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Fear of Floating Needn't Imply Fixed Rates:

Feasible Options for Intermediate Exchange Rate Regimes

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ABSTRACT

The criteria of the theory of optimum currency areas suggest that many (most?) countries are not good candidates for either of the poles of genuinely fixed exchange rates or freely floating exchange rates. Thus many countries should have an interest in intermediate exchange rate regimes. However, in a world of substantial capital mobility most forms of intermediate exchange rate regimes have proven to be highly crisis prone. The paper argues that the unholy trinity analysis doesn't imply that intermediate exchange rate regimes are inherently unstable, but rather that exchange rate and monetary policies need to be jointly determined. The difficulties of maintaining such consistency are as much political as economic since temporarily pegged or managed rates create a time inconsistency problem. Therefore policy officials need some institutional insulation from short sighted political pressures. A problem with most intermediate regimes is that they have focused on particular forms of limited exchange rate flexibility per se, rather than the weight that should be given to the exchange rate in setting monetary policy. It is argued that OCA theory provides the framework for determining the appropriate weights and limits on the amount of sterilized intervention to maintain the consistency between exchange rate and monetary policies necessary to avoid currency crises. The paper also considers a number of the issues involved in integrating their approach with the literature on open economy aspects of inflation targeting.

I. Introduction

A number of leading economists have suggested that increasing international financial integration leaves many countries faced with a stark choice. The two corners hypothesis starts with the widely accepted proposition that substantial capital mobility makes a Bretton Woods type adjustable peg exchange rate regime highly crisis prone. Let us call this the unstable middle hypothesis. The two corners hypothesis, however, goes on to make the much stronger argument that not only is the dead center of the spectrum of exchange rate regimens (the Bretton Woods narrow band adjustable peg) not feasible on a sustained basis, but neither is any form of intermediate exchange rate regime. In other words, the unstable portion of the middle range is so broad that it extends all the way between the two extremes of freely floating and permanently fixed exchange rates.[1]

The theory of Optimum Currency Areas (OCA) yields a well-established list of (sometimes conflicting) criteria that affect the costs and benefits of adopting fixed versus flexible exchange rates. The application of a sensible range of parameter values to these criteria suggests that many (I would argue most) countries are not good candidates for either genuinely fixed exchange rates where domestic monetary policy is fully determined by developments in the balance of payments or for completely flexible exchange rates where no weight is given to the exchange rate developments in setting domestic policy.

Very small open economies with considerable labor market flexibility such as Estonia are good candidates for the former and huge, relatively closed economies, like the United States, are good candidates for the latter. However, most countries have opted for intermediate exchange rate regimes and often for good reasons. While the currency crises of the 1990's forced many countries into greater exchange rate flexibility, already some of these are displaying what Calvo and Reinhart (2000) have termed "fear of floating" and are reverting toward greater management of their exchange rates.

Combined with a belief in the two corners hypothesis, fear of floating would be

sufficient to cause many countries to choose to permanently lock in their exchange rate through currency boards, or dollarization or euroization. Indeed a number of prominent economists have recommended such strategies, typically based on the dollar for Latin American and the Euro for European countries. A central purpose of this paper is to argue that many countries still have a richer set of alternatives. One can accept the importance of much of the fear of floating literature and still urge great caution about decisions to effectively give up national currencies. The current woes of Argentina sadly illustrate the importance of not unnecessarily limiting the range of alternatives. Argentina was a good candidate for neither freely flexible nor genuinely fixed exchange rates. While Argentina scored high on the OCA criterion of currency substitution, it scored low on both the criteria of openness to trade and of labor market flexibility.[2] The central thesis of this paper is that it is possible for intermediate exchange rate regimes to be stable, but this requires that exchange rate and domestic macroeconomic policies be mutually determined in a consistent manner. It is argued that OCA theory can be integrated not just as addressing the issue of fixed versus flexible exchange rages but more generally as a framework for the weight that foreign exchange developments should be given in setting domestic macroeconomic policy.

This perspective suggests the fruitfulness of establishing a dialogue between the literature on OCA analysis and on inflation targeting in open economies. These in turn need to be combined with consideration of institutional arrangements to limit short run political pressures on policy makers that generate incentives for the adoption of unstable policies.

Obviously such integration is an enormous task. The purpose of this paper is to argue that this is likely to be a fruitful perspective to adopt and sketch out some of the issues involved. The concept of making exchange rate and domestic macroeconomic policies consistent is simple, but making it operational is not.

II. Not all types of Intermediate Regimes Need be Unstable

Some types of intermediate exchange rate regimes are still an option. International financial interdependence has indeed limited the forms that sustainable intermediate exchange rate regimes can take. It is not just the narrow band adjustable peg regime that has proven to be crisis prone. Both Indonesia and Korea had more flexible exchange rate regimes than Thailand, but neither had sufficient flexibility to shield itself during the Asian crisis. Nor has the use of crawling bands as a stage of exchange rate based stabilization policy escaped frequent crises. Mexico, Russia, Brazil, and Turkey all present recent prominent examples. However, stable intermediate regimes have not become a null set. For example, Chile, Hungary, Israel, and Poland operated crawling bands for substantial periods without provoking currency crises.[3]

It is not sufficiently appreciated that the OCA criteria give us a guide not only to whether or not a country should adopt a fixed exchange rate, but also to the weight which exchange rate developments should be given in monetary policy making under flexible exchange rates.[4] For example, the more open the economy, the greater the weight that should be given to the exchange rate. This proposition is quite consistent with a judgment that a country should be extremely open before it should give a 100% weight to exchange market development by adopting a fixed exchange rate.

Economists, of course, differ greatly in their views about the relative weights that should be given to different OCA criteria and to their empirical judgments about each criterion. Consequently there is considerable disagreement about where dividing lines should be drawn. I cannot hope to address these controversies substantively in this paper, but I can sketch out a framework within which such theoretical and empirical issues can be studied and debated productively. This framework draws upon OCA and political economy analysis as well as issues of open economy inflation targeting.

One of the key elements to this suggested framework rests on a point recently emphasized by Jeffrey Frankel [1999]. Contrary to what is often assumed, the unstable

middle hypothesis is not a logical consequence of the unholy trinity implications of Mundell-Fleming open economy macroeconomics. Properly interpreted, what the unholy trinity implies is that with high capital mobility, domestic monetary policy and the exchange rate cannot be set independently of one another. This doesn't mean that complete dominance need be given either to external or to internal considerations. Monetary and exchange rate policy can be jointly determined in a consistent manner.[5] It might be objected that the whole idea of the government setting an exchange rate is based on a control illusion. However, there is little question that in the short run a government with sufficient international reserves or borrowing can set a rate by standing willing to buy or sell foreign currency at that rate. Problems occur, however, if the private excess demand or supply in the foreign exchange market become large relative to the countries reserve supply or ability to tolerate capital inflows. This type of situation is likely to occur only when the market believes that the exchange rat set differs substantially from equilibrium. To avoid such circumstances a country committed to set an exchange rate (at either a fixed or variable level) must be willing to adjust its domestic macroeconomic policies to promote rough consistency between the equilibrium and government set exchange rate. Where this consistency constraint is met, then the OCA criteria give us a framework (albeit less than fully precise) for deciding on the relative weights to be given to internal versus external considerations. Only in rare cases, should such weights yield corner solutions.

From this perspective it is not limited exchange rate flexibility per se that gives rise to currency crises, but the inconsistency between exchange rate and monetary policy that so often emerges under intermediate exchange rate regimes. If the need for consistency always held in the short run then we would expect governments to rather quickly learn their importance. Yet to an important degree the causes of the currency crises of the 1990's mirrored those of the breakdown of the Bretton Woods adjustable peg two decades earlier. Obviously many governments failed to learn or at least to

remember the lessons of the basic unholy trinity analysis.

We can explain this at least in part by recognizing that the consistency constraint is a medium or long term requirement that can be violated in the short run by balance of payments disequilibrium. Where the disequilibrium is purely temporary it can be financed by flows of international reserves (sterilized intervention) without inducing a currency crisis. It is when the size of the disequilibrium becomes too big or continues for too long that serious problems are created. Determining the likely extent and duration of a payments disequilibrium is far from an exact science, however, and since adjustment actions are typically costly, governments tend to have an optimistic bias in their guesses of the future. Combined with political pressures to adopt a short time horizon, such consideration suggest that governments will frequently manage intermediate exchange rate regimes with insufficient flexibility to avoid currency crisis.[6]

The higher is the degree of capital mobility, the less is the extent of inconsistency that can be maintained. If capital mobility grows faster than government learning, the result is more crises. This scenario explains a substantial portion (although of course far from all) of the large number of prominent currency crisis over the past decade.

III. Avoiding Crises Requires Consistency Among Policies

This perspective suggests that the key to operating intermediate exchange rate regimes in a stable manner is really quite simple – just make sure that exchange rate and domestic macroeconomic policies are set in a mutually consistent manner. While I am convinced that this is the correct way to approach the issue, what is simple conceptually may prove to be extremely difficult to implement in practice. Both technical economic and political considerations contribute to such difficulties.

It is easy to think of policies that are inconsistent with long run equilibrium in the foreign exchange market such as trying to keep the rate of depreciation to five percent a year while running a huge budget deficit and expanding the money supply at a rate of fifty percent a year. But determining the exact requirements of consistent policy

combinations is much more difficult. I do not fully share the pessimism of a colleague who termed my use of consistency constraints as magic words without meaning, but I agree that the difficulties of giving this concept operational content should not be underestimated. It will be a substantial task which goes well beyond the scope of this paper. My purpose here is to try to focus attention on the potential usefulness of this approach and highlight aspects of the research agenda that it suggests.

Another key condition for maintaining workable consistency with government management of the exchange rate is that policy makers be given a good deal of insulation from short run political pressures. While some have seen pegged exchange rates as a source of domestic discipline, they can also create time inconsistency problems that increase the incentives for adopting unstable policy mixes.[7] Indeed the political conditions for operating a stable intermediate regime are likely to be as difficult to meet as are the economic requirements.[8] Thus the design of domestic institutional frameworks for economic policy making is a key factor in avoiding currency crisis with intermediate exchange rate regimes. It is likely no accident that all three of the cases of successful intermediate regimes studied by John Williamson (1996) had the unusual arrangement that exchange rate policy was set by independent central banks rather than the finance ministry.

One likely ingredient of sensible consistency criteria is the placement of limits on the degree of sterilization of exchange market intervention over the medium or longer run. A simple rule that would "solve" the consistency criteria is to require that all intervention in the foreign exchange market to be sterilized.[9] International capital mobility, while quite high for many countries, is not yet generally so high that short-term sterilization is impossible.[10] In such a world, there are types of shocks, such as temporary capital flows, where sterilized intervention may be optimal (and would not make currency crisis inevitable). Unfortunately, however, while optimal policy models can provide rationales for short run violations of the consistenci constraint, so also can short

run political incentives. These considerations suggest that research is needed on the magnitude and duration of sterilized intervention that can be safely undertaken. An important component of such research is careful attention to issues of measuring sterilization and an analysis of the practicality of developing quantitative measures for monitoring the extent of sterilization both by national officials and the International Monetary Fund as part of its surveillance activities.

The optimal policy issues to be addressed are closely akin to open economy aspects of inflation targeting. This literature is still at an early stage, however. Some of the issues that have not yet been adequately addressed will be discussed below. From a full optimal policy perspective, focus on the external sector only in terms of effective strategies for inflation targeting is insufficient. Independent weight should also be given to the resource allocation effects of exchange rate variability. This consideration should be more important, the more open is the economy. Unfortunately, however, not just openness is relevant. As is emphasized in recent OCA literature, the nature of disturbances is also important. For example, the optimal response to a pure shift in asset preferences is sterilized intervention, while the optimal response to currency substitution is unsterilized intervention. This implies that a simple rule of leaning against the wind through official intervention in the foreign exchange market (with the degree of leaning based on the degree of openness) would not be optimal.

IV. Some Open Economy Aspects of Inflation Targeting

Recent literature on inflation targeting has emphasized the importance of open economy considerations (e.g. Ball (1999, 2000), Batini and Haldane (1999), Clarida, Galí, and Gertler (2001), Collins and Siklos (2001), Eichengreen (2002), Svensson (2000), and Taylor (2001)). These suggest that in general in open economies optimal Taylor rules for using interest rate adjustments to meet inflation targets will become more complicated and that simple targeting of short run inflation can set up dangerous dynamic instabilities. Thus policy officials should dampen responses to short run changes in

inflation due to temporary movements in exchange rates (or other factors).

These are important conclusions that seem likely to remain robust with respect to a wide range of models.[11] So far, however, the specific implications of only a few open economy models have been investigated and these fall far short of capturing the full richness of possible interrelationships among the interest rate – exchange rate- inflation blocks of open economy macroeconomic models.

A key point of pre inflation targeting analysis of this nexus–often addressed to the debate about the vicious circle of depreciation and inflation - was that the inflationary effects of an exchange rate change can vary substantially based not only on the structural characteristics of an economy such as its degree of openness to trade, but also on the cause of the exchange rate movement and expectations about and the actual degree of policy accommodation.[12] As a result, the inflationary effects of depreciation could vary greatly for the same economy from one episode to another. The resulting potential instability of estimates of the inflationary effects of exchange rate movements is an example of the Lucas Critique. The recent findings of substantial falls in estimated coefficients for countries such as Brazil, Chile, and Mexico that had adopted less accommodative monetary regimes may be an illustration that the Lucas Critique can be quite quantitatively important.[13]

The importance for inflation targeting of distinguishing between temporary and permanent changes in exchange rates has been emphasized by Ball (2000). Unfortunately, however, the specifics of Ball's analysis fail to capture the full range of complexities involved. A major part of the problem comes from Ball's decision to define his exchange rate variable in terms of deviations from long run equilibrium. He treats this as the change in the real exchange rate under the implicit assumption that the long run real exchange rate is constant, i.e., that purchasing power parity holds in the long run.

There is growing evidence of some tendency toward mean reversion in the exchange rate movements of the industrial countries, but this appears to be far from

complete and is consistent with changes in long run equilibrium real exchange rates as well. Furthermore estimated speeds of reversion tend to be low, especially where shifts in the long run equilibrium rate are not allowed.[14] While there is a clear case for an inflation targeting central bank to ignore an exchange rate movement that will be reversed in a few months, where there is a cycle of a number of years the appropriate response is much less clear.

With modeling one must start somewhere and it is quite understandable that the earliest models of open economy inflation targeting start with simple building blocks like long run purchasing power parity and uncovered interest rate parity. My complaint is that the potential sensitivity of the results to these simple assumptions has often not been given sufficient emphasis. I attempt to offer such warnings below.

Ball correctly emphasizes that temporary changes in inflation due to exchange rate changes can cause problems for simple closed economy based Taylor rules. Adjusting the interest rate quickly to temporary developments could easily create dynamic inconsistency. Ball quite plausibly argues that "the inflation measure that is targeted must be adjusted to remove the transitory effects of exchange rate movements" (p.2). But the resulting complexities cannot be adequately captured by Ball's formulation of the exchange rate variable.

Ball argues that while inflation targeting does require monetary tightening in the face of overheating of the economy or adverse supply shocks, this is not necessary in the face of "temporary exchange-rate depreciation" (p5). The problem is that "transitory" and "temporary" can be subject to importantly different interpretations from at least two sources. One concerns the distinctions between one-shot and mean-reverting movements and effects on the price level versus the rate of inflation. The other concerns nominal versus real exchange rate changes and the formulation of the exchange rate variable in terms of the deviation from long run equilibrium.

Assuming no effects on wage-price dynamics, a one time depreciation of the

nominal exchange rate would lead to a one-shot increase in the price level through its effects on the prices of traded goods. This would cause a temporary increase in the rate of inflation during the transition period. Should this force a tightening of monetary policy with price level targeting? Yes, but many economists argue that inflation targeting is superior to price-level targeting in terms of a combined inflation-output welfare criteria because it allows the monetary authority to accommodate a higher average level of employment in the face of shocks subject to holding average inflation rates within an acceptable range. This is what Svensson (1998) calls flexible inflation targeting. In such a case the objective would be to make sure that the higher inflation rate this period is not carried over to the next, not that future inflation be required to be reduced by the amount of the previous one time overage. One of the arguments for specifying the inflation target as a range is to give the monetary authorities some flexibility to behave in this manner without requiring a specific override to be invoked.

From this perspective there would be no difference in the rationale for responding to a one-shot depreciation of the exchange rate and a one-shot supply shock. Thus, contrary to Ball's (2000) argument, it is not clear that all permanent supply shocks or exchange rate changes should require monetary tightening.

Nor is it clear that temporary exchange rate changes should never require monetary tightening. It is common in the recent open economy inflation targeting literature to use changes in the real exchange rate (Batini and Haldane (1999)) or changes in the nominal rate relative to its equilibrium value as explanatory variables in the inflation equation. This can be a problem in highly open economies, however, since there may be quick and substantial pass through from nominal exchange rate changes to the domestic price level. Thus an initial one-shot change in the nominal rate that was not reversed would still be associated with a partial reversal of the resulting depreciation in the real exchange rate. Thus, for example, with a permanent depreciation of 10 percent of the nominal rate, but a 40 percent pass through to the domestic price level, the real rate

would initially fall also by 10 percent, and then appreciate back by four percent. This would generate more inflationary pressure than if the reversal of the real exchange rates were due entirely to a reversal of the nominal rate. Furthermore where the domestic wage process is responsive in the upward direction but not the downward direction to changes in the exchange rate and associated traded goods prices, then even a temporary depreciation of the nominal rate could lead to an increase in net inflationary pressure.

The focus on real exchange rates is understandable because a depreciation that merely offset higher domestic inflation should not be a source of additional inflationary pressure. Thus it is important to distinguish between exchange rate changes that are endogenous and those that are exogenous to the domestic inflationary process. Where there are strong feedback effects from the exchange rate to the price level as would occur in highly open economies, the use of conventional measures of the real exchange rate are an imperfect proxy for this distinction. Ball (2000) assumes that "temporary exchange rates fluctuations have little direct effect on domestic price inflation" (p.6) but this need not always be the case. This will likely be true for not very open economies when there are widespread expectations that the nominal exchange rate change will be temporary, but for such economies one might question Ball's assumption that "the effect of exchange rates on import prices is the fastest channel from monetary policy to inflation" (p.5).

For a highly open economy, the use of the change in the real exchange rate will understate inflationary pressure to the extent that an exogenous change in the nominal rate has had a substantial feedback on traded goods prices. The size of this problem will depend both on the trade openness of the economy and the time period of the analysis. For a monthly model this feedback problem should be relatively small for all but the most open economies, but where a long period is used (Ball equates his periods with a year) then these problems can be considerable for all but very closed economies. Perhaps a better proxy for the exogenous-endogenous distinction would be the change in the nominal rate adjusted by the inflation differential over the previous year or so.

Another important open economy issue concerns the choice of policy instrument. Under the assumption of perfect capital mobility that is adopted in most of the open economy inflation targeting models to date, this has not been an issue. The interest rate is assumed to be the instrument and the main controversy has been about the extent to which a monetary condition index (MCI) should be used as an intermediate target. MCI's are weighted averages of changes in the interest rate and exchange rate, both usually expressed in real term. The optimal weights in the MCI should vary across countries depending in part on their degree of openness to trade.[15] The types of problems with the use of the real exchange rate discussed above would also apply to its use in a MCI, although this should be less of a problem with respect to effects on aggregate demand than on inflationary pressures. Sometimes the MCI has been confusingly referred to as an instrument, e.g. Ball (1999), but it is more appropriate to think of it as an intermediate target with the interest rate or the exchange rate as the instrument.[16]

The literature on open economy inflation targeting so far has focused primarily on the interest rate as the policy instrument. (Exceptions are Ball (2000) and Bofinger and Wollmershäuser (2001)). In many countries there is some scope for the effective use of the exchange rate as an independent policy instrument via sterilized intervention. Furthermore, even with perfect capital mobility, unsterilized exchange market intervention is feasible and often may be appropriate in open economies.

Instead of following an interest rate target and allowing the money supply and exchange rate to be endogenous, countries could adopt exchange rate targets and as long as they then allow the domestic money supply and interest rates to be endogenous, than such exchange rate targeting could be a perfectly stable system. There is a good deal of empirical analysis suggesting that for the large industrial countries pure inflation or nominal GDP targeting is likely to be substantially superior to pure exchange rate targeting[17], but this conclusion need not hold for all small open emerging market countries. A chief argument for using interest rates rather than the money supply as a

policy instrument or intermediate target is the instability of velocity in a world of financial innovation. Currency substitution likewise reduces the attractiveness of a monetary rule. The optimal response to a shift in currency preferences in most models is unsterilized exchange market intervention. On the other hand, the optimal response to a shift in asset preferences is usually found to be unsterilized exchange market intervention. The implications of currency substitution and shifts in capital flows for inflation targeting in open economies including the optimal degree of flexibility in inflation targeting should be priority topics for research.

In summary, the literature on open economy inflation targeting has made rapid progress in recent years. Much research is still needed, however. One especially important area is the study of the robustness of results to assumptions other than perfect capital mobility and long run purchasing power parity. An example is the weight to be given to the level versus the rate of change of the exchange rate. In world of real shocks and imperfect capital mobility, this question becomes much more complicated.

V. Beyond Pure Inflation Targeting: Implications of OCA Theory

Two of the most widely accepted propositions of OCA theory are that the more flexible is the domestic labor market (in terms of both wage flexibility and labor mobility) and the more open is the economy to international trade, the more favorable becomes the benefit-cost ratio for fixed exchange rates.[18] Clearly the more open is the economy, the more important is the external sector for inflation targeting. Beyond this, however, at some level of openness it becomes sensible on microeconomic efficiency grounds to give weight to the stability of the exchange rate over and above the contribution that this makes to the stability of the price level or inflation rate.

In the face of many types of shocks there will be a trade off between the variability of the prices of traded versus nontraded goods. For a highly open economy, the stability of the exchange rate can be more important than the stability of the prices of nontraded goods. But for many countries the best answer is likely not to be either-or, i.e.

complete weight on traded or on nontraded goods, but rather how much weight to give to one relative to the other. For such "intermediate" countries neither a fixed exchange rate nor pure inflation targeting would be optimal.

This is especially true where the country in question does not have a high proportion of its trade with a stable currency partner. For example, while it is small and somewhat open, due to its diversified trade with Australia, the UK, and the US, there is no way in which New Zealand could have a meaningful fixed exchange rate in terms of microeconomic effects. For purposes of inflation control it could fix to another currency such as the U.S. dollar, but its trade would still be heavily affected by fluctuations of the dollar against the British pound and Australian dollar. Were eighty or ninety percent of its trade with the U.S., fixing to the U.S. dollar might well make sense for New Zealand, but not under current circumstances.

Of course, as is emphasized by endogenous OCA theory[19], the act of fixing to a particular currency may be expected to increase the proportion of trade with that currency, so what should be relevant to applying OCA theory is ex post rather than ex ante relationships. The experience of Argentina, however, suggests that there will often be strong limits to the sizes of such changes. Even after adoption of its dollar based currency board, Argentina's ratio of the average of its exports and imports to GDP remained below 10 % while the percent of its trade with the US remained below 15%. See Table 1. Indeed its proportion of trade with the US is little different from New Zealand's. On this score Canada and Mexico are much better candidates for fixing to the dollar with each having over 75 percent of its trade with the US. There are, of course, other criteria on which fixing to the dollar does not look so attractive.[20]

Table 1 also suggests that we may too often assume that size and openness vary in lockstep. While New Zealand and Panama each have populations of less than 4 million their trade ratios are substantially lower than for Canada with a population of 30 million and slightly lower than Mexico with a population of almost 100 million. (Of course

before its recent trade liberalization, Mexico's trade ratio was much lower).

In general, the trade ratios of the candidate countries for EU membership are much more favorable than for many of the countries discussed as candidates for dollarization. There is still considerable variation, however. Estonia has a high trade openness ratio of 0.67, but only about 40% of its trade is currently with euro countries. Slovenia has lower openness (0.46) but much more trade concentration on the euro countries (over 60%) and of course the trade concentration figures will rise if more countries adopt the euro as well due to endogenous effects on trade pattern. Poland scores well on trade concentration but its overall level of trade openness is similar to Mexico and below Canada. Particularly surprising is that despite its dollarization and population of less than 3 million, Panama's trade openness ratio is only slightly higher than Canada's.

While early OCA theory focused on openness in trade, more recent literature has explored the roles of financial openness. The effects of high capital mobility turn out to be ambiguous. While clearly reducing the feasibility of narrow band adjustable pegs, high capital mobility does not yield an unambiguous tilt toward either fixed or flexible rates in the absence of the specification of a particular pattern of shocks.[21] This result abstracts from the valuation effects of changes in exchange rates on unhedged foreign currency denominated assets and liabilities. While not emphasized in traditional international monetary analysis, such considerations were of enormous importance during the Asian crisis and are of major concern to Argentina.[22] Although this clearly tilts the balance toward fixed exchange rates, as yet little work has been done on how to evaluate the size of the shift nor as to how much this problem can be reduced by the use of better risk management and the development of domestic financial markets through the use of inflation indexed financial instruments and other methods.

Much better analyzed theoretically at this point is the role of international currency substitution in tilting the balance away from flexible rates.[23] Even here,

however, there has been little analysis of the quantitative magnitude of such a shift.[24] One of the big difficulties of empirical research on the question is the lack of data on foreign currency holdings. Most studies of currency substitution have utilized data on foreign currency deposits, but these can behave quite differently from currency holdings. Where there is a threat of confiscation then higher domestic inflation could well lead to a fall rather than an increase in holdings of foreign currency deposits in domestic banks.[25] On the other hand, where competitive rates of interest are paid on both domestic and foreign currency deposits, the effects of inflation and depreciation on shifts in currency denominations may be fairly limited. High currency substitution at the margin will increase the size of fluctuations in the exchange rate, but it is not clear that there will always be a high level of correlation between average and marginal levels of currency substitution. In other words, it is possible that fairly high levels of dollarization could coexist with relatively low levels of additional exchange rate instability due to currency substitution.

In general, optimal policy considerations suggest giving greater weight to the exchange rate, the more open the economy to trade and the less are changes in nominal exchange rates due to changes in equilibrium real rates. Optimal policy models also imply the general superiority of discretion over rules. On the other hand, the absence of politically autonomous benevolent and wise decision makers presents a strong case for rules. Inflation targeting must be seen in this light. Of course optimal policy considerations are relevant for the development of strategies for "non optimal" but socially beneficial constraining rules. They may offer important insights both for the nature of the constraints and their degree of strictness or flexibility.

In the limiting case where the structure of the economy is well known and there is only one type of shock then a constraining rule and an optimal policy rule may be identical. In more realistic situations, however, one must blend the benefits of constraints in limiting inflationary biases with those of discretion to respond to different types of

shocks.[26] A great benefit of inflation targeting is that it offers an attractive way of achieving such a balance. As long as one is well within the inflation target range then flexible inflation targeting allows scope for the monetary authorities to react to other considerations as well. The shadow of the constraint, however, implies that wise authorities would give less and less weight to other considerations as the outer limits of the inflation targets are approached. The more effective the political independence and credibility that a monetary authority has, the more the efficient balance would tilt toward flexibility.

For small open economies the alternative pure strategy is to target the exchange rate while limiting the likelihood of speculative crises by placing constraints on the amount of unsterilized intervention. In the extreme, this could take the form of dollarization or a currency board, but a much wider range of options should be feasible and should be especially attractive for countries with high but not extreme levels of openness.

In principle one could approach the design systems for exchange rate targeting systems in a manner similar to that of inflation targeting. It seems likely that the bands for exchange rate targets should be wider than those for inflation targets, with the exchange rate bands being typically based on OCA criteria. Just as inflation targeting requires the choice of price index, exchange rate targeting requires the choice of a particular currency or weighted basket of currencies on which to base the target. This choice raises a complicated set of issues including the weights to give to trade versus financial relationships is one of the most important. While credibility considerations generally favor the use of a single currency, this is likely to be desirable on a balance of criteria only where trade and finance is highly concentrated or where there appears to be no other feasible way of restoring credibility. Most difficult to deal with is the set of countries (the size of which we currently know relatively little about) which fall into a range for which the OCA criteria suggest that neither tight or flexible inflation nor tight

or flexible exchange rate targeting is the clearly superior approach to take.

We know that we cannot consistently use only one instrument to meet two targets. The use of fiscal policy and sterilized intervention can give additional degrees of freedom, but these instruments have only a limited time degree of independence and their use can create dangers of policy inconsistencies that can give rise to speculative crisis. Thus there are dangers to adopting both inflation and exchange rate targets.[27] From an optimal policy standpoint one could specify a rule that was a weighted average of the two targets. Where high confidence is lacking, however, such an approach would seem unlikely to provide a credibility enhancing form of a constraint system. On the other hand, where there is a highly respected independent central bank, the scope for more complicated targets should be much greater.

VI. Concluding Remarks

A central message of this paper is a cautionary one. There are great attractions to adopting fixed exchange rates in the short run, especially if a country is suffering from macroeconomic and/or political instability, but there can be enormous longer run costs if the country doesn't reasonably approximate OCA criteria. Argentina is a sad case in point. Some enthusiasts for fixed exchange rates invoke endogenous OCA theory to argue that the act of adopting a fixed rate will induce structural changes that will improve a countries score on OCA grounds. In general I believe this approach is qualitatively correct. But this is an issue for which the magnitude of effects, not just their signs, is important. The fixing of the peso-dollar exchange rate does appear to have led to some increase in the flexibility of Argentina's labor markets, but whatever the degree of this endogenous increase in flexibility, it was clearly insufficient to avoid a severe and prolonged recession.

It is too soon to tell how much endogenous responses will help the members of the European Monetary Union to better meet the OCA criteria, but for many prospective new members it would seem wise to assess how EMU works for a good length of time

before deciding whether or not to join.

Floating rates are not a panacea either, however. The fear of floating literature, while often implying excessive net benefits from fixed exchange rates, does point to many problems with independent floating that deserve serious attention. We need to learn much more about the quantitative effects of factors such as currency substitution and liability dollarization on the stability and optimality of different monetary cum exchange rate regimes.

I conjecture that such analysis will not overturn the implication (often not recognized) of current OCA analysis that for many, if not most, countries the weight given to foreign exchange market developments in sedting domestic monetary policy should be neither zero nor one. The problem of the unstable middle can be attacked without requiring corner solutions if it is approached as an issue of consistency between exchange rate and monetary policy, rather than as one of limited exchange rate flexibility per se. The operation of crisis avoiding intermediate exchange rate cum monetary policy regimes is extremely difficult, however, in a world of strong short-run political pressures. Thus the design of stable intermediate policy frameworks will require careful attention to political as well as economic and financial considerations. This will be a challenging, but let us hope not an impossible, task.

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Table 1

Size and Trade Ratio of Selected Countries

Countries	Population	Openness	% Trade with U.S.	% Trade with EMU
Argentina	36.6	0.086	15.6%	
Brazil	167.9	0.065	23.4%	
Canada	30.5	0.357	77.6%	
Chile	15.1	0.228	19.9%	
Ecuador	12.4	0.314	N/A	
Hong Kong	6.7	1.112	15.3%	
Indonesia	207.0	0.255	15.6%	
Korea, Rep	46.9	0.325	20.6%	
Malaysia	22.7	0.945	20.0%	
Mexico	96.6	0.288	80.9%	
New Zealand	3.8	0.245	15.3%	
Panama	2.8	0.227	37.2%	
Peru	25.2	0.123	30.1%	
Philippines	74.3	0.452	24.4%	
Thailand	60.2	0.437	17.9%	
Taiwan	22.1	0.399	21.8%	
Bulgaria	8.2	0.376		36.5%
Czech Rep	10.3	0.519		61.6%
Estonia	1.4	0.672		40.2%

Hungary	10.9	0.546	55.1%
Latvia	2.4	0.352	35.7%
Lithuania	3.7	0.373	34.3%
Poland	38.7	0.236	57.1%
Slovakia	5.4	0.519	51.9%
Slovenia	2.0	0.464	62.1%

Notes: Openness is measured by {(export + import)/2/GDP}.
Sources: Direction of Trade Statistics, and World Development Indicator.

[1] Of course no exchange rate can be guaranteed to remain fixed forever, but the term is commonly used for hard forms of fixed exchange rates such as the gold standard, common currencies, and currency boards under which it normally takes catastrophic circumstances for the parity to be abandoned.
[2] I do not find credible arguments such as Hanke (2001) that its "currency board" had nothing to do with the Argentine crisis. See Willett (forthcoming). It is true, as Hanke and Kurt Schuler point out that Argentina did not have a full fledged currency board and the unorthodox nature of the Argentine convertibility plan did help contribute to the crisis.
[3] See, for example, Burdekin, Nelson, and Willett (1999) and Williamson (1996).
[4] See Willett ( ).
[5] This point is also argued in Bofinger and Wollmershäuser (2001), which only came to my attention after the first draft of this paper, had been completed.
[6] See the analysis and references in Willett (2001a)
[7] See Willett (2001b)
[8] See Willett (2001)
[9] A number of writers such as McKinnon (1984) and Mundell (1961) have focused on this issue. Foreign currency purchases or sales by the central bank will automatically change the monetary base accordingly. This is unsterilized intervention. To sterilize the intervention, the central bank takes offsetting action such as open market purchases or sales of domestic securities in order to return the monetary base to the original level. See, for example, Obstfeld and Rogoff (1996) pp. 597-99.
[10] See Willett, Keil, and Ahn (forthcoming). The quasi-fiscal cost and effectiveness of sterilization depends on the size of capital flows and the nature of shocks.
[11] Taylor (2001) finds, however, that for the economies he analyzed the differences between optimal closed and open economy rules were relatively small.
[12] See the analysis and references in Pigott, Ruttedge, and Willett (1995) and Willett and Wolf (1983).
[13] See Choudhri and Hakura (2001), Goldfajn and Werlang (2000), Morande (2001), and Werner (2001).
[14] For surveys of the empirical literature on these aspects of exchange rate behavior see Frankel and Rose (1996), Froot and Rogoff (1996) and Rogoff (1996).
[15] There has been considerable controversy about both how much weight should be given to the exchange rate and how much weight has been given to the exchange rate in some relatively open inflation targeting countries. Interestingly, the analysis by Collins and Siklos (2001) suggests that neither Canada nor New Zealand have given significant weight to the exchange rate in their policy making.
[16] On these issues see Byrant (1980).
[17] See Branson, Frankel, and Goldstein (1990), Bryant and Portes (1987), and MacDonald and Taylor (1989).
[18] For recent discussions and references to the literature on OCA analysis, see the contributions in Sweeney, Wihlborg, and Willett (1999) and Dean, Salvatore, and Willett (forthcoming).
[19] See Frankel and Rose (1998).
[20] For arguments for and against, see the contributions in Dean, Salvatorre, and Willett (forthcoming).
[21] See Tower and Willett (1976).
[22] See, for example, Calvo and Reinhart (2000) and Fernando-Arias and Hausmann (2000).
[23] See Berg and Borensztein (2000), the survey by Giovanni and Tortelboom (1994). Berg and Borensztein show that even with considerable currency substitution, flexible rates may be superior to fixed if real shocks predominate. They also show that the effects of greater asset substitution, i.e., capital mobility, are ambiguous.
[24] An exception in Panizza, Stein, and Talvi (2000).
[25] See, for example, Whited (2000) and the paper by Feige and Dean in this volume.
[26] See the analysis and references in Willett (1987).
[27] It is true that Israel did for a time have both targets as it transitioned from exchange rate to inflationary targeting. They were fortunate enough not face a serious conflict between the two targets over the period.