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## TARGET ZONES AND INTERNATIONAL MONETARY REFORM

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**Abstract:** A case is made for targeting real exchange rates under the extended target zone proposal. Wide, rather than narrow, bands are preferred to allow the real exchange rate to adjust to shocks via changes in the nominal exchange rate rather than in the price level. Relatedly, wide bands allow monetary control to anchor the price level. Wide bands are cost-efficient as they do not attempt to eliminate real exchange rate volatility that is of little economic consequence. Credible wide bands will also help to dampen trends caused by technical-driven speculation. Empirical evidence relevant to the main arguments is reviewed.

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**Key-words:** target zones, monetary reform, exchange rates.

At the heart of the desire to reform the international monetary system is the belief that exchange rate volatility has had a deleterious effect on trade flows and on the ability of governments to pursue non-inflationary macroeconomic policies. We argue, that flexible exchange rates, despite the detractors, have several advantages *and* that as long as volatility is not excessive, short-term fluctuations in nominal and real exchange rates do not matter all that much, either for resource allocation or for macroeconomic equilibrium. We argue in favor of the extended target zone proposal of Edison, Miller and Williamson (1987) as this will help both to contain excessive short-term real exchange rate volatility as well as disciplining the management of fundamentals by the authorities.

We distinguish between factors which determine the equilibrium exchange rate and those that cause deviations from it, a construction favored by Williamson (1993). It is observed that the *equilibrium* real exchange rate is determined, for a given natural rate of unemployment, by microeconomic variables and that these, in the short-term, are not highly sensitive to changes in it. We recognize that the level of a country's *actual* real exchange rate is sensitive to macroeconomic variables, such as the real interest rate, and that the authorities must be responsible for maintaining the actual real exchange rate within the bounds of tolerable real exchange rate variability set by the microeconomic fundamentals. Thus, we dis-

agree with the view stated by Allen and Stein (1991) and others that a government should not try to target the real exchange rate.

The paper proceeds as follows: in section 1 there is a brief discussion in favor of retaining some measure of exchange rate flexibility. The second section offers a theoretical model—which is used to argue that short-term exchange rate variability, limited to a range of, say, plus-minus 10 percent, is of little consequence, so that narrower bands—as in McKinnon's (1988) proposal—are not necessary. The third section discusses the extended target zone proposal pointing to its main advantages and to some criticisms that have been made of it. The final section draws conclusions.

### *Section 1: Costs and benefits of flexible exchange rates*

The fact that exchange rates approximate random walk processes has led many researchers to conclude that the foreign exchange market is an efficient asset market.<sup>1</sup> However, even if it could be proved that the foreign exchange market was informationally efficient, it may not be socially efficient. In fact, it is the social inefficiency of floating exchange rates which is at the heart of the debate over international financial stability. The social inefficiency of floating exchange rates stems, first, from, the stickiness of price levels which means that volatility in nominal rates causes volatility in real exchange rates which, in turn, may cause resources to be misallocated. Secondly, the uncertainty which volatile nominal and real exchange rates can impart into the trading behavior of importers and exporters may have a deleterious effect on trade flows and may, indeed, lead to sovereign states introducing impediments to international trade.

The first cost, the welfare cost is, perhaps, the least controversial in terms of its empirical credentials, whilst the second has only limited empirical support. Adverse welfare costs from strongly appreciating exchange rates are associated with deindustrialization in the UK during 1979–1982; to worsening trade balances and protectionist sentiment in the USA from about the mid-1980s; and in Japan, in 1995, the sharp appreciation of the yen, unless reversed, was seen as rendering much of Japan's export industries uncompetitive. Yet in all three examples, volatility *per se* was not the problem, rather, it was that the real exchange had trended away from its equilibrium level (or, was feared to about to do in Japan's case).<sup>2</sup>

Studies which have sought to determine the effects of exchange rate volatility on trade flows have not indicated a strong and clear relationship (IMF, 1984; Mussa *et. al.*, 1994), albeit that a negative effect was detected by de Grauwe (1998). Although this may in some measure merely reflect the relative lack of sophistication of the econometric methods used, such studies (which effectively

<sup>1</sup> A fairer assessment of the evidence on foreign exchange market efficiency would be to say that the evidence is inconclusive (Hallwood and MacDonald, 1994).

<sup>2</sup> Thus, to be clear, what we mean by exchange rate 'volatility' is mean reverting fluctuations around the equilibrium value.

regress the trade balance on some measure of exchange rate volatility) may not fully capture the deleterious effect on trade of exchange rate volatility because, by definition, they cannot capture trade that has not taken place, but otherwise would have in the absence of such volatility. However, Krugman (1989) has forcefully argued that exchange rate volatility has not much affected trade flows because companies engaged in international trade have attempted to keep the foreign currency price of their goods relatively stable in order to maintain their market share; in this sense the current account has been decoupled from the real exchange rate.<sup>3</sup>

While social costs do stem from excessive amplitude in the variation of exchange rates this is not necessarily an argument against flexibility *per se*. Many commentators would argue (see, for example, Williamson, 1988) that although excessive exchange rate volatility may be undesirable, some form of exchange rate flexibility is essential because flexible rates provide a number of useful social functions. In particular, allowing a country better to adjust to real shocks, such as those which affect preferences for its traded goods and its relative ability to produce them for international markets—matters which are investigated in more detail below. Furthermore, when prices are sticky, adjustment may be slow and painful in terms of its consequences for unemployment. In such circumstances it may, therefore, be preferable to allow the nominal exchange rate to adjust in order to facilitate a corresponding real change. Also, the fact that the majority of manufactured goods entering international trade are imperfect substitutes (see Isard, 1977; Kravis and Lipsey, 1978), implies that world goods markets are less than perfectly integrated and may therefore require real exchange rate adjustment to facilitate current account adjustment. This kind of argument also spills over to the growth context. For example, as Dornbusch (1988) and Faruquee (1995) have emphasized, real exchange rates in the post-war period have been trending. If nominal exchange rates are to be fixed, then real exchange rate trends will be accomplished by divergent money wage and price level trends. Other advantages claimed for real exchange rate flexibility arise if countries have different propensities to inflate, or if they have different preferences over the costs of unemployment and inflation. Exchange rate flexibility is also a useful shock-absorber when a currency is under speculative attack.

Another argument in favor of flexible nominal (and real) exchange rates, is that, as mentioned earlier, some variation in them does not really matter very much either for resource allocation or for macroeconomic equilibrium. Attention now

<sup>3</sup> A proponent of flexible rates (such as Friedman, 1953) would argue that exchange rate volatility, and the riskiness it may impart into international trade, would not, in any case, be a real problem because of the existence of forward and futures markets for the purpose of hedging foreign exchange risk. However, futures markets do not exist in which to hedge long term direct foreign investment. But, then, a multinational corporation, say, may be able to make a reasonable forecast of long term exchange rate trends, with short term volatility not being particularly relevant to long term investors. MacDonald (1995) argues that unit root tests are supportive of the existence of some form of long-run exchange rate relationship.

turns to this matter.

*Section 2: Short-term nominal and real exchange rate volatility*

Khan (1990) emphasizes that the real exchange rate,  $Q = EP/P^*$ , is, perhaps, the most important price an open economy (where  $E$  is the amount of foreign currency purchased for one unit of domestic currency,  $P$  is the home country's price level and  $P^*$  that of the foreign country). Does it matter very much if the real exchange rate diverges by, say, plus-or-minus 10 percent from the equilibrium level? We answer this question by combining in an original way the real exchange rate models of Swan (1956), Salter (1959) and Dornbusch (1973).

It has for long been recognized that changes in the ratios of traded to nontraded goods in production and consumption are important in the balance of payments adjustment mechanism. The distinction between traded and nontraded goods, though important, is blurred (just as are other definitions made by economists, e.g., between goods and services). Nontraded goods usually face some barrier to international trade such as high transport costs or the necessity for consumption to occur at the point of production (as with most services). Hence, many services such as health, education, social services, transportation, personal services and housing are nontraded goods. The provision of public utilities such as water, gas and electricity are also often similarly classified. Whatever the practical difficulties of definition, the real exchange rate is the relative price of traded goods in terms of nontraded goods.<sup>4</sup>

In Fig. 1 quadrant (a) the  $RR$  function is the ratio of traded to nontraded goods in domestic production ( $R_T/R_{NT}$ ). This ratio is a decreasing function of the real exchange rate, as appreciation (higher  $Q$ ) reduces profits in the traded goods sector relative to those in the non-traded sector.  $CC$  is the ratio of traded to nontraded goods in domestic consumption ( $C_T/C_{NT}$ ). This ratio is an increasing function of the real exchange rate as real appreciation reduces the relative price of traded goods. At  $F$  the share of traded goods in production and consumption are equal and (assuming asset market equilibrium) the trade account is balanced. The amount  $A$  minus  $B$  is a measure of the trade deficit.<sup>5</sup>

Quadrant (b) reproduces the famous Swan diagram of open economy macro-economic balance, about which it only necessary to mention that the slope of the external balance function,  $EE$ , depends on the responsiveness of the  $RR$  and  $CC$  functions to changes in the real exchange rate. Thus, writing

$$C_T/C_{NT} = f(Q) \quad f' > 0 \quad (1)$$

$$R_T/R_{NT} = g(Q) \quad g' < 0 \quad (2)$$

<sup>4</sup> The real exchange rate is the relative price of traded good as  $Q = EP/P^*$ , and  $P = P_T^a P_{NT}^{1-a}$ , where  $a$  is the share of traded goods in a country's price index. Also,  $P_T = P^*/E = 1/E$ , by defining  $P^* = 1$ . Using some elementary algebra and noting that  $P^* = 1 = EP_T$ , gives  $Q = P_{NT}/P_T$ .

<sup>5</sup> Thus,  $A - B = (C_T/C_{NT}) - (R_T/R_{NT}) = (C_T - R_T)/R_{NT}$  as, by definition,  $C_{NT} = R_{NT}$ , thus  $(A - B)R_{NT} = C_T - R_T =$  the trade deficit.

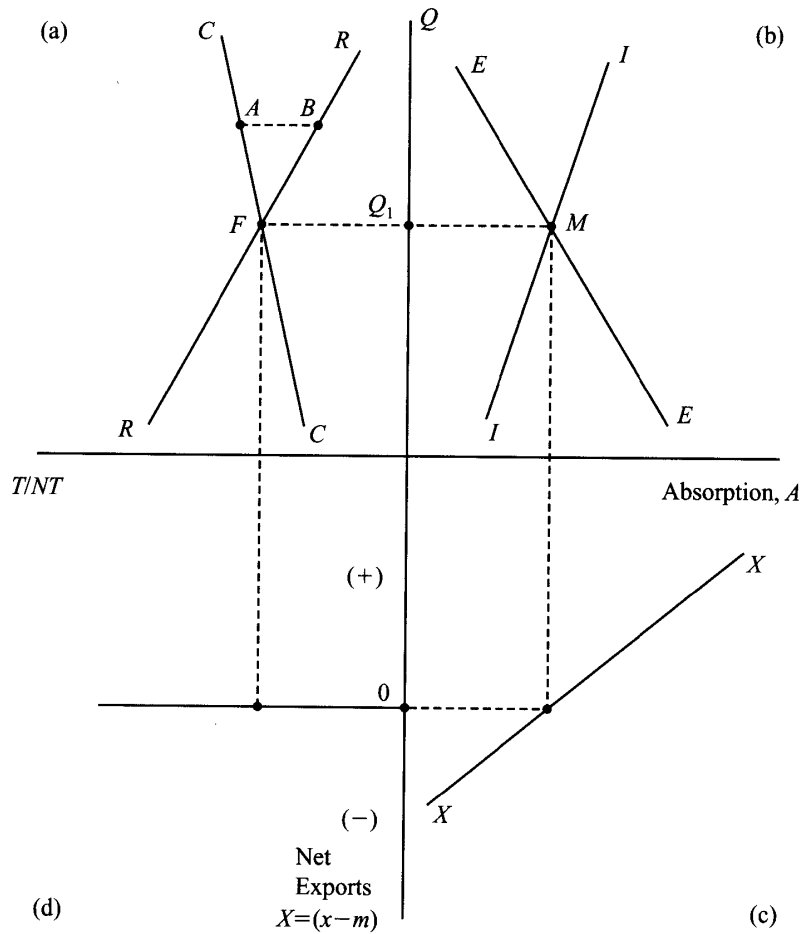


Fig. 1. The equilibrium real exchange rate.

where  $C_T/C_{NT}$  is the ratio of traded to nontraded goods in consumption and  $R_T/R_{NT}$  their ratio in domestic production. Forming  $f(Q)-g(Q)$  defines excess demand for traded goods. Differentiating shows that excess demand is a positive function of  $Q$ ; and excess demand will be greater the more sensitive are the ratios to a change in  $Q$ , that is, the greater are  $f$  and  $g$ . Thus, to maintain external balance, as  $Q$  appreciates, a reduction in domestic absorption is needed to reduce  $C_T$  relative to  $R_T$ .

Similarly with the II function: the more sensitive are  $CC$  and  $RR$  to a change in  $Q$ , the flatter is II—as a given increase in  $Q$  causes a larger trade deficit which needs to be offset by a larger increase in absorption to maintain internal balance. Notice that on II at the point  $M$  there is trade balance, and that moving up II the trade deficit grows.

Quadrant (c) shows the trade-off between net exports and absorption along the II function. Moving up II, the trade balance deteriorates as  $Q$  appreciates, but to maintain full employment income,  $Y_F = A + X$ , this has to be offset by an increase in absorption.  $XX$  in Fig. 1c is flatter vis a viz the net exports axis the flatter is

II and, therefore, the more sensitive is resource allocation between traded and nontraded goods to a change in their relative price.

Notice that in quadrant (a) the equilibrium real exchange rate is determined by the relative abundance of traded goods (i.e., by the interaction of the *RR* and *CC* functions), but that macroeconomic factors, by moving the economy temporarily away from point *M* in quadrant (b) will influence the level of the actual real exchange rate.

Critical to the following discussion is the question of how responsive are the ratios of traded to nontraded goods in production and consumption to a change in their relative prices, i.e., the real exchange rate.

Suppose for a moment that the *RR* and *CC* functions are highly sensitive to changes in the real exchange rate. In this case these functions are relatively flat (as will be the *EE* and *II* functions) and even small divergence of the real exchange rate from its equilibrium value will cause a large trade deficit,  $A - B$  is large in quadrant (a) and, via the foreign trade multiplier, the disturbance to internal balance will also be large. Thus, a small appreciation of the real exchange rate will have a large deflationary effect. In this case, the nominal exchange rate regime, in combination with macroeconomic policy, had better confine variations in the real exchange rate to a narrow range.

But, now suppose that the *RR* and *CC* functions are relatively insensitive to the real exchange rate, as will be the *II* and *EE* functions. In this case, even large variations in the real exchange rate have a quite small affect on the trade balance,<sup>6</sup> and so, via the foreign trade multiplier, also on macroeconomic variables. Thus, variations in the real exchange rate do not matter so much for macroeconomic stability. In fact, they will not matter at all if the relatively small trade deficits can be easily financed through international borrowing.

That quite a lot of variation in the real exchange rate is not very important for macroeconomic equilibrium can also be seen by looking at a pair of steep *EE* and *II* functions. If both *EE* and *II* are steep, either can shift about without much affect on the equilibrium level of absorption, which is a factor which minimizes the need for macroeconomic adjustment. Now, the position of the internal balance function, *II*, is determined by the natural rate of unemployment and assuming that the natural rate of unemployment is fixed, the *II* function cannot shift. Hence, it is only shifts in the *EE* function which can affect the equilibrium level of the real exchange rate.

Shifts in the *EE* function may originate from various sources including an increase (fall) in capital inflows, which will shift it to the right (left)—as more (less) absorption at any give  $Q$  is possible, with the trade deficit (surplus) caused by the appreciation (depreciation) of  $Q$  being financed by the capital inflow

<sup>6</sup> For example, if an excessively high rate of monetary expansion causes inflation and the real exchange rate to appreciate, the determinants of the trade balance in footnote 5,  $A - B$  and  $R_{NT}$  both increase, but not by much.

(outflow).<sup>7</sup> Secondly, the *EE* function will shift if the share of traded goods in a country's production changes relative to the share in consumption. That is, the *RR* function shifts further either to the left or right in quadrant (a) than does the *CC* function. A rise in the former share relative to the latter share causing the equilibrium real exchange rate to appreciate—a factor which seems to have been occurring in Japan for many years.

We know of no studies that have calculated the elasticity of traded/nontraded goods production and consumption to changes in the real exchange rate, perhaps because of the difficulty of defining the categories. However, many studies have been done of the elasticity of trade flows with respect to exchange rates, and these are relevant because they too can be used to calculate the effect on a country's trade balance of a change in the real exchange rate (i.e., to calculate  $(A - B)/R_{NT}$  in quadrant (a)). Invariably, these studies find low short-run elasticities (e.g., Cairncross and Eichengreen, 1983; Krugman 1991a), so low that devaluation can give rise to 'J' curve episodes.<sup>8</sup>

#### *Absence of a real exchange rate anchor*

Variations in nominal and real exchange rates may originate from outside of the microeconomic and macroeconomic forces included in our simple model. This would be the case when speculative forces in foreign exchange markets are not being driven by macroeconomic fundamentals, for which there is now a growing body of evidence (see, *inter alia*, Baxter and Stockman, 1989; Flood and Rose, 1993; Rose, 1994). This leaves it open for exchange rates to be driven by technical factors (chartism and stop-loss orders being examples), also for which there is a growing body of evidence (Frankel and Froot, 1986; Allen and Taylor, 1990). But so long as the fluctuations can be contained within a band of, say, plus-minus 10 percent, it should not matter too much either for resource allocation or for macroeconomic equilibrium. An advantage of the extended target zone proposal is that it aims to contain exchange rates within such a band. Furthermore, as Krugman (1991b) argues, a credible target zone will have a 'honeymoon' effect, deflecting the nominal exchange rate into the center of the zone. Supportive evidence for the honeymoon effect in a credible target zone is found, *inter alia*, by Hallwood, MacDonald and Marsh (1996 and 1997) who show that under the gold standard, which was a variety of target zone, for a number of currencies the

<sup>7</sup> We recognize that intertemporal substitution in absorption is possible (as in Edwards, 1989), but we do not include it here in order to simplify the discussion.

<sup>8</sup> Even long-run elasticities are not that high for the US. Krugman (1991a), averaging data from six independent econometric studies of US *long run* elasticities, reports them at 1.1 for imports and -0.8 for exports. Given that foreign trade is about 12 percent of US GDP, a 10 appreciation of the dollar would increase the trade deficit by about 2.25 percent of GDP in the long-run. Provided that the appreciation was expected to be reversed, this is easily financeable. For other countries, such as Japan, as both the long-run elasticities and the trade shares are higher, real exchange rate fluctuations will have stronger long-run effects. But this does not change the fact that in the short-run, changes in the real exchange rate have little effect on the trade balance.



nominal exchange rate did exhibit strong mean reversion. Furthermore, as others have argued (e.g., Kenen, 1987), exchange rate targeting may provide an anchor for exchange rate expectations, helping to promote stabilizing speculation.<sup>9</sup>

In fact, what is driving real exchange rate volatility does matter for what the extended target zone proposal is intended to achieve. Thus, if it was purely technical-speculative forces, containment of volatility would be the main objective. However, if it was exogenous variations in fundamentals, such as real interest rates, policy-disciplining would be important. What is the econometric evidence on the causes of real exchange rate volatility?

Reduced-form econometric evidence on whether real exchange rates are driven by fundamentals such as real interest rate differentials is rather mixed. Early studies by Shafer and Loopesko (1983), Hooper (1984), and Sacks (1985) found support for the hypothesis, as did the later study by Allen and Stein (1991). But some other studies find only weak support: Coe and Golub (1986), in their study of 18 industrial country currencies against the US dollar (1973–1983), find only 6 currencies both correctly signed and statistically significant. Similarly, Campbell and Clarida (1987), using real interest rates and proxies for other fundamentals that affect the equilibrium real exchange rate, concluded that “ex ante real interest rate differentials have simply not been persistent enough, and their innovation variance simply not large enough, to account for a substantial fraction of the variance in the dollar real exchange rate [in the 1980s]”. Evidence from cointegration tests is similarly mixed, Coughlin and Koedijk (1990), Blundell-Wignall and Browne (1991), Troop (1993) and Faruquee (1995) all find support for the hypothesis that fundamentals drive real exchange rates; but Meese and Rogoff (1988) and Edison and Pauls (1991) find no such evidence. Baxter (1994) finds support in long-run data but no support in short-run data. This latter finding supports the view that short-term real exchange rate volatility is driven by technical-speculation factors, while fundamentals may drive real exchange rates in the long-run.

What can be made of this statistical evidence is that the use of real exchange rate target zones is justified for both of the reasons mentioned above. It would help to reduce short-term nominal and real exchange rate volatility caused by speculative forces, and provide a discipline for the management of fundamentals in the medium- and longer-term. Reducing short-term volatility would help to nip-in-the-bud speculatively driven exchange rate trends and bubbles. The discipline factor would help to ensure that a country’s real interest rates do not get out of line with those in other countries. For example, in the 1980s, volatility

<sup>9</sup> Calculation of actual equilibrium nominal and real exchange rates is technical matter discussed in Frenkel and Goldstein (1986). There are three different approaches: those based on purchasing power parity, structural macroeconomic models, and the underlying-balance approach. These could be used separately or in combination to estimate equilibrium rates. Since the target zone is couched here in terms of real exchange rates, bands around the central nominal parity rate would have to be adjusted from time to time to allow for differential rates of inflation.

in the real value of the dollar could have been avoided had American real interest rates not been allowed to rise so sharply—with deleterious effects for the US trade deficit, international indebtedness and trade policy *vis a vis* Japan and some other countries.

A potential problem with real exchange rate targeting could arise if the real exchange rate is shocked, for example, by a sharp improvement in a country's international terms of trade (Montiel and Ostry, 1991, 1992). In this case the real exchange rate would need to increase to reflect the increased scarcity of nontraded goods—caused by higher income increasing the demand for nontraded goods, and higher export-prices leading to a shift of resources out of the nontraded goods sector. If this shock was great enough to move the real exchange rate out of its target range, and the authorities did not realign the nominal exchange rate target zone, the real exchange rate would anyway begin to appreciate via domestic inflation. However, this potential problem as a criticism of the wide-band target zone proposal does not carry so much force as it would with pin-point real exchange rate targeting—as in Montiel and Ostry (1992). In the latter case, there is no nominal exchange rate variability (at least from a steady inflation path in their model), and all shocks to the real exchange rate show up in as a variation in the rate of inflation—hence the authors' conclusion that neither exchange rate targeting nor monetary targeting can act as nominal anchors for the price level. However, with a broad target zone, nominal exchange rate changes are possible and these may preclude changes in price levels. But when shocks are very large, if the authorities have a strong preference for price level stability, the required amount of real exchange rate variability may require shifting the nominal exchange rate bands.

### *Section 3: Further comments on the extended target zone proposal*

The extended target zone proposal, which has its origins in the crawling peg of Williamson (1983), is developed fully in Edison, Miller and Williamson (1987). This proposal recognizes the social cost of excessive real exchange rate variability, but differs fundamentally from that view put forward by McKinnon in another popular proposal, in its advocacy of much greater exchange rate flexibility.<sup>10</sup> In particular, exchange rate flexibility is deemed to be desirable for the reasons noted above. The target zone proposal involves a complete set of policy coordination rules to be followed by the main G-7 industrial countries. The first part of the proposal may be motivated around the following equation:—

$$y^* = g + \Psi p_{t-1} + \lambda d \quad 0 < \Psi < 1, \quad \lambda > 0 \quad (3)$$

<sup>10</sup> The McKinnon plan is for monetary cooperation between Japan, the US and Germany aimed at stabilizing exchange rates within a narrow band (McKinnon, 1988). The main criticism of the McKinnon plan is that in its attempt to eliminate exchange rate volatility it eliminates *all* exchange rate flexibility. As we have indicated above, real exchange rate variability is not necessarily damaging and it may aid an economy to absorb real shocks.

It is proposed that each country should have, as an intermediate target, an endogenous target rate of growth for nominal national income,  $y^*$ , which is equal to the sum of the (estimated) growth of production potential,  $g$ , plus some fraction of the past rate of inflation,  $p_{t-1}$ , (the latter term allows implementation of a gradualist deflation strategy) and the deflationary gap,  $d$ . In addition to the nominal income growth target, each country would have a target for the real effective exchange rate and would ensure internal and external balance in the medium run. It is this second target which gives rise to the label 'target zone proposal'. These twin country targets, which from an aggregate perspective consist of  $2n - 1$  targets, are to be achieved by 3 basic assignment rules (which should in principle be sufficient to satisfy the  $2n - 1$  targets).

First, domestic fiscal policy (that is, fiscal policy of any one nation) is to be used, in standard Keynesian fashion, to achieve the national target for income growth. Second, interest rate differentials between countries are to be used to prevent exchange rates moving by more than around 10 per cent of their target levels. It is envisaged that such movements could be reinforced by sterilized or non-sterilized intervention. Third, and in common with McKinnon, the average (absolute) level of world interest rates would be revised up or down in response to deviations of aggregate income growth from the target level. This rule aims to ensure that aggregate monetary policy should be changed in response to the joint needs of the participating countries. It has been referred to by Williamson (1988) as "McKinnon without the monetarism".<sup>11</sup>

It is worth noting that the proponents of the target zone proposal do not necessarily envisage an immediate move to the full-blown plan. Rather, an initial adoption of the target zone component would be a useful first step and, indeed, is seen as pushing the system towards coordination in the other areas. It is further worth noting that assignment rules need not be followed in an inflexible and rigid manner and should instead be interpreted as policy guidelines (see, for example, Williamson, 1988). This is seen as important in order that the proposal be politically acceptable and, additionally, because actual events may require some flexibility.

The target zone proposal has much in common with the McKinnon proposal. Both proposals assign the average level of interest rates to the control of global inflation. Also, both plans emphasize multilateral cooperation with respect to the stabilization of exchange rates, although both have different targets. As we have indicated, in the former system, exchange rates are free to move around within bands whilst with the latter the targets for exchange rates are to be fixed. Proponents of the target zone proposal plan argue that it is superior to the McKinnon plan because it allows exchange rates to satisfy all of its supposed key social functions.

The target zone proposal has been criticized in a number of ways (see for

<sup>11</sup> The reference to "monetarism" relates to McKinnon's emphasis on currency substitution (McKinnon, 1982), which gives rise to an unstable money demand function for domestic currency—as the main cause of exchange rate volatility.

example, Boughton, 1987, 1989). First it is not entirely clear that the real exchange rate is the optimal external target. This is because the relationship between the real exchange rate and the current balance of payments is unclear in circumstances where there are important public and private sector imbalances in the domestic economy (the US in the 1980s and 1990s being a case in point). It may therefore be best to target the current account directly and use an appropriate mix of policies to achieve the target. This leads on to the second criticism: what is the appropriate macroeconomic policy instrument for achieving external balance? There are in fact at least two reasons why one might want to reverse the target zone proposal assignment of fiscal policy to the internal objective and monetary policy to the external objective. In terms of comparative advantage, it might be argued that the opposite pairing of instruments with objectives would be more appropriate. Thus, Bryant *et al.* (1988) have indicated that monetary policy has relatively little impact on the current account even in the medium to long-run. The reverse pairing may also have institutional appeal since political and institutional constraints in some countries may make the use of fiscal policy for demand management purposes somewhat difficult. Boughton (1987) has therefore forcefully argued for the reverse assignment.

A third criticism of the target zone proposal relates to the width of the exchange rate bands. Krugman (1989), for example, has argued that the proposed bands are too narrow. The narrowness of the bands will be important in circumstances where the credibility of the system is at issue. For example, if the target zone proposal is seen as credible by market operators they will very nearly fix the rate. Since if the rate is, say, near the top of the band agents will believe that the rate has more room to go down than up, and vice versa when the rate is at the bottom of the band. This kind of reasoning implies that exchange rates will be strongly (too strongly?) stabilized and will fail to fulfill their socially desirable functions. Conversely, a loss of credibility quickly pushes the exchange rate past the edge of the exchange rate band. Thus, to Krugman, target zones produce the temptation to try to sustain the wrong exchange rate and the risk of a speculative attack on the target that an unsustainable fixed rate presents.

Krugman's favored reform of the international monetary system involves a return to a system of fixed but adjustable exchange rates. In working towards this ultimate objective, currencies should be allowed to move within very wide zones. This, it is argued, should simultaneously attenuate wild speculative movements whilst not tying rates down within a narrow, unsustainable, band. Additionally, countries should pursue 'sensible' macroeconomic policies (that is, policies which are designed to complement macro-policies pursued in other countries); in particular, the US should correct its fiscal deficit and Germany should adopt monetary policies which do not place unreasonable strains on its neighbors. It is envisaged that as policies become more stable, exchange rates will also become more stable and this should allow the underlying equilibrium exchange rates to become more discernible. At this stage it is envisaged that a new international

monetary regime could be instigated based on an adjustable peg exchange rate system.

The extended target zone proposal and the alternative suggested by Boughton, have been evaluated by Currie and Wren-Lewis (1989). The evaluation utilized the National Institute's Global Econometric Model (GEM) and compared the performance of the two assignments relative to each other and relative to the actual historical performance of the G-3 countries, over the period 1975–86. In sum they found that both schemes improve welfare compared to the historical base but the gains corresponding to the target zone proposal were generally of a greater magnitude than the alternative assignment. One of the reasons for the superior performance of the former scheme was the finding that fiscal policy had a comparative advantage over monetary policy in the control of national aggregate demand. However, Currie and Wren-Lewis qualify this conclusion by noting that the historical period examined may underestimate the importance of the current account as an indicator of policy because of the abnormal US deficit.

#### *Section 4: Conclusions*

The real exchange rate is a key relative price, with its equilibrium level being determined by the relative abundance of traded and nontraded goods, and its actual level by this microeconomic fundamental in combination with macroeconomic policy and technical-speculation. We have argued that a government should allow the real exchange rate to be flexible within a quite wide band, partly because such short-term variability does not matter very much so long as it centers near to the equilibrium level. Also, a wide band allows scope for the equilibrium real exchange rate to adjust to systematic or shock factors which call for an adjustment in the actual rate without necessarily challenging the band or causing inflation.

These arguments fit well with empirical work which questions whether, at least in the short-term, exchange rates are truly macroeconomic phenomena. The problem is, that with resource allocation being unresponsive to the real exchange rate, the real exchange rate does not have a strong center of gravity on which to anchor itself—which it would if resource allocation between traded and nontraded was more responsive to the real exchange rate. Its level, and more especially the nominal exchange rate for given price levels, is then left open to the sort of technical-speculative factors mentioned earlier. This argument is even more true when considering the very short-run—the sort of time-period in which speculators operate. In this time-frame resource allocation is perfectly inelastic with respect to the real exchange rate, and the real and nominal exchange rates have no macroeconomic anchor—they are entirely left to asset market equilibrium considerations, and operators in asset markets may operate with discount rates that effectively discount out of view longer term macroeconomic considerations. But, as Williamson (1993) observes, empirical work is now showing that even sterilized intervention by the authorities can have significant effects in reversing,

what the authorities, think are undesirable trends in an exchange rate.

A further advantage of the extended target zone proposal is that by targeting the nominal exchange rate, it would provide an anchor for exchange rate expectations. And this could help to promote stabilizing speculation. Wide bands also mean that intervention costs should be less than with narrow bands, while the residual exchange rate fluctuations would not have much economic cost. Furthermore, changes in central nominal rates can be made smoothly without giving rise to one-way speculative bets—as has often proved to be the case with narrow bands.

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