Designing a Middle Way Between Fixed and Flexible Exchange Rates

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Abstract

This paper addresses the new-orthodox view that the choice of exchange rate regime has been hollowed out to a choice between the two corner solutions of firmly fixed and more or less freely floating exchange rates. While conceding that both these regimes have an advantage over intermediate regimes in terms of being less vulnerable to crisis, as well as simplifying the policy assignment, it argues that neither a currency board nor a freely floating exchange rate regime is necessarily crisis-free. More important, neither of them offer the potential advantage of a well-managed intermediate regime, notably a BBC (basket, band, and crawl) system, of allowing policy to be addressed to limiting exchange rate misalignments. A number of countries with ostensibly floating currencies are revealing by their actions that they prefer an intermediate regime. While such managed floating may be a reasonable compromise given the pressure from the IMF to float, it suffers three potential disadvantages as compared to an articulated BBC regime: it is not transparent, it precludes some types of policy cooperation (such as the use of a common basket peg by a number of countries with strong trade interdependence), and it foregoes the possibility of inducing stabilizing speculation a la Krugman's analysis of target zones. The paper concludes by describing three softer versions of the BBC regime that would be less vulnerable to crises than traditional intermediate regimes: the reference rate proposal, bands with soft margins, and monitoring bands.

ملخص

تناقش الورقة وجهة النظر التقليدية السائدة الآن والمتمثلة فى أن إختيار نظام لسعر الصرف قد إقتصر على المفاضلة بين القطبين المتمثلين فى نظام ثابت تماماً لسعر الصرف وبين نظام يسمح بدرجة أو بأخرى من التعويم. ومع التسليم بأن كلا النظامين يتميزان على النظام الوسط من حيث كونهما أقل تعرضاً للأزمات كما يتسما ببساطة السياسات المرتبطة بهما، إلا أن ذلك لا يعنى أن أياً من نظامى مجلس العملة (Currency Board) أو سعر الصرف المعوم يخلوان تماماً من الأزمات. والأهم من ذلك أن كلا النظامين لا يقدم إحتمال نظام وسط مدار بشكل جيد، مثل نظام سلة العملات وهامش التقلب والنظام الزاحف (basket, band, crawl (BBC)) والذى يسمح بسياسة توجه لمعالجة إنحرافات محددة فى الصرف. وتتم تصرفات عدد من الدول التى تطبق ظاهرياً نظاماً لسعر الصرف المعوم عن انها تفضل نظاماً وسطاً لسعر الصرف. وبالرغم من أن تطبيق نظام التعويم المدار لسعر الصرف يعد حلاً توفيقياً فى ضوء الضغوط التى يمارسها صندوق النقد الدولى على الدول لتلتزم بسياسة التعويم، إلا أنه يعانى من ثلاثة عيوب إذا ما قورن بنظام سعر الصرف الثابت، تتمثل فى كونه لا يتمتع بالشفافية ولا يسمح بأى نوع من أنواع التعاون (كاستخدام عدد من الدول المرتبطة بعلاقات تجارية كبيرة لسلة موحدة من العملات يتم ربط أسعار الصرف بها) فضلاً عن استبعاده لاى محاولات للتثبيت كتلك التى اقترحها كروجمان فى تحليله للمناطق المستهدفة (Target Zones). وتختتم الورقة بوصف لثلاث صور من نظام التثبيت تكون أقل تأثراً بالأزمات مقارنة بالنظم التقليدية الوسط: مقترح نظام سعر الصرف المرجعى أو نطاق بهوامش تقلب ضيقة، أو نطاق متتبع.

I. Introduction

Economists have long tended to debate the exchange rate question in terms of fixed versus flexible exchange rates, despite the fact that few countries practiced either of them, but chose instead one of the numerous intermediate regimes. The reason is that both of these extreme regimes fit comfortably within the profession's preferred modeling strategy. In a standard model, with exchange rates determined by the fundamentals subject only to well-behaved noise, a country may choose to use monetary policy either to pin down the price level by using the exchange rate as a nominal anchor, or it may use monetary policy to pursue "internal balance" (nowadays usually practiced as inflation targeting). The first strategy implies a fixed rate and the second implies a floating rate, and there is no compelling reason for doing anything else, unless perhaps a country wants to use the exchange rate as a nominal anchor but there is inflation inertia in the system. In such case, a pre-determined decelerating crawl provides a useful transitional mechanism for getting to a fixed rate.

What is new is that the preference for picking one of the extremes and avoiding the middle ground has spread from professional economists to policymakers. This is surely not because economists have suddenly come to dominate economic policymaking. It is true that there has never before been a time when first-class economists have been as dominant as they are today in the United States, with Larry Summers as Secretary of the Treasury, Alan Greenspan at the Fed, and Stan Fischer at the IMF. But these are not the prime movers in the emergence of the new orthodoxy which claims that the choice of exchange rate regime has been hollowed out to one of the two corners: indeed, Larry Summers worked inter alia on "noise traders" (De Long et al 1987, 1988), which is the type of model that provides the strongest logic for favoring intermediate regimes, and Stan Fischer is distinctly eclectic on this issue. Rather, what has driven the new orthodoxy is the fact that badly-managed intermediate regimes have regularly fallen prey to crises, while even a well-managed intermediate regime such as that in Indonesia proved susceptible to contagion. Those of us who continue to believe that there is a case for intermediate regimes will do our cause no service if we pretend otherwise.

The present paper starts by describing the new orthodoxy, and then offers a critique. It proceeds to review the evidence that many countries that are nominally floating in fact

manage their rates, and discusses why they might choose to do so. This is followed by a discussion of the relative merits of managed floating versus a more structured regime, which leads to a consideration of what a more structured regime might look like.

II. The New Orthodoxy

The claim of the new orthodoxy is that the choice of exchange rate regime has been hollowed out to one of two "corner solutions". One is a firmly fixed exchange rate, with an institutional guarantee that it will stay fixed, in the form of at least a currency board, or else "dollarization"[1] or monetary union. The other option is that of a floating exchange rate that is at most "lightly managed".

The key feature of a currency board is that it merely issues domestic money in exchange for foreign exchange. This implies both a fixed exchange rate and 100 percent backing of the money supply by foreign reserves. Any accretion of reserves will lead to a corresponding monetary expansion and, more crucially, any loss of reserves leads to a corresponding monetary contraction and hence to rising interest rates and deflation (Hume's price-specie-flow mechanism). The system thus has a built-in monetary mechanism that is stabilizing from the standpoint of maintaining the exchange rate. The same is true in principle of the two other forms of firmly fixed exchange rate, dollarization (in which a country gives up its seigniorage as well as its monetary sovereignty) and monetary union (in which a country agrees to share its monetary sovereignty), although these may lead to such a high degree of intra-area capital mobility as to avoid observable interest rate adjustments.

The other extreme solution that is supposed to be viable is a floating rate. No one argues that floating has to exclude all intervention in the exchange markets, but a key analytical question is what constitutes the "light management" that is supposed to be acceptable, as opposed to the heavy intervention that is proscribed. Presumably everyone agrees that episodic intervention designed to smooth erratic fluctuations is acceptable, and "leaning against the wind", in which intervention simply tries to slow a movement without concern for the level of the rate, seems also to be regarded as consistent with intervention being

[1] Using that term generically to signify unilateral adoption of a foreign currency to serve as the domestic currency, e.g. to include Montenegro's proposed adoption of the deutschemark/euro.

"light". Matters become debatable when one asks whether all intervention based on correcting perceived misalignments, i.e. determined by judgments about appropriate or inappropriate exchange rate *levels*, is precluded. It would seem paradoxical to exclude all such intervention on principle, given that, for example, it was precisely a concern for the weakness of the euro in terms of the dollar that recently prompted joint intervention by the Fed and the ECB (and others). The problem is that once one allows such intervention there is no hard and fast line to distinguish "light management" from an unannounced target zone. So perhaps one has to define light management as intervention that is episodic, ad hoc, not planned according to any pre-considered strategy or agreed in advance, and whose parameters are not only not announced to the market but not even known to the authorities.

The intermediate regimes that are excluded include the adjustable peg, the system embodied in the postwar system at Bretton Woods, under which a country would normally have a fixed exchange rate but reserved the right to change this in extreme circumstances ("fundamental disequilibrium"). Some of us recognized many years ago that this system was inherently vulnerable to speculative crises in a world of high capital mobility (e.g. Williamson 1965), and therefore sought to design systems that would embody enough flexibility to avoid misalignments from emerging and/or to ensure that the authorities did not find themselves in the position of offering the market a one-way bet. This led to the literature of the late 1960s on crawling pegs and wider bands, and then in the 1980s to that on target zones, alias crawling bands. The system that I ended up advocating (e.g. Williamson 1996) was dubbed by Dornbusch and Park (1999) "the BBC rules", where BBC stands for basket, band, and crawl.

The **"basket"** part of the proposal suggested that countries with diversified trade would do better to peg to a basket of currencies that would roughly stabilize their effective exchange rate[2], rather than to a single currency. This would largely insulate countries from disturbances to trade competitiveness, output, and inflation from capricious variations in third currency exchange rates, notably the gyrations between the dollar, the euro, and the yen.

[2] An "effective exchange rate" is the weighted average exchange rate against all currencies, where the weights are generally chosen to reflect the pattern of trade. (An alternative weighting system, based on trade elasticities, recognizes that countries are also important competitors, rather than just trade partners.) A "real effective exchange rate" corrects by changes in relative inflation, so that the index does not change if prices increase as much at home as the weighted average of the country's trading partners.

That is not to argue that every country would be well-advised to adopt a basket peg. In my study of the operation of crawling bands in Chile, Colombia, and Israel (Williamson 1996), I noted that Chile and Israel had both chosen to peg to a basket, while Colombia pegged to the dollar. I also argued that this was perfectly rational given the differences in their pattern of trade. Colombia's trade is dominated by the United States and other countries that peg to the dollar (like Venezuela), while the trade of Chile and Israel is far more diversified.

There were four purposes in suggesting a **wide band** (interpreted as up to +/- 10 percent, or even +/- 15 percent). One was to make sure that the authorities did not get into the no-win situation of trying to defend a disequilibrium exchange rate, given that no one imagined it would be possible to estimate the equilibrium exchange rate at all precisely. A second was to permit the parity (the center of the band) to be adjusted, to keep it in line with the fundamentals, without provoking expectations of discrete exchange rate changes that might destabilize the markets. A third was to give some scope for an independent monetary policy, to be used for anti-cyclical purposes when a country found its cycle out of sync with the world norm. The fourth was to help a country cope with strong but temporary capital inflows. As long as a band is (even partially) credible, arbitrageurs will allow for the expected reversion of the exchange rate toward its parity, and deduct an appropriate discount from (or add an appropriate premium to) the local currency yield when they compare their expected return from moving funds in with foreign yields to decide whether to place funds in the country. Moreover, investors in the tradable goods industries may tend to look at the parity rather than the market rate when assessing whether to go ahead with potential investment projects, implying that a given deviation from equilibrium will have less effect in distorting investment decisions.

The final element of the BBC formula is the **crawl**. This is most often used with a view to neutralizing differential inflation. It can also be used to steer inflation down over time, as was done in Israel, though this could run the risk of undermining competitiveness if pursued too dogmatically (as happened in Russia). A crawl can also be adjusted in a quickly-modernizing economy in order to reflect an expectation of Balassa-Samuelson

productivity bias[3] and accomplish the real appreciation that such an economy requires over time in order to maintain equilibrium. Finally, the rate of crawl can be changed, or occasional small parity adjustments can be superimposed on the regular crawl, in order to facilitate needed real adjustment.

At the time of my 1996 study I was quite optimistic that this BBC regime was working well and spreading rapidly. Not only had Chile, Colombia, and Israel operated the regime with apparent success for more than 3 years, but it had also been adopted by a number of other countries including Ecuador, Indonesia, Poland, and Russia. Since then Ecuador (which is dollarizing), Indonesia, and Russia have been forced by crises to abandon their bands, Chile and Colombia abandoned their bands voluntarily, and Israel and Poland have widened their bands to the point where they are close to de facto floating. The countries that remain with some sort of BBC arrangement are limited to Honduras, Hungary, Sri Lanka, Uruguay, and perhaps Venezuela, plus a country that boasts of having a BBC regime but does not publish the parameters, namely Singapore. Hence the plausibility of the story of the vanishing intermediate regimes.

III. Revealed Preference

It is indeed true that quite a number of countries, including Brazil, Chile, Colombia, Indonesia, Korea, Russia, and Thailand, have announced since the Asian crisis that they were going to allow their exchange rates to float. But two recent academic studies question whether these declarations reflect policy realities.

The first of these two papers is by Calvo and Reinhart (2000a), who analyze the behavior of exchange rates, reserves, the monetary base, and interest rates in a number of countries that describe their exchange rate regime as one of floating. They take the United States[4] and Japan as providing a calibration of what may be expected in terms of the volatility of these variables under floating rates. The first two rows of Table 1 show some of their measures of volatility for the United States and Japan respectively.[5] The next eight

[3] See Balassa (1964) and Samuelson (1964). Chile built a 2 percent per annum real appreciation to reflect this factor into the formula for its crawl from 1995 to 1999.
[4] The U.S. exchange rate is taken as the dollar-deutschemark rate.
[5] They calculate other measures as well, e.g. for the probability of monthly changes in the first three variables falling within a range of +/- 2.5 percent rather than +/- 1 percent, but the general picture is not greatly changed by examining any of these other measures.

rows show the equivalent figures for eight emerging market countries that describe their regime as floating. Three of these describe their float as being managed, while five describe themselves as independently floating. The last row shows the equivalent figures for Thailand, a country that described itself as fixing its exchange rate prior to the East Asian crisis. (It was fixed to a dollar-dominated basket for the later part of the period being analyzed.)

Table 1. Measures of Volatility in Countries with Floating Exchange Rates

Country	Regime Description	Probability of monthly changes within +/- 1 percent in the:			Probability of monthly change in interest rate being < 25 basis points
		Exchange Rate	Foreign Exchange Reserves	Monetary Base	
United States, 1973-1999	Float	26.8[1]	28.6	42.1	59.7
Japan, 1973-1999	Float	33.8	44.8	22.7	67.9
India, 1993-1999	Float	82.2	21.6	27.4	6.4
Korea, 1980-1997	Mgd Float	80.1	16.1	12.3	31.1
Malaysia, 1992-1998	Mgd. Float	59.4	34.3	24.3	66.7
Mexico, 1994-1999	Float	34.6	13.2	5.7	8.3
Peru, 1990-1999	Float	45.2	23.1	22.9	24.8
South Africa, 1983-1999	Float	32.8	8.7	45.4	35.6
Turkey, 1980-1999	Mgd. Float	12.6	10.3	12.2	3.4
Uganda, 1992-1999	Float	52.9	17.7	15.6	11.6
Thailand, 1970-1997	Fix	93.6	21.3	19.8	24.1

Source: Calvo and Reinhart (2000a).
Note: [1] DM/dollar

It can be seen that most of the emerging market countries with rates described as floating had more volatility than fixed-rate Thailand but less volatility than the United States and Japan. India and Korea are closer to Thailand than to the benchmark floaters, while Malaysia, Peru, and Uganda are intermediate. Mexico and South Africa have volatility similar to that of Japan. Turkey, which describes its regime as a "managed float", actually had even more volatility than the United States. These results show no obvious relationship between volatility and whether or not a country claims to manage its float.

Observed volatility will depend not merely on a country's policies, as supposedly described by its exchange-rate regime, but also on the shocks to which it is subject. Calvo and Reinhart therefore measure also the volatility of foreign exchange reserves, to measure the extent to which a country intervenes in the market to limit movements in

its exchange rate. One would expect the United States to have abnormally high volatility on this measure, inasmuch as its reserves are very modest relative to any other relevant magnitude. Nonetheless, U.S. reserves are actually less volatile than those of any other country in the table except Japan and Malaysia. Five of the eight floaters, including three of the five independent floaters, actually show more reserve volatility than fixed-rate Thailand.

Countries may also seek to manage their exchange rate by directing monetary policy to that end. This would result in a high degree of volatility in their monetary base and/or their interest rate, i.e. in low numbers in the last two columns of Table 1. All the emerging market countries except South Africa show more volatility in their monetary base than the United States, although India, Malaysia, and Peru also show less than Japan (with Thailand quite close as well). In terms of interest rate volatility, however, only Malaysia is at all comparable to the benchmark floaters.

Overall, these results suggest that few of the emerging market countries that describe themselves as having floating exchange rates are content to allow their rates to float as freely as the United States or Japan do. Malaysia appears (prior to its fix in 1998) to have done the least in terms of intervening or adjusting monetary policy to stabilize its exchange rate, but the fact that the volatility of its exchange rate is so much less than in the US or Japanese cases suggests that it may simply be subject to fewer shocks. Turkey is at the other extreme: its exchange rate has been very volatile, but so have its other policies, suggesting that it has suffered either strong shocks or frenetic policymakers. The other emerging markets all show evidence of having used either intervention or monetary policy or both in order to limit exchange rate volatility.[6] In the phrase of Calvo and Reinhart, they exhibit "fear of floating".

[6] The Mexicans argue that their monetary policy is guided not by a concern to manage the exchange rate, but by their inflation target. A depreciation of the peso threatens to increase inflation, which causes them to raise interest rates (Ortiz and Carstens 2000.) It is not clear, however, how this can explain the reserve volatility as well as the volatility in base money and interest rates.

The second of the two papers is by McKinnon (2000), who focuses exclusively on East Asia. He examines the extent to which daily changes in the exchange rates of 9 East Asian currencies vis-à-vis the Swiss franc can be explained by changes of each of the three main currencies (dollar, yen, and DM) in terms of the Swiss franc (which is intended to be a neutral numeraire). He shows (see Table 2) that prior to the East Asian crisis the movements of each East Asian currency (relative to the numeraire) were dominated, with R-squares generally over 0.9, by the movements of the dollar (relative to the numeraire); i.e., that the currencies were effectively pegged to the dollar, as was indeed widely surmised. He goes on to examine the situation during the crisis, and finds that all the currencies except the Chinese renminbi and the Hong Kong dollar were genuinely floating, with only a modest part of their daily movements explained by changes in the dollar during that period. The really interesting finding concerns the post-crisis period, from January 1999 to May of 2000. It turns out that not only Malaysia (which formally pegged to the dollar in September 1998) but five of the other East Asian currencies examined —all except Indonesia— have reverted to a policy of essentially pegging to the dollar (with R-squares of over 0.6, up to almost 0.9, a result statistically indistinguishable from the situation prior to the crisis).

Table 2. The Evolution of Dollar Pegging in East Asia, 1994-2000

Country	Pre-Crisis Period			Crisis Period			Post-Crisis Period		
	USD Coefficient	S.E.	R-Square	USD Coefficient	S.E.	R-Square	USD Coefficient	S.E.	R-Square
China	0.996	0.003	0.995	1.001	0.000	1.000	1.000	0.000	1.000
Hong Kong	1.000	0.002	0.998	1.000	0.003	0.998	0.998	0.001	1.000
Indonesia	0.999	0.008	0.965	0.550	0.388	0.038	0.848	0.163	0.182
Korea	1.021	0.016	0.883	1.086	0.226	0.087	0.957	0.045	0.706
Malaysia	0.886	0.014	0.889	0.755	0.138	0.161	1.000	0.000	1.000
Philippines	0.987	0.018	0.836	0.788	0.125	0.196	0.945	0.040	0.741
Singapore	0.817	0.012	0.905	0.727	0.061	0.447	0.818	0.026	0.848
Thailand	0.955	0.012	0.923	0.688	0.165	0.107	0.858	0.049	0.639
Taiwan	1.015	0.012	0.928	0.930	0.050	0.552	0.986	0.024	0.883

Notes: Pre-crisis period is Jan. 1994-May 1997; Crisis period is June 1997-Dec. 1998; Post-crisis period is Jan. 1999-May 2000
Source: McKinnon (2000, Tables 5-7)

These results strongly suggest that most emerging market countries —especially those in East Asia— are reluctant floaters. Their revealed preference is for a regime that can at most be described as one of heavily managed floating. They describe themselves as floating because that is what the IMF wants to hear, but they do not practice floating in a form that would be approved by the advocates of the two-corners system.

IV. Explaining Behavior

Why might emerging market policymakers have such a preference? Do they not understand the arguments of a clear policy assignment and of lesser vulnerability to crises that have led Western economists to tell them they should go to one of the two corner solutions?

There is another hypothesis, beside a lack of intellectual understanding, that can explain their revealed preference: that they do not like how they see floating rates behave. They see the gyrations among the dollar, euro, yen, and pound, and wish to avoid being subjected to similar pressures. They saw how the market undervalued their own currencies when they allowed these to float during the crisis, and fear that they may well overshoot on the upside as recovery proceeds. In other words, perhaps they see gains in an intermediate regime that they believe outweigh the costs in terms of greater vulnerability to crises and having less simple policy rules to follow. Perhaps it is Western economists who deserve censure for having ignored the costs of going to the two corners, rather than emerging market policymakers who are being obtuse.

What I have always regarded as the primary benefit of an intermediate regime is that it allows policy to be directed to limiting misalignments, which is something that cannot be claimed by either of the corners. Fixed rates allowed currencies to become overvalued as a result of higher inflation than abroad (or occasionally undervalued through better success in controlling inflation) in the days of Bretton Woods. Floating rates have often led to even more pronounced misalignments, as currencies have lost touch with the fundamentals: think of sterling in 1981, the dollar in 1985, the yen in 1995, or the euro today for a few of the most dramatic examples. Such misalignments are damaging: overvaluations destroy tradable good industries, undervaluations cause stagflation. The particular danger that worries me about the current attempt to impose floating on emerging markets is that this

will prevent them from maintaining competitive exchange rates, which most analysts have judged were a key precondition for the success of the export-oriented strategies of the East Asian countries during the decades of the Miracle.

Calvo and Reinhart (2000b) offer a longer list of reasons as to why emerging markets may be unwise to float, even if one believes that floating is a good choice for industrial countries. Devaluation is typically contractionary in emerging markets in the short run, which is less likely to be true in industrial countries. Exchange rate volatility is more damaging to export performance. The pass-through from devaluation to an acceleration in inflation is typically larger. Many emerging markets (especially in Latin America) have large dollar-denominated liabilities, whose domestic currency value is inflated by devaluation, eroding net worth in the financial and corporate sectors, and in extreme cases (as in East Asia) inflicting widespread bankruptcy. All these stylized facts are confirmed empirically in their paper. Given the random behavior that we know governs the behavior of a floating exchange rate (Meese and Rogoff 1983), there would seem to be a strong case for seeking an alternative regime.[7]

A recent article in the *Wall Street Journal* (Malpass 2000) argued that Brazil's recent economic progress can be attributed to an act of unsterilized intervention in October 1999 which arrested the slide of the *real* and created the conditions for inflation and subsequently interest rates to decline (the latter to the lowest level for many years). The Central Bank of Brazil explains that act of intervention as having been a one-off operation designed to reassure nervous investors that Y2K was not going to demolish the Brazilian economy. It is doubtful that is an accurate description of the concerns that motivated the intervention, but, if the alternative would indeed have been a continuing euro-like slide of the *real*, one has to be thankful that the Central Bank of Brazil found a pretext for breaking its practice of not intervening.

In addition to the need to recognize that intermediate regimes offer benefits as well as costs, a critic of the new orthodoxy can also argue that its proponents are claiming too much when they imply that the corners are invulnerable to crises. Consider first the case of a currency board. A currency board always has enough reserves to cover M0, the monetary

[7] Calvo, at least, believes that the best such alternative is the other corner, namely a fixed exchange rate: see e.g. Calvo (2000). I presume that the standard critique of fixed exchange rates will be presented in the paper of Andres Velasco to this conference.

base. But foreign exchange reserves equal to M0 are not enough to cover all of M3, and therefore they are not large enough to cover all potential demands in the event of a catastrophic loss of confidence that results in capital flight. Since a failure to convert M3 into M0 on demand would constitute a monetary crisis even more severe than a failure to convert M0 on demand into dollars, it is wrong to believe that a foreign reserve at least the size of M0 makes a crisis impossible.

So far such a crisis has not happened. Currency boards have allowed a run on the currency to raise interest rates, which provides an automatic stabilizing feedback that discourages further withdrawals. But that mechanism works only as long as the public has confidence that the exchange rate will be sustained. If and when some currency board is overwhelmed, as Argentina presumably feared was about to happen when it started talking of dollarization in 1998, the confidence that has so far underpinned currency boards will evaporate overnight. If that ever happens, it is not clear that currency boards will be much more stable than any other form of pegged exchange rate in which the central bank plays by the gold standard rules of the game by tightening monetary policy when reserves decline. And even countries with currency boards whose currencies have survived speculative crises have suffered crises in their real economies (think of Argentina in 1995 or 1999 or Hong Kong in 1998, which suffered the fifth most severe recession in East Asia, after Indonesia, Korea, Thailand, and Malaysia).

Consider next the case of a floating exchange rate. It is true that a country with a floating rate can never be forced into a change in exchange rate regime, because it can always allow its currency to collapse further. But a currency collapse can still produce acute stagflation, as happened in East Asia in 1997. It was, after all, the collapse of those currencies *after* they were set free to float that generated the balance sheet problems that made the crisis so severe. The plausible claim made for floating is that borrowers would not make the mistake of failing to hedge if they were not being tempted into imprudence by official assurances that the exchange rate is effectively fixed. But if they ever *did* become equally exposed, and the exchange rate subsequently collapsed, the consequences would be just as severe as they were in East Asia in 1997. This may be less likely, but it would be complacent to deny the possibility that one day the markets could come to believe that country X has entered a new era which provides assurance that its markets and its currency

can only rise. Once again, therefore, we cannot rule out the possibility that a corner solution may permit a crisis to develop.

To say that crises are still possible at either of the corners is not to claim that they are as likely as with an intermediate regime. On the contrary, it is entirely likely that Argentina's crisis would have been worse without its currency board, and that Australia, the Philippines, South Africa, or Turkey would have succumbed had their rates not been floating. The objective is merely to get a more realistic estimate of the magnitude of the benefits of going to the corners, to weigh against the costs that we discussed earlier and that have been so neglected by the advocates of the two-corners solution.

V. Forms of Intermediate Regime

The countries that say they are floating but betray evidence of "fearing floating" would doubtless describe their regimes as "managed floating". If in practice they use this regime to stave off misalignments, one might ask what is wrong with that? Would not a regime of managed floating that was used in this way be a perfectly sensible choice, that could be used to combat misalignments in normal times but permit a quick and easy exit from commitments (since there would not be any) when a potential crisis is brewing?

I would certainly regard such a regime as vastly better than a fixed rate[8] or a freely floating rate, and better than a lightly managed rate. But there are three reasons that suggest to me that such a system is likely to be inferior to a more structured regime.

First, the regime is not transparent. It is not just that we have come to regard transparency as a good thing in its own right, but also that it is difficult for the public to know whether the policy being pursued is indeed one of seeking to limit misalignments from a sensible estimate of the equilibrium rate if they are not told the parameters of exchange rate policy. This makes it possible for governments to pursue less enlightened policies, like trying to defend a fixed rate for some out-dated historical reason, without being subjected to scrutiny, or at least not until the policy has resulted in a crisis. Of course, while transparency seems an obvious virtue to most of us, it does not necessarily

[8] For most countries. I agree that there are certain circumstances – when a country is small and open, when its trade is focused on a single currency area, when it is comfortable with the macro policy of its large neighbor, and when it is unlikely to experience sharp real shocks different to its neighbor – when fixing in terms of that neighbor's currency is a good policy choice.

appeal to the officials who are required to be transparent. To them a system of untransparent managed floating may well have great appeal, inasmuch as it makes it difficult to hold them accountable since there is no clear test that their policies have failed.

A second disadvantage of managed floating is that it precludes some types of policy cooperation, and may indeed permit policy conflict. A clear example of the type of policy cooperation that might make sense but that would be precluded by a managed float is a peg to a common basket, which I have argued (Williamson 2000) would be attractive in East Asia in order to avoid competitive devaluations, given how competitive those economies are with each other. The sort of policy conflict that would not be constrained is competitive devaluation, i.e., each of several closely competitive countries seeking targets for their exchange rate that give them a competitive edge over their rivals.

The third disadvantage of unstructured managed floating with no announcement of the parameters guiding the management is potentially the most serious, although quite possibly dormant at the moment. I refer to the analysis first formalized in Paul Krugman's (1991) classic paper on target zones. His model suggests that the expectation of intervention at the margin should make speculators act in a stabilizing way. In some ways the evidence has not been kind to this model: for example, exchange rates in band systems do not spend most of their time close to the edge of the band, as his model predicts (Svensson 1992, p.128).[9] A possible explanation for this is that authorities intervene within bands as well as at the margins. This suggests that a more appropriate test of the efficacy of bands is whether they are effective in inducing mean-reverting behavior by market participants. The evidence shows that, under a floating exchange rate, a change in the spot exchange rate is normally associated with an almost identical change in the forward rate (Svensson 1992, p. 132), signifying that there is a virtually complete lack of any market expectation that the exchange rate will revert toward an equilibrium level within any time horizon relevant to market participants. Matters appear to be different in the presence of an exchange rate band. While bands do not normally have full credibility, and while they sometimes lack any credibility at all, the evidence from the ERM shows that when a rate moved within the band the forward rate normally changed by less than the spot rate, indicating that the market expected that the spot rate would tend to revert back

[9] However, Schulstad and Serrat (1995) have argued that the conventional bilateral model of a target zone is a poor way to model the ERM. Their multilateral model of a target zone appears to fit the ERM data much better, without any need to invoke intra-marginal intervention.

toward the center of the band (Svensson 1992, pp. 132-33). The obvious explanation is that the band usually performed the function of crystallizing market expectations of where the equilibrium rate lay, and thus made expectations stabilizing at the time horizons relevant for influencing market behavior. This is the fundamental reason for preferring a band system rather than allowing the exchange rate to float.

Another important paper in establishing the potential value of a band is that of Andrew Rose (1996), who showed that a band has a pronounced effect in limiting exchange rate variability. Indeed, he argued that the primary difference between exchange-rate regimes lies not in macroeconomic fundamentals, whether one might wish to interpret these as cause or consequence of the regime, but in the noisiness of the exchange rate. He showed that this is not because some other variable, like the interest rate, jumps around much more in order to keep the exchange rate stable; on the contrary, the increased exchange rate stability is essentially a free good. In a subsequent paper, Jeanne and Rose (1999) try to explain these stylized facts by the way in which a floating exchange rate attracts noise traders, who make money by introducing noise into the exchange market. (The most plausible theory of where these profits come from is that of Krugman and Miller (1993), who postulate that they come from stop-loss traders, who essentially buy insurance against big exchange-rate movements.) If the authorities pursue policies that suppress the volatility, the noise traders will find life uninteresting and go elsewhere in search of greener pastures, i.e. noisier markets.

Nowadays many officials appear to believe the exact opposite of the Krugman/Rose logic. Edges to bands are alleged to provide the market with targets to attack, rather than assuring the market that the rate will not move further. One reason that might make sense of this is that on altogether too many occasions authorities have attempted to defend rates that were misaligned, which allows a clear speculative profit from a successful attack.[10] It appears that Colombia abandoned its band not because of an attack or a belief that its band

[10] Traditional theory implies that a "successful" attack on a correctly aligned band cannot be expected to bring profit to the speculators collectively. For example, a rate that is pushed to an undervalued level by a speculative attack will result in a surplus on non-speculative transactions, so that the rate would return to the band if the speculators tried collectively to move back into the currency they had sold so as to realize their paper gains. One possible critique of this theory is that, because of the J-curve effect, the surplus on non-speculative transactions will only materialize with delay, so that the speculators might be able to realize their profits by getting in while the non-speculative account is still in the red (Williamson 1972). Furthermore, second-generation crisis models imply that a well-aligned band might become misaligned as a consequence of the attack itself, which could again make sense of the view that bands provide targets to attack.

had become misaligned, but because its authorities concluded that the mere presence of a band was undermining confidence and making it harder rather than easier to keep the exchange rate in a sensible range. And it seems that Singapore's BBC regime survived the East Asian crisis because it was not announced, and thus permitted the authorities to allow a depreciation in response to strong market pressures without any trauma in the market.

We badly need an authoritative empirical analysis of whether and under what circumstances bands are stabilizing versus destabilizing, which is able to reconcile the evidence that bands played a stabilizing role in the EMS context with their apparent failure to do so in many emerging markets. For the moment, the natural presumption is that bands are stabilizing when credible but can become destabilizing when credibility is lost. If correct, this suggests two things. The first is that any new arrangements must make a priority of avoiding commitments that will further erode credibility. The second is that it may be necessary to build credibility through unannounced but successful policy on the Singapore model before trying to capture the full benefits of an intermediate regime through public announcement.

VI. Three Viable Intermediate Regimes

Consider the first of those two issues. What intermediate arrangements could provide some structure that might ultimately focus expectations in a stabilizing way while avoiding the crisis vulnerability that has progressively eroded credibility in past years?

Of the three features of the BBC regime, it is the existence of a band, rather than the use of a basket to insulate the effective exchange rate against the vagaries of the dollar-euro-yen cross rates or the use of a crawl to neutralize differential inflation, that makes intermediate regimes potentially crisis-prone. Thus it is modifying the obligation to intervene at the edge of the band that needs to be examined. Three possibilities merit discussion: reference rates, soft bands, and monitoring bands.

The Reference Rate Proposal. Shortly after the advent of generalized floating in 1973, it was suggested by Ethier and Bloomfield (1975) that the authorities of countries with floating exchange rates should undertake a commitment to not push their currencies *away* from an agreed estimate of the equilibrium exchange rate. The concept of an equilibrium exchange rate they had in mind was pretty much the same as that which I subsequently

termed the "fundamental equilibrium exchange rate" (Williamson 1985), but they called the "reference rate". The authorities would have no obligation to intervene to defend that rate, but simply a requirement to avoid intervening, or conducting other policies intended to influence the exchange rate, in a way that would push the market rate *away* from this reference rate. The Guidelines for Floating adopted by the IMF in 1974 had actually included reference to "some target zone of rates…within the range of reasonable estimates of the medium-term norm", and legitimized aggressive intervention to push the rate toward such a zone provided it had been endorsed by the Fund. But in the mid-1970s the United States Treasury was run by ideological floaters who thought it wrong for governments to try and think where exchange rates ought to be, and so the reference rate proposal got dismissed from discussion along with the target zones of the Guidelines when the Second Amendment to the Fund's Articles blessed laissez-faire in exchange rate policy.

It is obvious that the reference rate proposal could never push a government into defending a rate in a way that would induce a crisis, since it implies no obligation to defend any rate at all. Indeed, it was originally presented as a means of disciplining intervention in a floating-rate system rather than as a distinct intermediate regime: its only claim to inclusion in the latter is that it requires the authorities to analyze where they believe equilibrium rates are, and announce their conclusions. But this is precisely what, in a carefully argued paper, Pisani-Ferry and Coeure (1999) identified as one of the key actions needed for improving traditional surveillance.

Soft Margins. In my first extensive development of the case for 'target zones' (Williamson 1985), I suggested that they might have 'soft margins' or 'soft buffers'. The idea was that there should not be an absolute government commitment to defend the edges of the zones, but rather that, in the event of strong speculative pressures, the government should have the right to announce that it would let the rate go outside the band, while warning the market that it planned to direct policy to bringing the rate back within the band as and when that might prove possible. This proposal rather got lost in the discussion of the late 1980s, but has recently been revived in two analytical contributions by Bartolini and Prati (1997, 1998).

Bartolini and Prati formalize the notion of a "soft" target zone as one in which the authorities target a *moving average* of current and past market exchange rates to remain

within a defined band, as opposed to targeting the market exchange rate to remain within a defined zone *at all times*. In their second paper they specify the objective as being to keep the *geometric* average, with exponentially decreasing weights, within the defined band. The effect is to allow the exchange rate to move outside the band in the short run, while maintaining the obligation to hold it within the band in the long run. Bartolini and Prati show that such a policy change can be expected to defuse tensions, especially when shocks to "the fundamentals" are short-lived, so that such a softening of the target zone makes the system significantly less vulnerable to speculative pressure. And they argue that such a policy change was essentially what happened in the ERM after the crisis of August 1993, and observe that it actually did succeed in defusing tension in the case of the ERM, where exchange rates rapidly returned to their former narrow bands after the widening of the margins.

As already argued, the basic logic for seeking an intermediate exchange rate system that motivates this paper is the fear that freely floating exchange rates are "badly behaved", i.e. prone to losing touch with the fundamentals, or to becoming misaligned. There is at present no formal way of modeling of this type of behavior. Temporary deviations of the fundamentals from their normal values, as hypothesized by Bartolini and Prati, seem about as good a way of introducing such behavior into formal models as we have at this time. Their results suggest that soft buffers to a target zone would be a feasible way of making an intermediate regime more robust to speculative shocks.

A recent paper of Goodhart and Delargy (1998) compares the East Asian crisis with a number of crises under the classical gold standard. It argues that one of the factors that helped countries recover under the classical gold standard was the widespread expectation that the exchange rate would revert to its pre-crisis parity once the crisis was over, which avoided widespread insolvencies such as resulted from magnification of the burden of foreign debt when the East Asian currencies were devalued. This is a feature that could be replicated by a target zone with soft margins: in a crisis the currency could be allowed to depreciate, perhaps with some internationally sanctioned right to suspend debt service until normality had been restored, but the expectation would be that the rate would return to its target zone as a part of the process of crisis resolution. McKinnon (2000) endorses the same approach, which he dubs the "restoration rule".

Monitoring Bands. A more recent proposal comes from a committee in India chaired by Mr. S.S. Tarapore, a former Deputy Governor of the Reserve Bank of India (Tarapore Committee 1997). The committee was charged with considering the case for India to move to capital account convertibility.[11] One of their suggestions was that capital account convertibility should be accompanied by the adoption of a 'monitoring band' as a framework for exchange-rate management. The center of the monitoring band, which they called the "neutral real effective exchange rate", would again represent an official, and announced, estimate of the equilibrium exchange rate. Within some range around that (they suggested plus or minus five percent), there should be a rule that the central bank would *not* intervene in the market. But once the rate went outside that band, on either side, it would be allowed to intervene: indeed, there could be some presumption that intervention would normally be appropriate. But, once again, there would be no *obligation* to intervene, thus again avoiding the commitment to defend a publicly-announced margin which has proved such a problem in provoking speculative attacks.

All these three proposals would require the authorities to reveal the nature of the policy they are pursuing, would allow them to coordinate actions among themselves where that is desired, and would provide guidance to the market which, to the extent the authorities command credibility, could be expected to help stabilize rates. But none of them would commit the authorities to defend a Maginot line and thus risk their credibility if a crisis develops. All of them would permit the stabilizing properties of the restoration rule to be exploited in limiting the impact of a crisis. Thus any one of them could provide the basis for a viable intermediate regime even under the conditions of high capital mobility now present in most emerging markets.

What sort of policies would be used in conjunction with such a regime in order to help stabilize rates in the vicinity of the announced parity, and thus build credibility? The basic presumption of such a system is that monetary policy would generally be used for domestic purposes (e.g. for targeting inflation), leaving sterilized intervention as the main instrument

[11]Incidentally, they recommended in May of 1997 that India should try to establish capital account convertibility within three years. But they also laid down some preconditions, like fiscal discipline and solvent banks, which many observers judged India would be unlikely to fulfill within three years even in the absence of the East Asian crisis, so their advice was not as reckless as it may sound in the aftermath of that crisis.

for exchange rate management. Obviously that can only be expected to work if the chosen parity is somewhere in the vicinity of the equilibrium rate: no exchange-rate system should be expected to hold a seriously undervalued or overvalued rate. If sterilized intervention proves inadequate and the authorities decide that the parity is indeed appropriate, the next thing they need to examine is whether monetary policy could be adjusted in a way that would push the exchange rate toward the parity without disrupting domestic macroeconomic objectives. That will be more likely if there is enough flexibility in fiscal policy to permit a compensating fiscal adjustment when needed to preserve internal balance. If even that proves insufficient, then it will make sense to think of capital controls, preferably of the price-related, Chilean variety, and preferably on inflows rather than outflows.

It is time to turn briefly to the second implication drawn at the end of the previous section: "that it may be necessary to build credibility through unannounced but successful policy on the Singapore model before trying to capture the full benefits of an intermediate regime through public announcement." Too much credibility has been squandered in recent years on exchange rate regimes that proved not to be viable for one to have confidence that a jump into a new regime would carry credibility. It will be a pity to have to postpone the day when a country can expect to realize the gains of policy coordination and reap the Krugman-style benefits of making speculation more stabilizing, but it is better to postpone them than to rule them out indefinitely.

VII. Concluding Remarks

In case it is not obvious, let me conclude by emphasizing that the view of the foreign exchange market that underlies this paper is that it is a market dominated by noise, fads, bubbles, and irrationality, rather than the rational forward-looking expectations embodied in the models of the market that we teach our students but know do not work. It is a market in which technical analysts make money by treating the trend as their friend. It has even been suggested that chaos theory would be a useful tool to analyze this market. The problem is that no one has an incentive to take a long-term view that pins exchange rates down to the fundamentals unless governments take on that role. What I have sought to do is sketch ways in which they might do that without thereby exposing themselves to the risk

of precipitating a crisis. The major part of the answer is to run a BBC regime properly, but I have argued that this needs to be complemented by eliminating in one way or another the hard edges to the band that at times serve to provide markets with targets to attack.

These issues matter. The costs of foreign exchange crises are crystal clear. There now seems to be growing evidence that exchange rate volatility harms investment, and hence one must assume that it is bad for growth. Indeed, there are already some findings to that effect. For example, Marcel Fratzscher (1998) concluded that his "empirical results reveal that what matters for economic growth is not the mere adoption of a particular exchange rate regime but the commitment and credibility of a government to actually sustain a particular exchange rate regime over an extended period of time. The striking finding is that although countries with stable currencies grow faster overall, they also crash harder when exchange rates have to be realigned." The intermediate regimes discussed in this paper are designed to provide enough stability to capture most of the growth benefits that stability at a competitive rate offers, while incorporating enough flexibility to avoid hard crashes and the squandering of credibility that they entail. It is too soon to surrender to the current orthodoxy, which holds that this is a hopeless quest.

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