adjustment on the part of these risk-averse intermediaries in response to increased risk and uncertainty has been shown to involve a widening of bid-ask spreads.⁶ Bid-ask spreads, being the key component of transaction costs, are in turn a factor in determining the liquidity of the market. Thus, increased volatility and uncertainty leads to adjustments that restrict liquidity. Reduced liquidity in turn increases the difficulty of managing inventories and the associated risk, creating pressure for more extreme price movements (necessary to induce other parties to take on positions). Extreme movements in prices have a higher probability of pass-

³ C Goodhart and M Giugale ('Some evidence on daily trading activity in the London Foreign Exchange Market', *Journal of International Securities Markets*, Summer 1989). This provides evidence that foreign exchange traders and market makers keep very low net positions in each currency, balance their books very frequently and hold very low net foreign exchange exposures at end of day.

⁴ Mark D Flood, 'Market structure and inefficiency in the foreign exchange market,' Federal Reserve Bank of St. Louis Review, Working Paper 91-001B.

⁵ Richard K. Lyons, 'Tests of microstructural hypotheses in the foreign exchange market,' *Journal of Financial Economics*, Vol 39 No. 2&3, October and November 1995.

⁶ H. Bessimbinder, 'Bid-ask spreads in foreign exchange markets,' *Journal of Financial Economics*, Vol. 35 No.3, June 1994; Tim Bollershev and Ian Domowitz, 'Trading patterns and prices in the interbank foreign exchange market,' *The Journal of Finance*, Vol 48 No 4, September 1993; Tim Bollershev and Michael Melvin, 'Bid-ask spreads and volatility in the foreign exchange market,' *Journal of International Economics*, Vol 36 (1994).

ing through stop-loss and strike price trigger points, causing further pressures on the risk positions of the various market participants.

- Furthermore, unlike many other wholesale banking transactions, wholesale foreign exchange transactions are not settled on a payment versus delivery basis. This greatly increases the importance of counterparty credit risk management. Thus, in volatile times credit quality concerns are more likely to become constraining for foreign exchange dealers than for other financial sector institutions.
- As compared with banks involved in the business of lending, foreign exchange dealers are relatively quick to withdraw from the market when risks become difficult to pass on through trading. This is probably because of a combination of the relatively limited risk-bearing capacity of foreign exchange dealers compared with banks, and the greater speed with which foreign exchange dealers become aware of trading losses (it often takes some time before banks become aware of problem loans).

In combination, these characteristics generate a sensitivity to risk that is higher than that found elsewhere in the financial system. While these characteristics make the foreign exchange market highly efficient in normal times in passing risk from an end-holder who wants to shed a position to end-holders who want to take on that position, it also ensures that the market is relatively vulnerable to abnormal circumstances.

It is important to recognise that concerns about malfunctioning foreign currency markets relate to fairly extreme situations. At times the markets have coped with surprisingly large bumps and, no doubt, they will continue to do so in future. But the prospect that there will be occasions when the effective functioning of the markets breaks down cannot be ignored. There is a wealth of recent examples of this occurring within Asia.

Existence of externalities?

We now return to the question of under-insurance in relation to the potential damage that could arise from dysfunctional foreign exchange markets. In particular, why

might the users of foreign currency services hold insufficient foreign currency balances and foreign currency credit lines to tide themselves through periods of trouble in the foreign currency markets? There are a number of reasons suggestive of under-insurance through such devices:

- First, the relative rarity of large shocks to the functioning of the market provides little direct experience on which to base judgements. Large cost/low probability events are commonly under-insured.
- Secondly, the non-linearities associated with network characteristics introduce a wedge between individual agent's incentives and the aggregate interests of users of the market.
- Finally, the costs of disruption are likely to fall more widely than just on the institutions that provide foreign currency services and direct users of those services. The direct costs of an inability to complete contracts when planned or contracted for are evident. More persistent and widespread costs, due to persistent increases in interest rate risk premia following even brief periods of extensive disruption, impact on the nation's cost of capital.

In combination, these points suggest the possibility of significant externalities.

Intervention; restoration of liquidity and rate support

We have described reasons why sharp contraction of liquidity in response to abnormal shocks might occur more readily in the foreign exchange markets than in other markets, and reasons why a collapse of liquidity might carry with it externality costs. The next task is an examination of the likely character of breakdown, the nature of the costs associated with liquidity problems, and thus the appropriate public policy response, if any.

In principle, a breakdown of liquidity in foreign exchange markets under stress is unlikely to lead to a complete collapse of convertibility. As a reputation for honouring debts is a valuable commodity in general, one would expect that the debtors would be prepared to discharge their foreign currency obligations even at quite unfavourable rates, and in the face of considerable uncertainty as to the "true" exchange rate. Thus, in most circumstances, there should in principle be willing buyers and sellers. Moreover, as the

buyers and sellers have opposite interests, the potential for profits to be had from bringing the two sides together should be substantial. Basic fee-based broking operations would be a method for bringing the two sides together without the need for intermediaries willing to take on board the risk of transacting on their own account.

Despite this reasoning, a complete paralysis of foreign exchange transactions is a possibility that cannot be dismissed. Moreover, even if trouble fell well short of complete paralysis, the costs of dysfunction are likely to be large. Over and above the costs associated with delay and increased transaction costs, market prices would be strongly affected by a collapse of liquidity. The greater the reduction in liquidity, the greater the potential for exchange rate overshooting. For example, severe liquidity problems partly explain the 80 per cent plummet in the value of the Indonesian Rupiah in late 1997.

These considerations suggest that a foreign exchange market intervention might have one or both of two aims. The first relates to the maintenance of liquidity in an effort to preserve convertibility. The second involves action aimed at restricting movements in exchange rates that are due to the dynamics set up by liquidity problems, rather than to a shift in equilibrium exchange rates associated with the originating shock.

But none of this deals with the question of whether intervention should take place. What are the considerations?

Withdrawal of the usual professional market-making intermediaries is, as discussed above, most likely to be a result of an unwillingness to be exposed to increased risk. For a "successful" intervention, it would therefore seem necessary for the intervening central bank to absorb at least some of the risk that professional players are unwilling to absorb. Yet it is rarely efficient for the government to take over risk from private agents who are the beneficiaries of risk taking. Accordingly, there is a need to understand why, in some circumstances, the central bank might have a superior ability to understand the nature of the risks involved, or to manage those risks.

There are two important considerations bearing on this:

- First, if pure uncertainty about the location of the equilibrium exchange rate is the issue, many of the individual exposures will be self-cancelling. Long foreign currency positions will be offset by short positions. Whereas individual institutional players might be net long or net short at the point where credit limits vis-à-vis other players inhibit further trading, the central bank could feasibly enter the market and maintain a near-zero exchange rate exposure. The value of the intervention in this instance does not come from the central bank taking on board exchange rate positions, but rather from the use of the central bank's own credit limits against market players to unlock logjams between market players caused by credit limit constraints. Thus the value of the intervention arising from the central bank's entry into the market is that it provides new trading opportunities. These have the potential to reduce aggregate gross exposures without the central bank absorbing any more (market or credit) risk than it would normally be prepared to take on.
- Secondly, the central bank might be operating within an entirely different risk/reward framework, particularly with respect to its ability to take a longer view. For the individual market player, potential returns relate to the gains made from current and future trading opportunities. For the central bank, returns relate to the potential reduction in economy-wide foreign exchange conversion costs and ongoing interest rate risk premia which, to the extent that there are genuine externalities involved, could be orders of magnitude greater. Thus, even if valuations on risk are equivalent, the risk/return relationship might differ.

These two points are based on the example of a collapse of liquidity associated with an increase in exchange rate uncertainty, but not a movement in the exchange rate. It is the overshooting problem that is likely to be the more serious. To some extent, as overshooting is a by-product of the liquidity problem, dealing with the liquidity problem could assist in dealing with the overshoot problem. But it remains conceivable that an exchange rate-neutral intervention is insufficient to prevent or offset overshooting.

Understanding why the central bank might have the scope for effective intervention targeted at an overshoot of the

exchange rate is a tricky matter. Exchange rate targeting policies typically rely on superior knowledge as to the correct exchange rate, and it is to be strongly doubted that the central bank consistently has such superior knowledge. However, in crisis circumstances, the issue may be somewhat different. To the extent that structural factors of the type discussed have induced disequilibrium pricing that results in participants withdrawing from the market, the central bank might not need to possess a different and superior view; what it would need is a capacity to transact.

Even so, it is possible that the central bank could have a better basis on which to form a view of the likely post-shock equilibrium than do market participants. Market participants are likely to be highly distracted by the need to deal with the crisis itself, reducing the attention that they can pay to cool-headed analysis of events and implications. In a crisis involving highly unstable exchange rates the central bank might be in the position of being able to establish prices that the market coalesces around, the more so if the central bank had a strong reputation for good judgement.

For these reasons, it would be unreasonable to dismiss out of hand the possibility that, in certain circumstances, the central bank might be able to identify at least the existence of an exchange rate overshoot, if not the degree of overshoot. It is reasonable, however, to be extremely cautious about the likely quality of the judgements being made, and the risks that might be taken on the back of those judgements. Very high degrees of confidence about the judgement call would be required. Such confidence could only be attainable where the extent of movement in the exchange rate were dramatically outside the historical range of movements, and where the originating shock could not come even close to explaining the extent of movement.

If the central bank wished to preserve an option to intervene in these circumstances it would need to retain foreign reserves, for the reasons discussed next.

Exchange rate overshooting and the interest rate instrument

Discussions of foreign exchange market intervention in the context of concerns about the level of the exchange rate usually relate to questions about the best way to run monetary policy. In general, the lessons are as follows: although

the supply and demand and signalling effects of foreign currency market intervention might affect the exchange rate at the margin, that effect is likely to be trivial compared with the impact on the exchange rate of monetary policy-induced changes in interest rates. In short, if one has a concern about the exchange rate, then change interest rates – i.e. change monetary policy.

How do these general conclusions carry over to the issue under discussion? Would concerns about the level of the exchange rate in the context of foreign exchange market crisis better be dealt with by an interest rate response than by direct intervention using reserves?

The answer is probably yes - if the interest rate response is available to the authorities. Although increasing interest rates might have adverse effects on the liquidity and net worth of some of the actors in trouble, changing interest rates alters directly the return on buying the local currency. In turn, this should impact on the willingness to trade foreign exchange and on the short-term equilibrium exchange rate.

However, the interest rate response may not always be available. There are two essential reasons. First, if the crisis originates in problems in the domestic economy, at some point higher interest rates could themselves increase perceptions that the economy was in difficulty and, therefore, that the currency was risky. This could occur on a scale sufficient to increase risk premia faster than interest rates were rising. Higher interest rates would then be acting to reduce the expected return from holding the domestic currency, rather than to improve the expected return. Secondly, there are numerous instances in recent years where currency crises and banking system crises have occurred simultaneously⁷. Again, the current crisis in Asia provides a dramatic example. Causality could be from currency crisis to banking crisis, vice versa, or from separate independent causes affecting each. In particular, in a full-fledged banking system crisis that features uncertainty about the financial state of all banks, the most likely assets that depositors would switch into are foreign currency ones. Irrespective of causality, hiking interest rates would threaten to exacerbate a banking system crisis,

with potentially even greater harm than would result from severe exchange rate overshooting.

Appearances

Historically, credit rating agencies have commonly placed considerable weight on the volume of a country's official foreign currency reserves. The main motivation for this focus must be appearances. This is because the existence, or otherwise, of public sector holdings of foreign currency reserves should be irrelevant to a developed economy's potential growth rate, and it is this rate of growth which is a determinant of an economy's ability to service debt, the chief concern of rating agencies. Of course, if creditors understand that foreign exchange markets have the potential to become seriously illiquid and, further, that central banks are capable of assisting with the problem through intervention, it follows that creditors would have grounds to take comfort from the existence of reserves.

The truth is often in the eye of the beholder. If the existence of foreign currency reserves reduces real interest rates faced by New Zealand, in the context of New Zealand continuing to be a net debtor, welfare may be enhanced (so long as the costs of holding those reserves is not greater).

Skills uptake and knowledge acquisition

The Bank has a number of statutory responsibilities that require a thorough understanding and knowledge of banking and financial markets more generally. Inter alia, these responsibilities include the requirement to formulate and implement monetary policy in a way that takes account of the efficiency and soundness of the financial system, and to manage banking crises within the context of our statutory management powers. In addition, we have a number of advisory functions relating to financial markets. Given the Bank's need to form sound judgements in these areas, and to respond appropriately to financial disruption, the operational capability and experience gained from our foreign reserves management role is of considerable significance.

Indeed, over the years our performance in relation to many of our responsibilities has benefited materially from the direct and practical 'hands on' exposure that many staff have experienced in their day-to-day management of the Bank's

⁷ Brenda Gonzalez-Hermosillo, "Banking sector fragility and systemic sources of fragility", (IMF Working Paper WP/96/12, February 1996) discusses earlier examples.

foreign currency reserves. The operational capabilities associated with reserves management leave the Bank much better placed to deal with financial sector distress. A few years ago our experiences in managing the wind-up of the Development Finance Corporation were instructive in this regard.

3 Other reasons for holding foreign currency reserves

We can identify six other different types of reasons for the Crown to hold stocks of foreign currency assets. While some of these are currently relevant to New Zealand, others are only listed for the sake of completeness since they might become relevant at some future date.

Exchange rate stability (i.e. concern about exchange rate volatility)

Often, the choice of exchange rate regime is presented as bi-polar in nature. Either a floating exchange rate is adopted and resulting exchange rate volatility accepted, or a fixed exchange rate is implemented with all of the attendant difficulties in absorbing changes in the equilibrium real exchange rate. Between these polar cases are a variety of mixed regimes, featuring degrees of exchange rate management. In particular, floating exchange rate systems have typically been associated with considerably more exchange rate volatility than is consistent with shifts in economic fundamentals. This raises the possibility that action to smooth exchange rate fluctuations could be justified.

Of course, consideration needs to be given to the potential for gainful results from intervention. It is here that the case for policy action, as opposed to policy interest and concern, typically founders. Though evidence exists that exchange rate volatility adversely impacts on cross-border investment flows, an adverse impact on trade flows has been difficult to detect. Moreover, a fundamental prerequisite of consistently successful policy intervention is that those implementing public policy have a superior knowledge or ability as compared with private sector participants. And that has been a sufficiently tough hurdle to clear that the Bank does not attempt exchange rate smoothing. This may not always be the case in future, and there is suggestive evidence that some

central banks have been successful with exchange rate smoothing operations.

Exchange rate targeting (i.e. concern about the level of the exchange rate)

Fixing the exchange rate or targeting a constant exchange rate has a long pedigree as a route for achieving price level stability. Such an approach is, however, inconsistent with current thinking about the best policy with respect to exchange rate management. While a fixed or targeted exchange rate option cannot be entirely discounted as an option for the future, it should be noted that one of the emerging lessons from world-wide experience over the 1990s (including in Asia) is that fixed and targeted exchange rate arrangements are fragile and potentially highly costly in economic terms.⁸

Transactions buffer

The Crown has a liquidity requirement in respect of its own foreign exchange business, the great bulk of which is associated with the management of residual official foreign currency borrowings and foreign currency assets. Usually, the Crown will continue to be able to purchase foreign currency through private sector institutions but, in the context of dysfunctional foreign exchange markets discussed above, this is not guaranteed.

Earthquake fund

The possibility of widespread, expensive damage to New Zealand's physical assets caused by some natural calamity such as a major earthquake is sometimes considered to be a reason to hold a stock of purchasing power abroad. However, reinsurance abroad provides a large element of protection against local insurers defaulting in the event of a major earthquake, while reinsurance inflows would act to buffer exchange rate effects (which are in any case difficult to predict). Access to a reserve of foreign currency assets would have a potentially valuable role only where a major

⁸ More extreme forms of fixed exchange rates, such as those associated with well-designed currency boards and with currency unions, appear to be less fragile and probably less costly.

earthquake occurred at the same time as a foreign exchange market crisis, which is a very low probability event.

Net asset position

If New Zealand ran large fiscal surpluses on a sustained basis, to the point where all public sector debt had been repaid, there could be a case for some investment in foreign currency assets. The alternative, of investing in local (private sector) assets, has the twin disadvantage of limited risk diversification and potential distortion of individual asset prices. However, current and prospective fiscal positions imply that such a choice is unlikely to face the government in the near term.

Operations in the foreign exchange market for domestic liquidity management

Just as the exchange rate can be influenced by central bank operations in domestic financial markets, local interest rates can be influenced by operations in the foreign currency markets. In principle, financial system liquidity management and monetary policy operations might efficiently be implemented via transactions in foreign exchange markets.

It is certainly possible to imagine monetary policy implementation based on this kind of approach. Currently, monetary policy implementation in New Zealand depends on operations involving stocks of tradable public sector securities. Were these to be diminished in association with a reasonably lengthy period of on-going fiscal surpluses, alternative arrangements would be needed and, in these circumstances, operations involving foreign currency would indeed be one of the Bank's options.

4 Summary

There are many reasons why countries might hold foreign reserves. The three potentially most beneficial applicable to present-day New Zealand are:

- most significantly, the potential value of reserves if things go seriously wrong in our foreign exchange markets; Σ possible creditor perceptions that all countries should have reserves, irrespective of whether reserves are nec-

essary for growth and debt servicing capacity in all circumstances; and

- the important advantages for a range of Bank functions of the practical experience and enhanced understanding of financial markets associated with the reserves management function.

As far as the first and most important is concerned, there are reasonable grounds for believing that foreign exchange market liquidity could, in the face of certain extreme shocks, contract dramatically. In particular, foreign exchange intermediaries do not buffer shocks within their own books to any significant extent. During normal times, these intermediaries quickly lay off, via a complex network of intermediaries, positions acquired from end-user customer business. During abnormal times, being unwilling to absorb risk, these intermediaries may avoid exposures by withdrawing: the act of withdrawing itself impairing the ability of other intermediaries to lay off their positions.

If this occurred, the associated contraction of liquidity in the foreign exchange market would have a significant potential to damage users of the market and beyond, not the least through unstable exchange rate behaviour. Business disruption costs would rise dramatically, as would the nation's cost of capital. It is also likely that the harm would persist well beyond the restoration of normal market mechanisms.

Importantly, the nature of the dynamics associated with the crisis could open up the possibility for successful public policy intervention. In thinking about the policy options available, it is crucially important to recognise that it is not possible to rely on a conventional interest rate response always being available to keep the exchange rate from overshooting. This is because sharply higher interest rates can sometimes add to concerns that the currency is at risk, while markedly higher interest rates could also precipitate or worsen a banking system crisis.

Finally, it should be noted that while we have gone some way towards building an understanding of the dynamics of foreign markets under stress, our knowledge is far from complete, and the likely policy remains untested. At the same time we know that much damage could be caused by for-

eign exchange markets in serious trouble, and it would be dangerous to rule out in advance the potential for successful intervention – the stakes are just too high. At heart, this is the fundamental reason justifying our foreign currency intervention capacity.