

# EXCHANGE RATE REGIMES AND MONETARY POLICY

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*In this article Keith Lloyd discusses the relative merits of alternative exchange rate regimes and their inter-relationship with monetary policy.*

## Executive Summary

While the appropriate choice of exchange rate regime has continued to be cause for debate, it should primarily be a function of two overriding economic considerations: (i) whether the regime is consistent with the Government's monetary policy objectives, and (ii) which exchange rate mechanism provides the most accurate price signals to domestic agents and facilitates adjustment to a variety of external and internal shocks.

On the first count, a flexible exchange rate regime allows the operation of a discretionary monetary policy and provides an economy with an ability to determine its own long-run price path independently of world inflation. In contrast, monetary policy independence is lost under a fixed regime and the economy imports the inflation rate of the country, or group of countries, to which it has pegged.

With respect to the second issue, both regimes differ in their adjustment mechanism in response to economic shocks. Adjustment under a floating exchange rate works via relative price changes feeding through into permanent changes in the real exchange rate, while the adjustment mechanism under a fixed exchange rate operates by imposing external price discipline on the real economy.

In some situations, a flexible exchange rate regime offers greater potential than a fixed rate for smoother, less costly, adjustment to real shocks. However, in practice, adjustment under a flexible rate is not always smooth and a flexible rate may even exacerbate the effect of some shocks. The effectiveness of this adjustment mechanism, and thus the appropriate choice of exchange rate regime, depends critically on the degree of money illusion and wage and price indexation in the economy.

Between these two ends of the exchange rate spectrum, various regimes have attempted to trade-off the advantages of both fixed and flexible exchange rates. The target zone approach, currently adopted by a number of the major world economies, is one such hybrid.

These international trends have been reflected to some extent in New Zealand. Monetary policy actions have become more closely aligned with the exchange rate as the authorities have sought to counter exchange rate movements that were incompatible with the Government's inflation objectives, while at the same time allowing flexibility in exchange rate movements in response to real economic developments.

## Introduction

The floating of the exchange rate has been an important component of the New Zealand Government's macro-economic policy since 1985. Despite the benefits stemming from a floating rate of an independent monetary policy and the apparent advantages of a more efficient price signalling mechanism, however, the choice of exchange rate regime has continued to be cause for debate, both domestically and internationally. Indeed, the international experience of floating exchange rates in the 1970s and early 1980s prompted a reappraisal of the merits of floating regimes in the mid-1980s. The result was a move among the major world economies towards increased management and control of exchange rates as an important element in economic policy. These moves were underpinned by an assessment that some real and nominal exchange rate movements had been irrational and/or unrelated to fundamentals, and that the resulting costs associated with increased volatility and, more importantly, misalignment of currencies had been unnecessarily high.

Against this background of increasing international policy co-ordination and exchange rate management, New Zealand floated the dollar in March 1985 and continues to operate a floating regime. This regime continues to be a 'free float', to the extent that the Reserve Bank has not directly intervened in the foreign exchange market since March 1985. However, even under this floating regime domestic monetary policy actions have always had an influence on, and over the latter part of this period, have been increasingly influenced by, movements in the dollar. This article discusses the relative merits of alternative exchange rate regimes, and their inter-relationships with monetary policy, in the light of international developments and New Zealand's experience with floating exchange rates.

## The Choice of Exchange Rates Regimes

When considering alternative exchange rate regimes, the options vary along a continuum from freely floating to permanently fixed exchange rates. At one extreme, a fixed regime may involve a currency union with another country or group of countries such as that currently proposed among the member states of the European Community (EC). Moving away from permanently fixed arrangements, adjustable peg, crawling peg and target zone regimes exhibit increasing degrees of flexibility, with an unrestricted free float delineating the outer, flexible, extreme. In practice, except for the case of currency union, the distinction between floating and fixed exchange rates is blurred. For example, a pegged exchange rate with wide bands, or one that is adjusted regularly, may resemble a floating exchange rate while a floating rate, affected by regular central bank intervention in either the foreign exchange or domestic money markets (in order to constrain the currency within a target zone), essentially resembles a fixed rate. Furthermore, as Government policy action may influence the 'fundamentals' of an economy, exchange rate expectations, the level of interest rates or the stance of monetary policy it is clear that the Government has the capacity to influence the exchange rate under any regime (other than under irrevocably fixed rates).

Although the choice of exchange rate regime is a function of a number of factors, two overriding economic considerations dominate the exchange rate policy decision:

- (i) whether the regime is consistent with the Government's monetary policy

stance; and

(ii) which exchange rate mechanism provides the most accurate price signals to domestic agents over time and facilitates adjustment to a variety of external and internal shocks.

In general, the preferred exchange rate mechanism should both be supportive of internal monetary policy objectives and encourage an efficient allocation of resources through appropriate real exchange rate adjustments in response to changes in an economy's underlying real earnings potential. Other considerations that will affect the choice of regime include the Government's willingness to subordinate domestic policies to defend any particular exchange rate, whether the taxpayer should bear the risk and potential losses of foreign exchange market intervention, the costs of exchange rate volatility and misalignment, the speed of adjustment in different markets, the types of shocks anticipated and the efficiency of the foreign exchange market.

## International Developments

The world monetary system moved towards floating exchange rates after the final breakdown of the Bretton Woods system of fixed parities to the United States dollar in March 1973. The size of the structural imbalances between the major economies, the huge dollar surplus<sup>1</sup>, the system's inability to handle shocks and the cost of discrete (and typically large) exchange rate changes as the principal adjustment mechanism led many economists to believe at the time that floating was the only feasible alternative. Most major economies proceeded to enter into various forms of floating exchange rate regimes, and international capital controls were successively liberalised over the following decade - for example, in the United States in 1974, United Kingdom in 1979, and Japan in 1980.

The persistence of substantial exchange rate misalignments and unexpected volatility in both real and nominal exchange rates however, quickly led to disillusionment among European countries with increased exchange rate flexibility. The result was a return to an essentially fixed parity system in March 1979 in the form of the European Monetary System (EMS)<sup>2</sup>. Similarly the US and the UK, which had both adopted free market approaches towards their currencies, were paying increasing attention to the exchange rate by the mid-1980s. The strong appreciation of the US dollar in late 1984 and early 1985 prompted calls for increased policy co-ordination and exchange rate management among the major economies and eventually led to the Plaza Accord in 1985. This accord, and the subsequent Louvre Agreement in 1987, recognised the need for greater international exchange rate management and set implicit or 'soft' target zones around the major currencies. Although by the end of the 1980s the shift back towards more active exchange rate policy among the major

<sup>1</sup> The so-called 'dollar surplus' arose from huge US balance of payments deficits in 1970 (\$6.5 billion) and 1971 (\$20 billion). These followed an easing in US monetary policy in response to the 1969 recession. As a result, world reserves swelled by 10 per cent in 1970 and 32 per cent in 1971 and laid the groundwork for an increase in world inflation.

<sup>2</sup> Current members of the EMS include Belgium, Denmark, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Spain and West Germany. In the intervening period, after the abandonment of Bretton Woods and before the formal creation of the EMS in 1979, largely unsuccessful attempts were made to operate a loosely pegged system within the EC. The 'snake', as it was known, however was plagued by defections and by 1978 only four countries remained within the system.

economies was almost universal, none of the major countries outside of the EMS had returned to a fixed parity system, with most preferring to maintain some form of managed float.

Moves within the EMS towards greater exchange rate stability and European monetary union have not only been driven by European political concerns, but also by the observed economic benefits of participating in the EMS during the 1980s. In particular, as a result of the link to the Deutsche mark, and thus access to German monetary policy, the EMS provided other European countries with an external nominal anchor that delivered low inflation over the decade. Furthermore, increasing economic integration and movement towards a single currency union has facilitated trade within the EC. Regional specific real shocks have been handled by transfer payments within the EC and by real wage adjustments.

International shifts in the exchange rate mechanism have reflected changes in the objectives of exchange rate policy. In particular, the emphasis during the fixed exchange rate period of the 1960s was primarily on maintaining competitiveness and external balance (i.e. the real exchange rate), while concern over inflation in the 1970s and 1980s has led to concentration on domestic monetary objectives. In this framework, external balance and the real sector are no longer viewed as direct objectives of exchange rate policy. Instead, the level of the nominal exchange rate is seen as being inextricably interlinked with the stance and objectives of monetary policy. Recent shifts towards greater management of the exchange rate, rather than representing a return to the external balance objectives of the 1960s, reflect concern over the real sector costs of exchange rate volatility and/or misalignments. Exchange rate management attempts to minimise gyrations in the currency while still directing the exchange rate towards internal anti-inflation objectives.

In part, the shift away from the real sector objective reflects the realisation that the monetary authorities have little or no systematic influence over the real exchange rate other than in the short term, and that balance of payments deficits or surpluses may be an efficient outcome of savings and productivity trends in an economy. For example, a country with a high investment level (reflecting high capital productivity) relative to the level of domestic savings, will find it economically beneficial to import capital and run a balance of payments deficit (provided the debt build-up is sustainable and creditworthiness is maintained). Likewise, a country with a high net savings ratio and limited domestic investment opportunities will benefit from 'exporting' its savings abroad, acquiring foreign assets and running a balance of payments surplus. In the absence of significant public policy distortions to either the level of savings or investment the resulting capital flows will be economically efficient.

## Floating Exchange Rates

Traditional arguments in favour of flexible exchange rates focused on the internal-external policy mix and the cost and speed of price adjustment under alternative regimes. In terms of the first objective of exchange rate policy, floating exchange rates allow the operation of a discretionary monetary policy and provide an economy with the ability to determine its own long-run price path independently of world inflation. Under a floating regime the foreign exchange market is left to function like any other market - i.e. to clear continuously in response to supply and demand

pressures (in this instance, capital and current account flows), while domestic policies can be directed towards achieving internal balance (controlling inflation) without being subordinated in an effort to maintain an acceptable external balance.

Although it is market determined in this framework, the exchange rate is expected to settle at rates consistent with economic fundamentals. This approach to exchange rate determination is underpinned by the efficient market or modern international finance view of capital markets in which agents are hypothesised to behave rationally and prices are determined by economic fundamentals. The free movement of capital is essential to the efficient functioning of the market as it provides the arbitrage opportunities for smoothing short-term volatility. In principle, the potential for capital movements provides an external constraint on exchange rate divergences from the fundamentals implied by real economic variables and interest and inflation rate differentials. However, capital mobility also admits the possibility of exchange rate trends diverging from the path implied by fundamentals. Overshooting of the exchange rate<sup>3</sup> (or greater variability than that implied by the fundamentals) may occur in response to shocks as financial markets adjust faster to disturbances than the goods and labour markets - in general the slower the adjustment to disequilibrium in these markets the greater the price variation in asset markets, including in the foreign exchange market.

Indeed, the potential for large asset price variation in the presence of inflexible markets, together with the observed volatility in both real and nominal exchange rates has formed the basis of the case against floating exchange rates. The float has been criticised in New Zealand, for example, for generating excess exchange rate volatility and for pushing the exchange rate to uncompetitively high levels. Weekly and monthly exchange rate volatility against the US dollar for example more than doubled in the 1985-88 post-float period compared with the 1981-84 pre-float period (refer Figure 1).<sup>4</sup> Similarly, the real exchange rate fluctuated markedly over the same period.

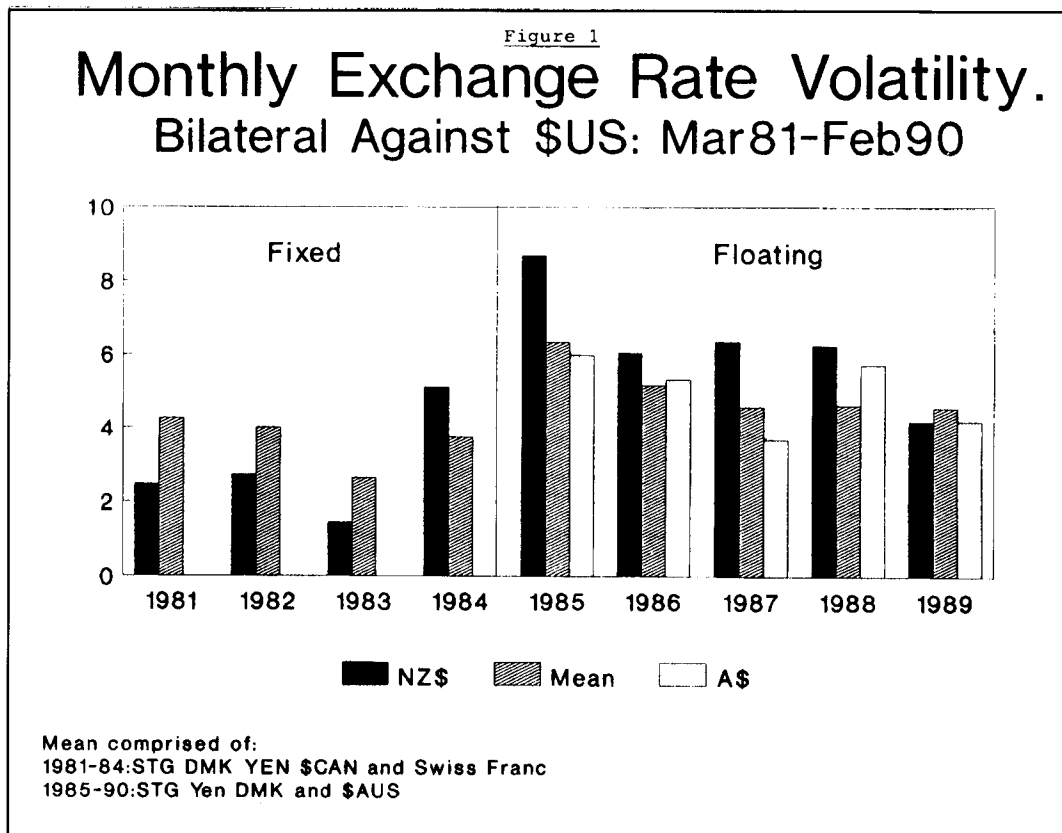
Exchange rates were not as stable in the 1970s and 1980s as proponents of floating regimes had initially anticipated nor have external imbalances moved back into 'equilibrium' as was expected.<sup>5</sup> On the contrary, a number of economists argue that nominal exchange rate movements since 1973 have been large and unpredictable, and unrelated to economic fundamentals or inflation differentials. Likewise, real exchange rate movements have not generally been explained in terms of productivity growth rate differentials, other real factors or sustainable improvements in the underlying cost structures of the economy. Indeed, some economists argue that the increase in volatility has been caused by speculative bubbles, bandwagon effects and destabilising speculation<sup>6</sup>.

3 Refer R. Dornbusch, "Expectations and Exchange Rate Dynamics", *Journal of Political Economy*, December 1976. In addition see R. Dornbusch (1980) *Open Economy Macro-Economics*. Harper, for a good discussion of the issues involved.

4 See R.M. Brooks, "Short Term Exchange Rate Volatility", forthcoming RBNZ Discussion Paper. Weekly bilateral volatility against the US dollar increased from around 0.75 per cent pre-float to an average of 2.7 per cent in the period from March 1985 to August 1988, while monthly volatility also increased from around 2.9 per cent to 7.1 per cent. Weekly and monthly volatility has subsequently fallen to around 1.9 per cent and 4 per cent respectively in the period from October 1988 to February 1990.

5 Refer to the Autumn 1989 edition of the *Oxford Review of Economic Policy*, Vol. 5, No. 3, for a general discussion of exchange rate theory and practice.

6 Not all these activities necessarily reflect irrationality on the part of individual agents. For instance, O. Blanchard (1979) "Speculative Bubbles, Crashes and Rational Expectations" *Economic Letters* 3, pp. 387-389, demonstrates that speculative bubbles can result even when all agents behave rationally.



Market inefficiencies have costs and increased exchange rate volatility may have an adverse effect on trade flows and investment as international transactions become more risky. Intuitively, the increase in uncertainty surrounding the domestic currency value of foreign trade receipts may induce a producer to substitute away from exporting to the relatively less risky domestic market. Likewise, uncertainty about future exchange rates may prompt a firm to adopt a more cautious approach to responding to shifts in relative costs of production in different countries. High entry and exit costs may reduce the responsiveness of firms to exchange rate movements and inhibit real resource shifts. Total investment may therefore be reduced in sectors exposed to international competition as firms attempt to extract the appropriate price signal from any given exchange rate shift. Such rigidities reduce the flexibility and efficiency of the domestic (and world) economy. Exchange rate uncertainty may also provide an incentive to hedge future production through direct foreign investment in overseas markets. Duplication of productive capacity across currency zones at the expense of domestic economies of scale may raise the cost of exchange rate volatility.

While these arguments suggest that there may be substantial costs associated with exchange rate volatility, there is little empirical evidence to support the view that international trade and investment has been reduced by fluctuations in the exchange rate. The availability of increasingly sophisticated hedging techniques for example - through forward exchange, futures and options markets, has provided traders with

an efficient means of covering short-term exchange rate variability at low cost and has reduced the overall cost of volatility. In addition, as exchange rate variability has been no greater than interest rate or equity market volatility, businesses may consider fluctuations in the exchange rate a normal parameter in their operating environment.

While exchange rate overshooting caused by inflexibility in the goods and labour markets has been used as an argument against floating exchange rates, nominal wage and price inflexibility has also been used as a rationale for allowing flexibility in the exchange rate and in other financial markets. Downward inflexibility in nominal wages and prices may prevent the appropriate real adjustments from occurring in response to adverse real economic shocks. Nominal exchange rate adjustments may therefore circumvent these nominal rigidities and generate the required changes in the real exchange rate at lower cost than those incurred by changes in interest rates and aggregate demand.

The adjustment mechanism under a floating regime relies on nominal exchange rate changes being translated into permanent changes in the real exchange rate. The effectiveness of this adjustment mechanism depends critically on a degree of money illusion and the lack of widespread wage and price indexation. In particular, the sustainability of a lower real exchange rate which has been induced by a depreciation in the nominal exchange rate (in response to an adverse terms of trade shock, for example) relies heavily on the absence of a second-round wage and price claw-back after the initial relative price change has fed into the economy. Clearly, the less indexed the economy and the more flexible are real wages, the greater is the likelihood that the economy will adjust smoothly to a real shock.

Flexibility in the exchange rate facilitates relative price adjustments and the price signal effect of nominal exchange rate movements may avoid the costly expansionary-contractionary mechanism of adjustment arising from changes in the domestic money supply under a fixed regime. Briefly, a fixed regime imposes external price discipline on an economy and forces adjustment through competitive pressure on the real sector. The monetary adjustment mechanism under a fixed exchange rate operates on all prices, generating interest rate changes and forcing temporary changes in the level of real expenditure, output and employment to restore equilibrium. Following an adverse shock, cuts in both real and nominal wages (relative to foreign wages) are required. This process is exacerbated, under a fixed regime, if rigidities in the economy lead to downward 'stickiness' in nominal wages and prices relative to their foreign counterparts.

In the presence of real wage and price inflexibility both exchange rate mechanisms may be ineffective as adjustment is resisted by goods and labour market participants. In these circumstances, real adjustment is more likely to succeed by imposing external price discipline on the economy through a nominal exchange rate anchor and forcing adjustment through the real sector. Conversely, while both regimes may be as effective at generating adjustment in the presence of perfectly flexible goods and labour markets, the existence of long-term nominal contracts suggests that flexible exchange rates may be more effective at both signalling changed external economic conditions and generating required real adjustment at lower cost. However, the existence of long-term nominal contracts can also exacerbate the degree of overshooting.

The appropriate choice of exchange rate regime depends on the degree of goods and labour flexibility in the economy and on the degree of overshooting that may occur when domestic wages and prices are inflexible. In some circumstances, exchange rate flexibility may substitute for product and labour market price flexibility as a means of achieving real wage and price adjustment at lower output cost.

Although transition to a new lower equilibrium real exchange rate under a floating regime may involve smaller structural adjustment costs than under a fixed regime, it does involve greater risk of inflation and could, in some circumstances, compromise the monetary policy objectives of the Government. In contrast, as noted earlier, a fixed exchange rate regime provides an external anchor for domestic monetary policy and hence the price level. Although a flexible exchange rate insulates the economy from external monetary disturbances, and particularly from foreign inflationary impulses, it does increase the risk of domestic inflation as a result of downward adjustments in the exchange rate. The potential inflationary risks are greater and real adjustment potential lower when there is a high degree of indexation in the goods and labour markets. Inflexibility and the resulting inflation pressures in these markets may, however, be countered by firm financial policies. A permanent increase in the rate of inflation will only occur if monetary policy is accommodating.

The major cost of exchange rate fluctuations, however, arises from substantial misalignments and the resulting misallocation of resources. Inappropriate exchange rate signals may lead to significant hysteresis<sup>7</sup> costs, the extent of which depends on the size of the misalignment and how long it lasts. In particular, an industry exposed to increased foreign competition through a persistent overvaluation of the currency may close down and consider re-opening elsewhere in a lower wage economy. Prolonged periods of under-or-over-valuation can therefore potentially lead to long-term changes in the traded goods sector of the economy as changes in the number of firms, employment and capital stock prove difficult to reverse.

While exchange rate misalignments and exchange rate volatility appear to have increased under floating regimes, the type and magnitude of the shocks affecting the international economy during the floating era, together with major developments in the foreign exchange market, make it difficult to compare the relative performance of floating exchange rates with the Bretton Woods system. In particular, the liberalisation and globalisation of international capital markets and developments in the telecommunications industry have resulted in highly mobile capital flows having the ability to impact instantaneously on financial and foreign exchange markets anywhere in the world. Although such developments have increased volatility during the flexible exchange rate period, it is possible that equally destabilising flows would have placed a fixed exchange rate system under similar pressure.

## Fixed Exchange Rates

Not surprisingly the popular case for moving to a fixed exchange rate rests on the real sector costs of volatility and the resource misallocation costs induced by substantial misalignments. Accordingly, a number of the arguments in favour of fixed exchange

<sup>7</sup> Hysteresis occurs when permanent changes occur in the equilibrium rate of output. See R. Baldwin and P. Krugman (1989), "Persistent Trade Effects of Large Exchange Rate Shocks" in the *Quarterly Journal of Economics*, November, Vol. CIV, No. 9, for a discussion of hysteresis.

rates reflect the criticisms of flexible exchange rates. Briefly, the thrust of those arguments suggests that fixing the exchange rate, or constraining fluctuations within a specified band, reduces the risk and uncertainty attached to international transactions and may promote increased trade and investment flows. In the absence of any initial misalignment (assuming that the authorities set an initial level for the nominal exchange rate that results in an appropriate real exchange rate), an efficient allocation of resources would result as producers respond to relative cost differentials without the added uncertainty of extracting the 'correct' price signal from any exchange rate movement. Fixing the exchange rate may also prevent the emergence of inefficient and irrational market developments from establishing a divergent trend away from the underlying equilibrium exchange rate. While there appears little evidence to support the view that increased volatility has reduced trade and capital flows, the costs of misalignment may have been substantial, and the case for a return to fixed exchange rates in the 1980s rested primarily on the assessment that these costs exceeded the benefits of retaining a freely floating exchange rate.

Another argument in favour of a fixed exchange rate is that it acts as an anchor for the national price level. Although monetary policy independence is lost, the move to a fixed regime, either pegged to a single currency or to a basket of major trading partners, allows the domestic economy to lock into the monetary policy of a foreign country or countries. This strategy may be particularly advantageous when the Government or the authorities wish to lower domestic inflation to world levels but lack the credibility to pursue firm domestic monetary policies. It is argued that a more formal exchange rate regime places a constraint on domestic policy actions and the external commitment increases the credibility of policies designed to combat inflation (the experience of the French after entering the EMS is a good example).

In particular, if the domestic country adopts the same financial policies and monetary policy stance as the country or countries that it pegs to, the law of one price will eventually hold and the domestic inflation rate will converge to the external rate of inflation. In the case of an irrevocably fixed rate (e.g. through currency union), the foreign country's monetary policy and resultant inflation rate will therefore determine the central achievable target for domestic policy.

However, this situation alters in an adjustable peg regime. If a country pursues persistently more relaxed financial policies than the principal economy (as do some members of the EMS), they will experience persistent current account deficits and will also have a tendency towards a higher inflation rate.<sup>8</sup> The resulting loss in reserves and higher inflation rate will stimulate demands for a devaluation to improve competitiveness. A devaluation will, however, force up domestic prices and result in a different inflation outcome to the anchor country.

The traditional internal-external balance trade-off (or conflict) quickly becomes apparent for it is clear that under an adjustable peg, exchange rate devaluation is a substitute for domestic wage and price adjustment. A downward adjustment in the exchange rate effectively validates the initial impulse to domestic inflation. For example, if the reason for the uncompetitiveness was a domestic wage explosion, devaluation would simply validate the rise in nominal wages, offset any pressure on

<sup>8</sup> The experience of New Zealand with large devaluations in the 1970s and 1980s (in September 1974 -6.2 per cent; August 1975 -15 per cent; November 1976 -2.7 per cent; June 1979 - 5 per cent; and July 1984 -20 per cent), the last of which was prompted by a costly and disruptive foreign crisis, is a good example of the unsustainability of attempts to permanently insulate the economy by running an easier monetary policy than the foreign countries to which the country has pegged.

real wages and risk continuing inflation as the inflationary consequences of a lower nominal exchange rate fed through the economy. The reduction in the nominal exchange rate will have only a temporary effect on competitiveness unless improvements are made in the domestic cost structure of the economy. On the other hand, under an irrevocably fixed exchange rate regime this problem does not arise as there can be no accommodating devaluation. Instead, the issue is how to facilitate the required reduction in nominal wages and prices to offset any initial inappropriate upward wage and price movement.

Under a fixed regime, there are a number of mechanisms that generate appropriate price adjustments following an inflationary shock and/or an inappropriate current account deficit. The domestic country will lose reserves in response to a balance of payments deficit promoting a fall in the money supply and a reduction in nominal expenditure. In addition, the loss of competitiveness, resulting from higher domestic inflation, will lead to a reduction in demand for domestically produced goods. Deflationary pressure through these channels is exerted on the economy by the resulting under-utilisation of capacity and rise in unemployment. These mechanisms are only effective, however, if the exchange rate link is defended and the resulting pressure on the real sector does not prompt a devaluation.

A fixed exchange rate link therefore offers the potential to impose foreign price discipline on the economy and deliver inflation consistent with the objectives of domestic monetary policy (provided there is an appropriate country operating a desirable monetary policy against which to peg). In terms of the second important dimension in the choice of exchange rate regime, the link, if defended, will eventually prompt real adjustment to changed economic conditions. While clearly not inconsistent with the first objective of exchange rate policy the cost of forcing adjustment through the real sector may be high, and depends critically on the degree of flexibility in the economy.

Traditionally, fixed exchange rates have been criticised for the need to subordinate other policies to defend a particular exchange rate, the economic distortions incurred in the process, and the potential fiscal cost. This occurs when countries have not been prepared to undertake appropriate macroeconomic policies to correct external disequilibrium. In particular, difficulties typically arise when the authorities attempt to accommodate the deficiencies in policy through foreign exchange market intervention in an effort to defend an unsustainable exchange rate and run a loose monetary policy. Import controls, export subsidies and exchange controls, for example, have all been used previously in New Zealand, and elsewhere, as measures to tackle balance of payments problems rather than allowing the real exchange rate to adjust, or addressing the underlying inconsistencies in macroeconomic policy. The microeconomic distortions and inefficiencies of these measures may be substantial. There is no necessary requirement, however, under a fixed regime, for distortionary policy instruments such as these to be used, especially where other macroeconomic policies - particularly monetary policy settings - are consistent with the maintenance of the chosen exchange rate.

<sup>9</sup> Sterilised foreign exchange intervention leaves the domestic money supply unchanged as the central bank undertakes offsetting open market operations in the domestic money market. For example, a purchase of New Zealand dollars by the central bank in the foreign exchange market is offset by an injection of New Zealand dollars in the domestic market so as to leave the total money supply unchanged.

The necessity for an appropriate monetary policy to support a fixed rate is of crucial importance. The ability of a central bank in a small open economy to credibly defend its exchange rate purely through sterilised<sup>9</sup> foreign exchange market intervention has declined as international capital mobility has increased. Capital market integration increases the connection between exchange rate policy and monetary policy; they are essentially inter-dependent unless institutional controls and other mechanisms provide an extra degree of policy freedom. As a result, sterilised intervention is of limited effectiveness in influencing the exchange rate as the size of potential international capital inflows significantly outweighs the reserves at the disposal of the authorities. On the other hand, unsterilised intervention<sup>10</sup> retains its effectiveness through its impact on the domestic money supply and interest rates. However, internal monetary policy objectives and exchange rate policy could, in some circumstances, be inconsistent and interest rates would then have to be redirected to defend a fixed exchange rate at the expense of their monetary policy role.

Where other macroeconomic policies are inconsistent with the maintenance of a particular exchange rate level, the authorities' commitment to a fixed exchange rate can set up conditions for speculators to anticipate devaluations and may provoke destabilising speculative attacks on the currency. In these circumstances a fixed rate offers speculators a one-way bet at the expense of the fiscal cost to the taxpayer. In general, the common practical problem with fixed exchange rates is that governments (for various economic and political reasons) at times attempt to maintain unbalanced domestic policies for sustained periods which are incompatible with the chosen exchange rate. The result can be persistent current account deficits, rising overseas debt and speculation against the monetary authorities.

## Target Zones

Dissatisfaction with the performance of floating exchange rates, and in particular the real economy costs of substantial misalignments, prompted the international swing back to more active exchange rate management. Outside of Europe, however, the major economies have stopped short of a return to a fixed exchange rate system and have opted instead for active exchange rate policies that attempt to manage the exchange rate using target zones. As a hybrid, the target zone approach attempts to synthesise the advantages of both floating and fixed regimes. In particular, the approach offers the potential for insulating the economy from extraneous shocks and the costs associated with unnecessary misalignments while allowing the price mechanism (via real exchange rate changes) to promote adjustment in response to fundamental changes in the external trading environment. At one level the flexibility to adjust competitiveness to real shocks and monetary policy independence is maintained, while at another, the commitment to an equilibrium real exchange rate reduces the potential for misalignments to emerge and may diminish exchange rate volatility.

Unannounced target zones, or soft margins, allow the authorities freedom to

10 Unsterilised foreign exchange intervention alters the domestic money supply and hence the stance of monetary policy. No offsetting operations are carried out by the central bank in the domestic money market.

11 Refer to J.A. Frenkel and M. Goldstein (1986), "A Guide to Target Zones," *IMF Staff Papers*, Vol. 33, No. 4, December, for a discussion of the characteristics of target zones.

influence the behaviour of the exchange rate without publicly committing themselves to defending those ranges should they become undesirable at some point<sup>11</sup>. Although monetary policy objectives retain primacy under this arrangement, traditional external objectives are accommodated and uncertainty surrounding large exchange rate movements is removed. Market awareness of an implicit or explicit commitment to stability in the exchange rate backed by central bank action may prevent irrational market trends from developing. Indeed, some advocates of target zones suggest that a commitment to long term fundamentals may alter the functioning of foreign exchange markets in a favourable manner as participants operate in the knowledge of contingent action by the authorities. While the use of wide bands suggests that the authorities would not need to intervene regularly, the potential for adjustment to the zones may fuel destabilising speculation. The 'soft' nature of the zones however, does allow the authorities greater discretion and adds uncertainty to the returns from speculative capital flows.

Target zones may be used to delineate a path for the nominal exchange rate that is consistent with the desired inflation path. In particular, the nominal exchange rate may be managed in a manner that not only offsets inflation differentials, but also ensures that sufficient short-run pressure is placed on the real exchange rate in order to achieve the desired stance of monetary policy and inflation outturn. In the absence of major price shocks, monetary policy objectives are met and uncertainty surrounding large swings in the exchange rate is removed.

However, the successful pursuit of exchange rate targeting requires the authorities to identify a range for the nominal equilibrium exchange rate that is consistent with domestic inflation objectives. This task can be compared with the task under a purely floating rate of judging what monetary aggregate path is consistent with the inflation objective. There is no *a priori* reason to believe that either one or other of these tasks will be easier than the other. Hence the choice between a pure float and a target zone, on this ground, must rest on an empirical judgment as to which option gives greater certainty in the attainment of the inflation objective.

Questions of adjustment to real shocks must also be considered. Exchange rate adjustments can occur under both regimes, but to a greater extent under a purely floating rate. This advantage of a pure float must be set against the advantage of a target zone regime of limiting the degree of overshooting and misalignments in the foreign exchange market. Again, empirical judgments must be made as to the relevant importance of these factors when considering whether a target zone is an appropriate exchange rate option.

## Crawling Peg

A crawling peg appears to offer the same potential as a target zone for insulating the economy from extraneous shocks while retaining sufficient flexibility (albeit administered) to transmit fundamental changes in external conditions to economic agents via appropriate real exchange rate changes. While the peg, or rate of crawl, is adjusted to offset inflation differentials, it may also be adjusted in response to major developments affecting the country's real earnings capacity. Like fixed exchange rates, and to a lesser extent target zones, the inherent difficulties the authorities face when attempting to extract the information content from any given market signal is a problem with this approach. Typically, the lack of relevant and timely information

makes policy judgments within a crawling peg regime difficult and results in a reluctance to adjust the peg until strong evidence of a disequilibrium situation has emerged. This characterised New Zealand's experience with a crawling peg between 1979 and 1982 and it is possible that real exchange rate adjustments under a crawling peg may be even slower than under a fixed or adjustable peg.

Monetary policy may be ineffective, and the potential advantages of imposing external policy discipline through an exchange rate link may be lost, if the exchange rate peg crawls continuously downward in response to higher domestic inflation than that prevailing in the world. However, the objectives of monetary policy may be met under this regime if the direction and the rate of crawl is determined 'ex-ante' rather than 'ex-post'. Given a predetermined target domestic inflation path, the expected inflation differential with the world may be used to predetermine the direction and rate of crawl. For example, should New Zealand's expected (or desired) inflation rate for the next twelve months be 2 per cent, and the world's 4 per cent, then, under this approach, the nominal exchange rate should appreciate by around 2 per cent. A crawling peg used in this manner may therefore be consistent with an anti-inflationary monetary policy stance. While, in some respects, this option resembles a target zone, it differs from that approach in that exchange rate movements yield no information to the authorities under a crawling peg but do so under a target zone.

## Conclusions and Implications for Monetary Policy

At the beginning of this paper it was noted that the choice of an appropriate exchange rate regime depends critically on which policy best serves the Government's monetary policy objectives and which mechanism best facilitates relative price and real exchange rate adjustment to external shocks. With regard to monetary policy, the pursuit of price stability requires either a viable link to a single currency or foreign currency basket which will deliver the desired monetary policy, or it necessitates a flexible exchange rate regime that provides for the operation of an independent monetary policy. The peg of the Austrian schilling to the Deutsche mark, whereby Austria effectively imports German monetary policy, is an example of the former situation, while New Zealand and Australia, amongst others, have chosen the second option.

With regard to the price adjustment objective, one must analyse the nature of adjustment that is required in response to various potential shocks. If the economic and institutional structure of a country is similar to that of a neighbouring country, a fixed exchange rate link between these two countries may enable appropriate adjustments in relative prices to occur without large adjustment costs. This is the case for a number of countries within Europe, where fixed exchange rates tend to be favoured. It is also the case within countries; for instance, the North and South Islands of New Zealand have a permanently fixed nominal exchange rate. However, where the economic structures and/or institutions within a country are significantly different to those of other countries, there is likely to be a greater need for nominal exchange rate flexibility in order to facilitate relative price adjustments. This is particularly the case when domestic wages and prices are slow to adjust. Indeed, one of the perceived problems with the Bretton Woods system was that relative prices did not adjust adequately within many economies in response to permanent shocks.

The experience of floating exchange rates in the 1970s and 1980s, however, has tempered enthusiasm for the virtues of completely unfettered market determination of exchange rates. The potential real sector costs of overshooting exchange rates and of sustained real exchange rate misalignments have prompted increased concerns about competitiveness and relative price adjustments under floating exchange rates. They have also prompted concern about the effects of completely freely floating exchange rates on domestic considerations such as inflation.

As a result of these experiences, economic policy as currently practised in New Zealand and in many other countries, has sought to temper the adverse effects of exchange rate volatility and misalignments while adhering to the primacy of internal objectives and the benefits of flexibility in the exchange rate. The international movement to more active exchange rate policy using 'soft' or implicit target zones has reflected this approach. The greater stability in the New Zealand dollar since August 1988 has coincided with increased emphasis on the exchange rate as an indicator of monetary policy. The shift away from the yield gap as the primary indicator not only reflected reduced confidence in the information content of the term structure but, more importantly, reflected an assessment that the exchange rate had become the dominant monetary transmission mechanism. Accordingly, monetary policy actions have become more closely aligned with the exchange rate as the authorities have sought to counter exchange rate movements that were incompatible with the inflation objectives, while still allowing some flexibility in exchange rate movements in response to real economic developments.