



Mundell-Fleming Lecture

Exchange Rate Systems, Surveillance, and Advice

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The IMF Executive Board's adoption on June 15 this year of the new Decision on Bilateral Surveillance over Members' Policies puts exchange rate policies at the center of the surveillance process. The Fund's description of the new decision and the differences between it and the 1977 Decision notes that

- "the new Decision introduces a concept of external stability as an organizing principle for bilateral surveillance", where external stability "refers to a balance of payments position that does not, and is not likely to, give rise to disruptive exchange rate movements";
- Article IV's prohibition of exchange rate manipulation relates to policies directed at affecting the level of the exchange rate "in order to prevent effective balance of payments adjustment, or to gain an unfair competitive advantage over other members". A member will be considered to be manipulating the exchange rate to gain an unfair competitive advantage if the Fund determines that the country is trying to increase net exports by promoting an undervalued exchange rate; and
- members should "avoid exchange rate policies that *result* in external instability, regardless of their purpose ..."

A little over a month earlier, the Board had discussed the Independent Evaluation Office's Report "IMF Exchange Rate Advice", which presented a critical

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view of the advice the Fund had offered in the period 1999-2005 on exchange rate systems, on the level of the exchange rate, and on the mechanics of exchange markets and of intervention. While the criticisms are forceful and in many cases appear appropriate, they suffer from the lack of professional consensus on what the right advice should be. The IEO Evaluation Report struggles with this issue, but does not adequately resolve it, for example when noting (p.28):

"...Of course, when there is little academic consensus on many points, the problem of distilling and establishing operational guidance is more challenging, but management oversight and the right internal structure are therefore all the more critical."

Similarly, in Chapter 5 on "Findings and Recommendations", the Report states (p.37):

"68. To improve assessments of the exchange rate level, the IMF should be at the forefront of developing the needed analytic framework ...

The genuine difficulty in doing this is no excuse for not making more progress."

(italics in original)

In this lecture, I will try to draw together some lessons and questions about exchange rate systems, and attempt to state what is known and what is not known about them. I will also comment on problems of IMF surveillance. I start in Section I by revisiting the bipolar issue with regard to exchange rates, restating the hypothesis and updating it in light of events of this decade. I will argue that the bipolar view is fundamentally correct for emerging market and industrialized countries *with open capital accounts*—a qualification that was stated in Fischer (2001), but that was perhaps not adequately stressed. In Section II I discuss managed floating regimes and exchange market intervention, for countries with open capital accounts. Section III is devoted to the choice of exchange rate regime for countries whose capital account is not open; and I conclude with comments on IMF surveillance and advice.

I. The Bipolar Hypothesis

The bipolar hypothesis about exchange rates has come in for serious criticism. For example, Jeffrey Frankel (2004) argues that there is no analytic rationale for the argument of the disappearing intermediate regime. The usual justification is the impossible trinity, but Frankel suggests that a variety of managed floats are fully consistent with the impossible trinity – that one can have half-stability and half-independence.

In my 2001 article on the bipolar exchange rate approach, I tried to clarify the hypothesis, and I shall have to quote extensively (Fischer, 2004, p.229):

"... proponents of what is now known as the bipolar view – myself included – probably have exaggerated their point for dramatic effect. The right statement is that *for countries open to international capital flows*: (i) soft exchange rate pegs are not sustainable; but (ii) a wide variety of flexible rate regimes remain possible; and (iii) it is to be expected that policy in most countries will not be indifferent to exchange rate movements. To put the point graphically, if exchange rate arrangements lie along a line connecting hard pegs like currency unions, currency boards, and dollarization on the left, with free floating on the right, the intent of the bipolar view is not to rule out everything but the two corners, but rather to pronounce as unsustainable a segment of that line representing a variety of soft pegging exchange rate arrangements. [italics in the original]

... For countries open to international capital flows, it [the bipolar view] includes as sustainable regimes both very hard pegs and a variety of floating rate arrangements, including managed floats. For countries not yet open to international capital flows, it includes the full gamut of exchange rate arrangements.

The question that then arises is what exchange rate arrangements are excluded by the bipolar view. The answer is: for countries open to international capital flows, exchange rate systems in which the government is viewed as being committed to defending a particular value of the exchange rate, or a narrow range of exchange rates, but has not made the institutional commitments that both constrain and enable monetary policy to be devoted to the sole goal of defending the parity. ..."

During the decade of the 1990s, it seemed that exchange rate systems were becoming bipolar in the sense defined above, as can be seen in the comparison *for developed and emerging market countries*¹ between the data for 1991 and 1999 in Figure 1.² Figure 1 also shows what has happened since then for the group of developed and emerging market countries. In brief, the shift towards bipolarity that was evident in the data for 1991-1999, has continued, but at a reduced pace. The major changes in the distribution between 1991 and 1999 were due to the introduction of the Euro and the emerging market financial crises of that decade. Nothing on a similar scale has happened in this decade, although the number of countries in EMU continues to grow, albeit slowly.

As a reminder, the classification of exchange rate systems used in Figure 1, and in my previous paper, is that of the staff of the IMF, based on their evaluation of the *de facto* exchange rate arrangement in place at the time.³ Table 1 lists the categories of exchange rate regimes, with the intermediate grouping consisting of varieties of less than very hard pegs, include crawling pegs and bands. The floating category consists of "managed float" and "independent float", the latter less managed than the former.

Figure 2 breaks the "Advanced and emerging market countries" grouping down into its two parts – for advanced (Figure 2a) and emerging market (Figure 2b) countries respectively. Among the 25 advanced countries, bipolarity is almost

¹ I use the "Developed and emerging market countries" category as an approximation to countries whose capital accounts are open, though in fact that is not true for all the countries listed as emerging (see Table 2), among them China.

² The data in this paper differ somewhat from those in Fischer (2001), because in the former the exchange rate regimes as of each year relate to countries that were members of the Fund in that particular year, whereas in this paper the data for each year are those for countries that were Fund members in 2006.

³ The approach is described in Bubula and Otker-Robe (2002). See also, IMF (2003). As of the time of writing of this paper, the staff of the IMF is preparing a new classification of exchange rate regimes that will make more use of quantitative information on exchange rate behaviors and reserves, instead of qualitative information as in the current *de facto* exchange rate classification. This new classification will change how currency unions are treated, for example EMU countries will be classified as "independently floating". Moreover, a new category of "tightly managed float" is being introduced. This new *de facto* classification, however, will not be retroactive, so there will be a break in the series in 2007. It is clear that for a member of the EMU, the exchange rate of the currency it uses is independently floating. But it is also clear that for almost all or all EMU members, the exchange rate of the currency they use is absolutely fixed against the currencies of the countries that account for the great bulk of their trade. This suggests a note of caution about the reclassification of these countries' currency regimes.

complete, with only Denmark, which shadows EMU monetary policy, in the intermediate category. Among the 39 emerging market countries, a considerable number still remains in the intermediate category. Tables 2a and 2b list the advanced and emerging market countries and their exchange rate regimes. Note that the intermediate category for the emerging market countries includes five countries that are in the process of joining EMU, so that the shift to bipolarity for this country grouping is likely to continue in the coming years.

It thus appears that the bipolarity view is broadly consistent with recent exchange rate regime developments, for the advanced and emerging market countries grouping. I should though emphasize two qualifications. First, the bipolarity hypothesis is about countries open to international capital flows, which is why the data examined in Figures 1 and 2 are for the advanced and emerging market group – though, to be sure, some of the countries listed as "emerging market" have significant capital controls. Second, the "floating" group does not consist only of freely or almost freely floating exchange rate regimes, for it includes managed floats: indeed, for both the emerging market and "other" categories, there are more "managed" than "independent" floaters among the countries listed as having floating exchange rates. ; Further even among the "independent" emerging market floaters, there are several countries that intervene frequently and significantly.

The well-known difficulty of classifying exchange rate systems has led to a considerable literature, including articles by Levy-Yeyati and Sturzenegger (2000), Reinhart and Rogoff (2004), Frankel (2004),⁴ Eichengreen and Razo-Garcia (2006), Tavlas, Dellas and Stockman (2006), and others. The fundamental issue in the classification discussion relates to how to classify countries whose policies appear to be different than they are declared to be by the country (or by someone else's classification scheme). For instance, how should one classify countries that declare they have a pegged exchange rate but that in practice change the peg frequently? Or, as in the case of the "freely falling" category of Reinhart and Rogoff, how should one classify rates that are flexible only because extremely high inflation prevents their being anything other than flexible? And most important from the viewpoint of this

⁴ Frankel (2004) notes: "Placing actual countries into ... categories is far more difficult than one who has never tried it would guess".

paper, how should one classify heavily managed exchange rate regimes that are in principle flexible, but where the authorities intervene frequently and extensively?⁵

While this discussion is important, I believe *the essential question is whether the authorities are committed to defending a particular exchange rate or narrow range of exchange rates*, for these are the unstable exchange rate regimes when the capital account is open. Further, while there are countries whose currencies float freely, as noted in the quote from my 2001 paper above I do not regard intervention *per se* as being inconsistent with an exchange rate that is defined as flexible.

The data presented thus far relate to the proposition that as countries become more advanced and open their capital accounts, they also tend to leave the middle ground of soft pegs, and move towards either a hard peg or a floating (including managed floating) regime.⁶ Another way of examining this proposition is to focus on the empirical relationship between countries' choice of exchange rate regime and the extent of their capital controls. The IMF has an index of capital controls for which the latest year is 2005.⁷ It is available for only 90 of the 186 countries for which exchange rate regime data are available.

A probit regression was run of the exchange rate regime (coded 1 if an intermediate regime, 0 otherwise) on the extent of capital controls, an index that runs from zero to one (e.g. Japan and the UK are zero, the United States is 0.2, and India is 0.95). The estimated relationship is positive but weak,⁸ and significant only at the 15% level. On further examination of the data, it appears that there might be a bias with regard to the countries for which capital controls data are available: among the advanced countries, the capital controls index is available for 23 out of 25 countries; for the emerging market countries, the capital controls variable is available for 32 out of 39 countries; and for the "other" category (data on which are presented in Table 3

⁵ From the viewpoint of this paper, I should add that the grouping of countries into "advanced", "emerging market", and "other" categories is also not entirely obvious *ex ante*.

⁶ While this is a statement about facts, I also believe – for reasons that will be explained below – that countries *should* move away from the soft center as they remove capital controls.

⁷ The capital controls data are from the AREAER database.

⁸ The coefficient on the capital controls variable is 0.20, implying that a one point increase in the capital controls variable – which runs from zero to one – increases the probability that the exchange rate regime is intermediate only by 20 percent.

below), capital controls data are available for only 35 of 118 countries. It is quite likely that the extent of capital controls among the countries in the "other" group for whom the capital controls index is not available, is significantly higher than in the advanced and emerging market groupings. The frequency of intermediate regimes is also higher in the "other" group (47.5% versus 4% for advanced countries and 35.9% for emerging market countries).

I would like here to make two comments on the impossible trinity, in relation to Jeff Frankel's statement that one can have half stability and half independence of monetary policy. In the first instance, while the impossible trinity is usually stated in terms of an independent *monetary* policy, it should more accurately be stated in terms of independent *macroeconomic policy*, for when a currency comes under serious pressure, typically both monetary and fiscal policy have to adjust if the exchange rate is to be maintained. This was, for instance, clear in the collapse of the Argentine currency peg.

Second, an "independent" monetary policy in this context is one that is targeted at something other than the exchange rate. For many countries that have given up exchange rate pegging, the monetary regime switches to inflation targeting, in practice typically flexible inflation targeting. For others, monetary policy is directed to a range of targets, including inflation and growth, sometimes also the real exchange rate, with tradeoffs among them to be determined by the policymakers. Once the goals of monetary policy have been specified, monetary policy is no longer independent of the factors that move the economic variables that it is targeting. For instance, in setting the policy interest rate, the Bank of Israel, an inflation targeter, has to take into account changes in foreign interest rates that affect the exchange rate and through it the inflation rate.

Thus in practice by giving up exchange rate pegging and shifting to inflation targeting, a central bank does not gain monetary independence in the sense that its monetary policy becomes independent of monetary policy – more generally of economic developments – in other countries. Rather it has switched from targeting one economic variable – the exchange rate – to another, namely the inflation rate,

both of which depend to differing extents on economic developments abroad and at home. This may be the meaning of Jeff Frankel's statement that a country can have half stability and half monetary policy independence [of the exchange rate].

Why then the general recommendation to countries to avoid the intermediate regimes if they are open to capital movements? Primarily because such regimes are crisis prone, in part because their policy dynamics are unstable: we are all familiar with the syndrome in which when the exchange rate is not under pressure, the country sees no need to change the regime; and when it is under pressure the country is reluctant to change it because it is unclear by how much it will have to change if it is repegged, or where it will go if it is allowed to find its own level. As they develop and open their capital accounts, some countries, who have good reasons to do so – for instance those who meet the conditions for being part of an optimum currency area, or who expect to meet those conditions after joining the hard currency grouping – will choose to move towards harder pegs. Others will move towards more flexible exchange rates. As noted by Rogoff *et al* (2003), for advanced countries "free floats register faster growth than other regimes without incurring higher inflation".

II. Managed Floating

As is evident from the fact that there are more managed than independent floaters among the floating group for the emerging market and "other" countries, very few countries, if any, are indifferent to the behavior of the exchange rate. For a strict inflation targeting country, the behavior of the exchange rate matters, but only to the extent that it affects inflation. For other countries the nominal exchange rate may matter because changes in the nominal rate also lead to (partially or wholly temporary) changes in the real exchange rate and thus in net exports, which are targets of policy.

Interest rate and/or fiscal policy can be used to try to affect the exchange rate; for instance the Taylor Rule for a central bank that is also targeting the exchange rate can include an additional term in which the interest rate responds to deviations of the real exchange rate from its target level. Monetary policy effects on the real exchange rate are likely to be temporary, but may be of sufficient duration to have a transitional

effect on exports and imports. More fundamentally, changes in fiscal policy can be deployed to affect the real exchange rate over a longer period: by tightening fiscal policy and increasing national saving, the government can expect to generate a real depreciation and increase net exports.

There is also the option of foreign exchange market intervention, which can be seen as introducing an extra policy instrument to deal with an extra target of policy.⁹ Some countries, such as the United States, Chile, and Israel and more recently Japan – as well as the ECB – do not intervene in the exchange markets, or intervene very rarely. Even these central banks have not totally foresworn intervention; rather they reserve the right to intervene if market conditions become disorderly, or in other extreme or emergency situations. If they intended *never* to intervene then they would presumably not hold foreign exchange reserves.¹⁰ In the Israeli case we have not intervened since 1997, and Chile has not intervened since 1998. New Zealand had not intervened since 1985, but did so in 2007.

A policy of non-intervention is however rare among emerging market countries, even those with flexible rates. Among countries listed as having flexible rates in Table 2, Japan (\$544 billion), Russia (\$263 billion), Korea (\$136 billion), and India (\$125 billion) have each accumulated over \$100 billion in reserves since the start of 2001 – and these numbers pale by comparison with the accumulation of over a trillion dollars of reserves by China during that period. Countries may intervene to build up their reserves, as many did after the crises of the 1990s. But just as clearly, and as is well known, the great bulk of the accumulation of reserves during the last few years is a result of the desire to prevent exchange rate appreciation.

Ishii *et al* (2006) identify four circumstances under which countries intervene in the foreign exchange market:¹¹ (i) to correct misalignments or to stabilize the

⁹ The early work on targets and instruments suggested the need for as many instruments as targets. In the presence of uncertainty, having an extra instrument could be useful even if there were not an extra target.

¹⁰ A few years ago the Reserve Bank of New Zealand considered whether to stop holding reserves. This would have sent a powerful though not totally convincing signal that there would be no intervention, because intervention can also be financed by borrowing.

¹¹ Included in Ishii *et al* (2006) is material on the mechanics of foreign exchange intervention, which can be seen as providing a partial answer to the IEO's concerns that Fund staff are not equipped to give practical advice on intervention and other practical exchange rate issues, including how to develop

exchange rate at a predetermined level – in other words, to try to set the exchange rate at a desired level, e.g. one which will encourage exports; (ii) to calm disorderly markets; (iii) to accumulate reserves; and (iv) to supply foreign exchange to the market – this occurs when the government is a major recipient of foreign exchange (e.g. through royalty payments for mineral extraction), and will not be discussed further.¹²

With regard to (ii), the stabilization of disorderly markets: *in extremis*, the central bank may have to intervene to stabilize a disorderly market, but it needs to be aware that the more frequently and easily it intervenes, the more it will impede the development of a deep and robust market, in which it is possible to hedge against exchange rate changes without having to rely on government intervention.¹³ With regard to (iii), the accumulation of reserves, the question is how best to do this. A variety of approaches has been used, including buying preannounced amounts of foreign exchange at a steady rate over a period of months. Other central banks have added to reserves on an opportunistic basis.

Case (i) is most significant from the viewpoint of the new Decision on Bilateral Surveillance, for it relates to exchange rate manipulation. Why might such intervention work? Here the authors identify three channels: (i) a *signaling* channel – where the signal is one about future monetary policy or more generally the authorities' preferences about the desired range of values of the exchange rate; (ii) a *portfolio balance* channel – where the central bank is a sufficiently large player in the foreign exchange market to affect the exchange rate; and (iii) a *microstructure* channel – where the central bank has sufficient information about the operation of the market and the forces active in it to be able to intervene in particular ways or at a particular time such that it can move the rate.

the needed market infrastructure. In any case, it is not entirely clear that the staff should be experts in the nitty-gritty of exchange rate intervention, which is highly country and institution dependent. It is probably better in this area for the Fund to help the central bank of the concerned country to obtain technical assistance from a central bank that is or has been in a similar situation. This was attempted in the Indonesian program in 1997, but it became clear there that the forces moving the exchange rate were too powerful to be stemmed by intervention alone, however sophisticated it might be.

¹² I have avoided using the Calvo-Reinhart term "fear of floating", preferring rather to try to explain why countries often intervene.

¹³ Ishii *et al* (2006) describe the approach of the Mexican authorities, which involved selling options to sell foreign exchange if the exchange rate depreciated to a specified value. This approach may have encouraged the development of hedging instruments by the private sector.

In the face of significant capital flows, these channels are unlikely to be able to influence the rate for very long without supportive macroeconomic policy. That is why it has been so hard to find major effects of intervention *per se* on the exchange rates of the major industrialized countries. However, where capital flows are controlled or the country is not yet well integrated into the global capital markets, and provided policymakers are willing to intervene on a sufficiently large scale, the portfolio balance channel can operate to enable the country to have a sustained effect on the exchange rate, as the Chinese and the Russian cases illustrate.

Interventions are not costless. Unless they are sterilized they are likely to have an inflationary effect, and as they become larger, they become harder to sterilize. If domestic interest rates are higher than those abroad, monetary sterilization is expensive for the central bank; and if in any case the exchange rate will eventually have to appreciate against the currency in which the reserves are held, there will also be potentially large capital losses on the reserves on that account. Clearly though, some countries regard the growth- and export-promoting effects of such actions as worth the cost, for the cost issues are well understood by the countries accumulating reserves on a massive scale.

In cases where the export proceeds accrue to the government, they can be sterilized by being reinvested abroad through a sterilization fund. They can also be sterilized through running a larger fiscal surplus, and building up a stabilization fund that may also invest abroad. Russia has used exchange market intervention and fiscal policy in the form of building up a stabilization fund, but nonetheless is paying a price for its sterilization in terms of inflation that is above the desired level.

Why despite the many reasons central banks may want to intervene in the foreign exchange markets do some central banks do their best not to intervene? In the case of Israel, where there are essentially no capital controls, the non-intervention policy is based on the view that intervention is unlikely to have a sustained effect on the exchange rate, and that monetary policy decisions are more fundamental. Further, we believe that the foreign exchange market works better when market participants do not expect the central bank to intervene except in extreme circumstances, and thus

have to focus in their decisions on the underlying forces that determine the exchange rate.

The passthrough from the exchange rate to prices is large and rapid in Israel – close to 0.3 within a quarter – and exchange rate movements are therefore taken into account in predicting inflation and the effects of interest rate decisions on prices. But this connection has not led us to want to intervene in the foreign exchange market, a decision that we believe – in IMF language – has served the economy well.

III. Other Countries

Turning to countries other than those defined as developed or emerging market countries, Figure 3 shows that while the evolution of exchange rate regimes between 1991 and 1999 was consistent with the bipolar hypothesis, the evolution of exchange rate regimes for this group of countries since 1999 is not. Rather on balance there has been a move from the floating rate to the intermediate regimes.

There has been a considerable amount of movement among exchange rate regimes in Figure 3. Fifteen countries moved into the intermediate regime from the floating regime and six moved from the intermediate regime to floating. El Salvador moved from an intermediate regime to dollarization. Table 3 lists the countries in this group along with their exchange rate regimes; asterisks indicate changes in the exchange rate regime (including shifts among subcategories within the three major categories) between 1999 and 2006, with asterisked numbers in brackets indicating the number of countries in each of the seven categories in the table that were not in that category in 1999.

The economics literature has not yet developed a strong position on which exchange rate system developing countries should adopt. Frankel (1999 and 2004) and Mussa *et al* (2000) emphasize that "no single currency regime is right for all countries or at all times". Nonetheless, Rogoff *et al* (2003) summarize their review of the evidence of the impact of the exchange rate regime on developing countries' economic performance thus: "relatively rigid regimes – pegs and intermediate flexibility arrangements – appear to have enhanced policy credibility and thus helped

achieve lower inflation at little apparent cost in terms of lost growth, higher growth volatility, or more frequent crises."

Mussa *et al* (2000) provide a list of factors that would favor a country pegging its rate: (i) low capital mobility; (ii) a high share of trade with the country to which it is pegged; (iii) the shocks it faces are similar to those facing the country to which it pegs; (iv) it already relies extensively on its partners' currency; (v) fiscal policy is flexible and sustainable; (vi) its labor markets are flexible; (vii) it has high international reserves.

In other words, to sustain a pegged rate a developing economy should have the capacity to perform well and flexibly, and maintain low inflation. Otherwise it would be advised to adopt a floating exchange rate regime, thereby allowing the exchange rate to act as an extra shock absorber. Of course, the requirements listed by Mussa *et al* are also those that, together with a strong financial system, would enable the country successfully to maintain a flexible exchange rate system. Mussa *et al* also note that as countries develop and become more financially sophisticated and more integrated into global markets, they should consider more flexible exchange rate regimes.

This is far from a detailed manual or formula that tells each country what exchange rate system to adopt. Indeed, if the Fund were to develop a detailed manual it would be accused of having a cookie cutter approach to the issue. It is not surprising that there is no such manual, for there is no way of specifying the right exchange rate system for a country without a careful analysis of its circumstances – and there is no question that among those circumstances is its exchange rate regime history. "If it ain't broke – or likely to break soon, or being held together only with the help of economically distortionary and costly measures – don't fix it" is good advice in this area too.

The general presumption then is that as countries become more developed, they should be moving away from intermediate regimes, towards greater flexibility of the exchange rate – or in some cases towards a hard peg.

IV. Exchange Rate Surveillance and Advice

To return now to the new Decision on Bilateral Surveillance, the quotes with which this paper opens raise two questions. First, there seems to be a tension between the focus on an unsustainable balance of payments position, and that on exchange rate manipulation, which relates to an undervalued exchange rate. From the viewpoint of what types of situation might give rise to disruptive exchange rate movements, a currency that is overvalued, or a balance of payments deficit that is so large as to be unsustainable, can give rise to rapid exchange rate movements. One example is the current account deficit of the United States in recent years. There was no exchange rate manipulation; nonetheless by most measures the currency was overvalued. Possibly the overvaluation could be offset – though not fully, so long as other countries maintained their dollar pegs – through fiscal policy, thereby reducing the underlying threat to stability of the global exchange rate system. Which takes us to the second question: why does the decision relate to "exchange rate policies that *result* in external instability, regardless of their purpose ..." (underlining added) rather than to "policies that result in external instability, regardless of their purpose"?

The failure to use fiscal policy to deal with an unsustainable current account deficit would be as deserving of staff and Board censure as would policies – such as sustained intervention – to manipulate the exchange rate to increase net exports. Presumably the emphasis on exchange rate policies was included to deal with the difficulty that if other countries peg to the dollar, then a significant part of the normal adjustment mechanism is neutralized – and that the pegging decision was not that of the United States. That is understandable, but should not have led to what appears to be a too narrow focus on exchange rate policies rather than overall economic policy.

As a central banker from a small economy, I am also concerned that the new decision may focus too narrowly on external stability. For many countries, the Article IV report is the most thorough and professional evaluation of the country's economy and economic policies. As such, it provides a valuable service for the smaller members of the Fund. I hope the new decision does not significantly reduce the scope and depth of Article IV reports for such countries.

There has been a great deal of criticism of the Fund for failing to censure the Chinese authorities more seriously over their exchange rate policies and huge and growing current account surplus. There are two questions to answer here. First, why are the Chinese pursuing these policies? The answer is that the undervaluation and export promotion strategy has been a highly successful growth strategy, not only for China but also for other countries. The policy works, spectacularly so in the case of China.

Second, why have the world's entreaties and pressures – bilateral from the United States, in European-Chinese meetings, and via the Fund's surveillance – to revalue not had a substantial impact on Chinese policies? Presumably for the same reason, that the present policies have worked spectacularly, for China.

The standard analysis of the costs and dangers to China and to the world economy of its massive rate of reserve accumulation is correct. So what should the Fund – newly equipped with the new decision on surveillance – be doing with its analysis? Mussa (2007) asserts that the Fund's management should have taken an increasingly tough stand, mentioning "the possibility of formal censure of a country's policies by the Executive Board as a final resort for those rare and highly regrettable cases where all vigorous but less extreme efforts at persuasion have failed".

There is no question that the Fund staff should state its professional judgment clearly and unambiguously in all surveillance reports. There is also no question that in contacts with the authorities, the staff should be explaining its professional judgments and giving its advice more frankly than is possible in written reports. I am sure that at present, as in the past, very frank but confidential policy discussions take place at all levels with the authorities of member countries. I also believe that these discussions have an impact. But of course, the Fund's capacity to influence a member's policies is greater in the context of a program than in the context of consultations.

One of my mentors once asked me: "Who do you listen to, your friends or your enemies?" The answer is that it is easier to accept advice from friends, whom you believe support your objectives. But it is also necessary to listen to your enemies

– sometimes they are right. Thus the Fund should be working very hard to gain the trust of its member countries (something that a cooperative organization should be doing in any case), should state its views firmly at all times, should press for policy changes that it believes are important through every effective channel, and reserve for very rare occasions a decision to enter into open conflict with a member.

A final word – or rather two final stories – about advice. I was struck by the emphasis the IEO report on IMF exchange rate advice put on country's responses to questions about the quality of the advice they receive from the Fund. The mentor mentioned above used to say when asked for advice "Tell me what advice you would like me to give you." And I fondly remember an aunt who lived in a small town in Zambia who twice a year used to visit my parents in the bigger town in Zimbabwe in which we lived. She had a significant weight problem. Before each visit she would ask my parents to arrange for her to see a doctor. They would ask whether she would like to see the same doctor as last time. She gave the same answer each time: "No, I need a different doctor, that doctor was no good, he told me to eat less."

Sometimes advice is valued less for its quality and more for its agreeableness, and that is simply a fact of life with which the Fund has to contend.

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Figure 1: Developed and Emerging Market Countries: Exchange Rate Regimes, 1991, 1999 and 2006

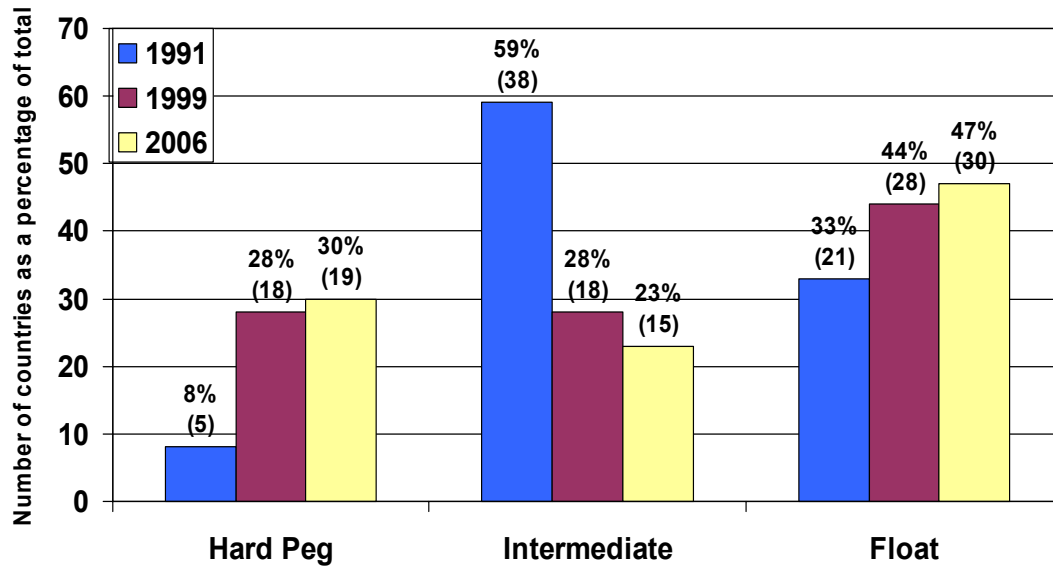


Figure 2a: Developed Countries: Exchange Rate Regimes, 1991, 1999 and 2006

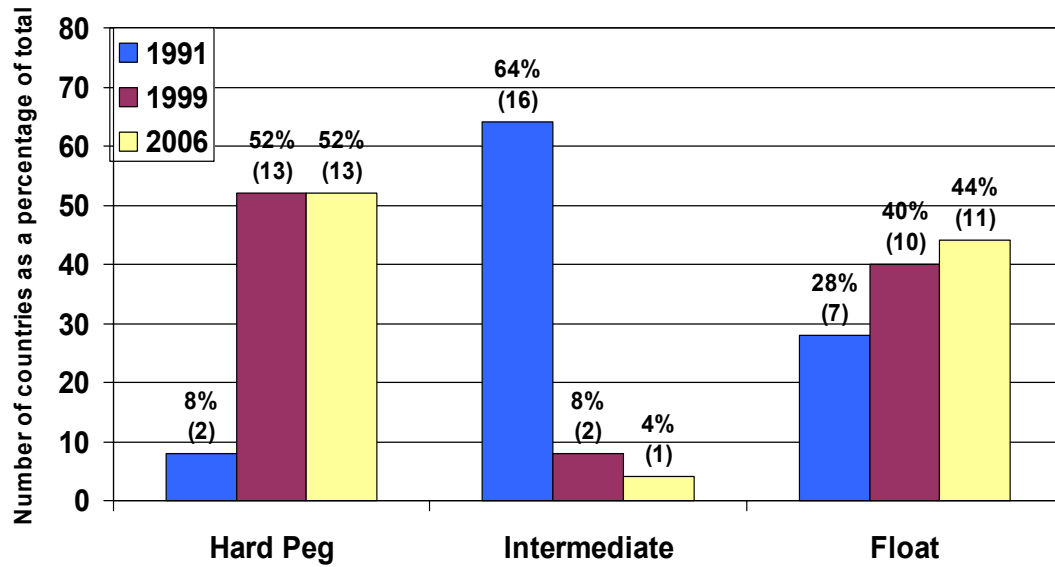


Figure 2b: Emerging Market Countries: Exchange Rate Regimes, 1991, 1999 and 2006

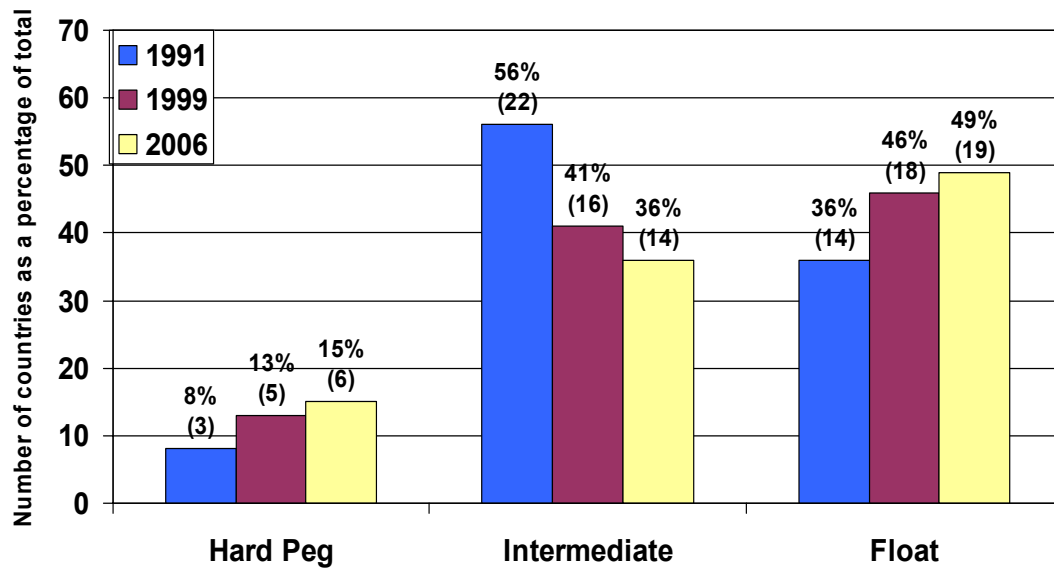


Figure 3: All Other Countries: Exchange Rate Regimes, 1991, 1999 and 2006

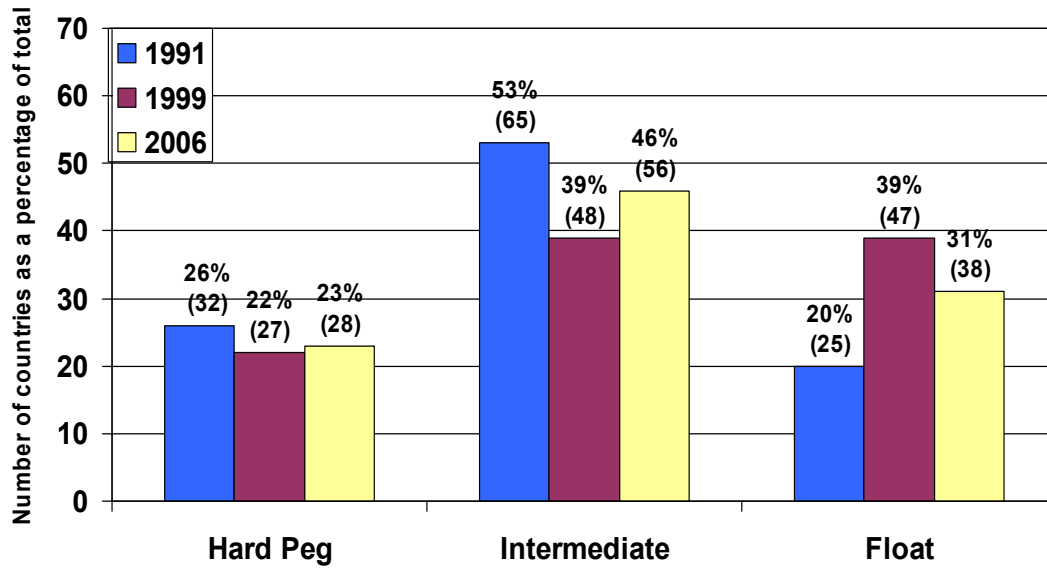


Table 1: De Facto Exchange Rate Classification

Category	Consists of
Hard Peg	No separate legal tender
	Currency Board
Intermediate	Other fixed pegs
	Pegged rate in horizontal band
	Crawling peg
	Rates within crawling bands
Float	Managed float
	Independent float

Table 2a: Advanced Countries Grouped by Exchange Rate Arrangement, (as of December 31,2006

Exchange Rate Regime (Number of Countries)	Countries
No separate legal tender/currency board (13)	Austria, Belgium, Finland, France, Germany, Hong-Kong, Ireland, Italy, Luxembourg, Netherlands, Portugal, San Marino, Spain
Other fixed pegs	
Pegged rate in horizontal band (1)	Denmark
Crawling peg	
Rates within crawling bands	
Managed float (1)	Singapore
Independent float (10) (*2)	Australia, Canada, Iceland(*), Japan, New Zealand, Norway(*), Sweden, Switzerland, United Kingdom, United States

Table 2b: Emerging Markets Countries Grouped by Exchange Rate Arrangement, (as of December 31,2006)

Exchange Rate Regime (Number of Countries)	Countries
No separate legal tender/currency board (6) (*2)	Bulgaria, Ecuador (*), Estonia, Greece (*), Lithuania, Panama
Other fixed pegs (10) (*5)	Argentina (*), Egypt (*), Jordan, Latvia, Morocco, Nigeria (*), Pakistan, Qatar, Slovenia (*), Venezuela(*)
Pegged rate in horizontal band (3) (*2)	Cyprus, Hungary (*), Slovak Republic (*)
Crawling peg (*1)	China (*)
Rates within crawling bands	
Managed float (10) (*6)	Colombia (*), Czech Republic, India, Malaysia (*), Peru (*), Philippines, Romania (*), Russia, Sri Lanka (*), Thailand (*)
Independent float (9) (*3)	Brazil, Chile, Indonesia, Israel (*), Korea, Mexico, Poland (*), South Africa, Turkey (*)

Note: * indicates country whose exchange rate regime has changed since 1999
Source: IMF AREAER database.

Table 3: Other Countries Grouped by Exchange Rate Arrangement, (as of December 31,2006)

Exchange Rate Regime (Number of Countries)	Countries
No separate legal tender/currency board (28) (*1)	Antigua and Barbuda, Benin, Bosnia, Brunei Darussalem, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Rep of, Cote d'Ivoire, Djibouti, Dominica, El Salvador (*), Equatorial Guinea, Gabon, Grenada, Guinea-Bissaeu, Kiribati, Mali, Marshall Islands, Micronesia, Niger, Palau, Senegal, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Togo
Other fixed pegs (51) (*20)	Afghanistan (*), Angola (*), Aruba, Bahamas, Bahrain, Barbados, Belarus (*), Belize, Bhutan, Bolivia (*), Cape Verde, Comoros, Costa Rica (*), Eritrea (*), Ethiopia (*), Fiji, Ghana (*), Guyana (*), Honduras (*), Iran, Kuwait, Lebanon, Lesotho, Libya, Macedonia, Maldives, Malta, Mauritania (*), Mongolia (*), Namibia, Nepal, Netherlands Antilles, Oman, Rwanda (*), Samoa, Saudi Arabia, Sierra Leone (*), Solomon Islands (*), Suriname, Swaziland, Syria, Trinidad and Tobago, Tunisia (*), Turkmenistan, Ukraine (*), United Arab Emirates, Uzbekistan (*), Vanuatu, Vietnam (*), Yemen R. (*), Zimbabwe
Pegged rate in horizontal band (1)	Tonga
Crawling peg (4) (*3)	Azerbaijan (*), Botswana (*), Iraq (*), Nicaragua
Rates within crawling bands	
Managed float (33) (*13)	Algeria, Armenia, Bangladesh (*), Burundi, Cambodia, Croatia, Dominican Republic, Gambia (*), Georgia, Guatemala, Guinea, Haiti (*), Jamaica, Kazakhstan, Kenya, Kyrgyz Republic, Lao PDR, Liberia (*), Madagascar (*), Malawi, Mauritius, Moldova (*), Mozambique (*), Myanmar, Papua New Guinea (*), Paraguay, Sao Tome and Principe, Serbia (*), Seychelles (*), Sudan (*), Tajikistan, Uruguay (*), Zambia (*)
Independent float (5) (*1)	Albania, Congo Democratic Republic (*), Somalia, Tanzania, Uganda

Note: * indicates country whose exchange rate regime has changed since 1999
Source: IMF AREAER database.

Exchange Rate Systems, Surveillance, and Advice

Stanley Fischer^{*}
Bank of Israel

The IMF Executive Board's adoption on June 15 this year of the new Decision on Bilateral Surveillance over Members' Policies puts exchange rate policies at the center of the surveillance process. The Fund's description of the new decision and the differences between it and the 1977 Decision notes that

- "the new Decision introduces a concept of external stability as an organizing principle for bilateral surveillance", where external stability "refers to a balance of payments position that does not, and is not likely to, give rise to disruptive exchange rate movements";
- Article IV's prohibition of exchange rate manipulation relates to policies directed at affecting the level of the exchange rate "in order to prevent effective balance of payments adjustment, or to gain an unfair competitive advantage over other members". A member will be considered to be manipulating the exchange rate to gain an unfair competitive advantage if the Fund determines that the country is trying to increase net exports by promoting an undervalued exchange rate; and
- members should "avoid exchange rate policies that *result* in external instability, regardless of their purpose ..."

A little over a month earlier, the Board had discussed the Independent Evaluation Office's Report "IMF Exchange Rate Advice", which presented a critical view of the advice the Fund had offered in the period 1999-2005 on exchange rate

^{*} Governor, Bank of Israel. This is the Mundell-Fleming lecture, which was delivered at the Eighth Annual Jacques Polak Research Conference at the IMF, November 15, 2007. I am grateful to Thierry Tresselt, Cigdem Akin, Meital Graham, Prachi Mishra, Inci Otker-Robe and Jeromin Zettelmeyer for assistance, and to Mark Allen, Jeff Frankel, Morris Goldstein, Ken Rogoff, and Shakour Shaalan for helpful discussions.

systems, on the level of the exchange rate, and on the mechanics of exchange markets and of intervention. While the criticisms are forceful and in many cases appear appropriate, they suffer from the lack of professional consensus on what the right advice should be. The IEO Evaluation Report struggles with this issue, but does not adequately resolve it, for example when noting (p.28):

"...Of course, when there is little academic consensus on many points, the problem of distilling and establishing operational guidance is more challenging, but management oversight and the right internal structure are therefore all the more critical."

Similarly, in Chapter 5 on "Findings and Recommendations", the Report states (p.37):

"68. To improve assessments of the exchange rate level, the IMF should be at the forefront of developing the needed analytic framework ...

The genuine difficulty in doing this is no excuse for not making more progress."
(italics in original)

In this lecture, I will try to draw together some lessons and questions about exchange rate systems, and attempt to state what is known and what is not known about them. I will also comment on problems of IMF surveillance. I start in Section I by revisiting the bipolar issue with regard to exchange rates, restating the hypothesis and updating it in light of events of this decade. I will argue that the bipolar view is fundamentally correct for emerging market and industrialized countries *with open capital accounts* –a qualification that was stated in Fischer (2001), but that was perhaps not adequately stressed. In Section II I discuss managed floating regimes and exchange market intervention, for countries with open capital accounts. Section III is devoted to the choice of exchange rate regime for countries whose capital account is not open; and I conclude with comments on IMF surveillance and advice.

I. The Bipolar Hypothesis

The bipolar hypothesis about exchange rates has come in for serious criticism. For example, Jeffrey Frankel (2004) argues that there is no analytic rationale for the argument of the disappearing intermediate regime. The usual justification is the impossible trinity, but Frankel suggests that a variety of managed floats are fully consistent with the impossible trinity – that one can have half-stability and half-independence.

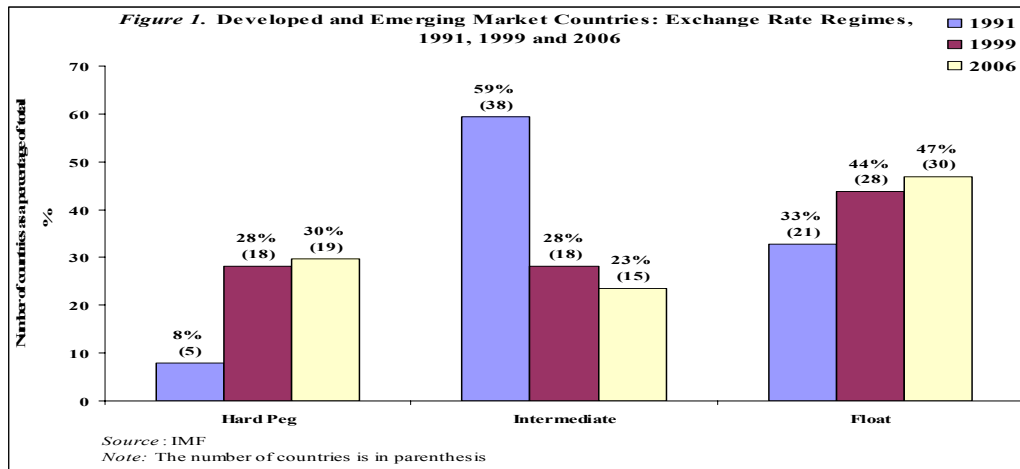
In my 2001 article on the bipolar exchange rate approach, I tried to clarify the hypothesis, and I shall have to quote extensively (Fischer, 2004, p.229):

"... proponents of what is now known as the bipolar view – myself included – probably have exaggerated their point for dramatic effect. The right statement is that *for countries open to international capital flows*: (i) soft exchange rate pegs are not sustainable; but (ii) a wide variety of flexible rate regimes remain possible; and (iii) it is to be expected that policy in most countries will not be indifferent to exchange rate movements. To put the point graphically, if exchange rate arrangements lie along a line connecting hard pegs like currency unions, currency boards, and dollarization on the left, with free floating on the right, the intent of the bipolar view is not to rule out everything but the two corners, but rather to pronounce as unsustainable a segment of that line representing a variety of soft pegging exchange rate arrangements. [italics in the original]

... For countries open to international capital flows, it [the bipolar view] includes as sustainable regimes both very hard pegs and a variety of floating rate arrangements, including managed floats. For countries not yet open to international capital flows, it includes the full gamut of exchange rate arrangements.

The question that then arises is what exchange rate arrangements are excluded by the bipolar view. The answer is: for countries open to international capital flows, exchange rate systems in which the government is viewed as being committed to defending a particular value of the exchange rate, or a narrow range of exchange rates, but has not made the institutional commitments that both constrain and enable monetary policy to be devoted to the sole goal of defending the parity. ..."

During the decade of the 1990s, it seemed that exchange rate systems were becoming bipolar in the sense defined above, as can be seen in the comparison *for developed and emerging market countries*¹ between the data for 1991 and 1999 in Figure 1.² Figure 1 also shows what has happened since then for the group of developed and emerging market countries. In brief, the shift towards bipolarity that was evident in the data for 1991-1999, has continued, but at a reduced pace. The major changes in the distribution between 1991 and 1999 were due to the introduction of the Euro and the emerging market financial crises of that decade. Nothing on a similar scale has happened in this decade, although the number of countries in EMU continues to grow, albeit slowly.



As a reminder, the classification of exchange rate systems used in Figure 1, and in my previous paper, is that of the staff of the IMF, based on their evaluation of the *de facto* exchange rate arrangement in place at the time.³ Table 1 lists the

¹ I use the "Developed and emerging market countries" category as an approximation to countries whose capital accounts are open, though in fact that is not true for all the countries listed as emerging (see Table 2), among them China.

² The data in this paper differ somewhat from those in Fischer (2001), because in the former the exchange rate regimes as of each year relate to countries that were members of the Fund in that particular year, whereas in this paper the data for each year are those for countries that were Fund members in 2006.

³ The approach is described in Bubula and Otker-Robe (2002). See also, IMF (2003). As of the time of writing of this paper, the staff of the IMF is preparing a new classification of exchange rate regimes that will make more use of quantitative information on exchange rate behaviors and reserves, instead of qualitative information as in the current *de facto* exchange rate classification. This new classification will change how currency unions are treated, for example EMU countries will be classified as "independently floating". Moreover, a new category of "tightly managed float" is being introduced. This new *de facto* classification, however, will not be retroactive, so there will be a break in the series in 2007. It is clear that for a member of the EMU, the exchange rate of the currency it uses is independently floating. But it is also clear that for almost all or all EMU members, the exchange rate of the currency they use is absolutely fixed against the currencies of the countries that account for the

categories of exchange rate regimes, with the intermediate grouping consisting of varieties of less than very hard pegs, include crawling pegs and bands. The floating category consists of "managed float" and "independent float", the latter less managed than the former.

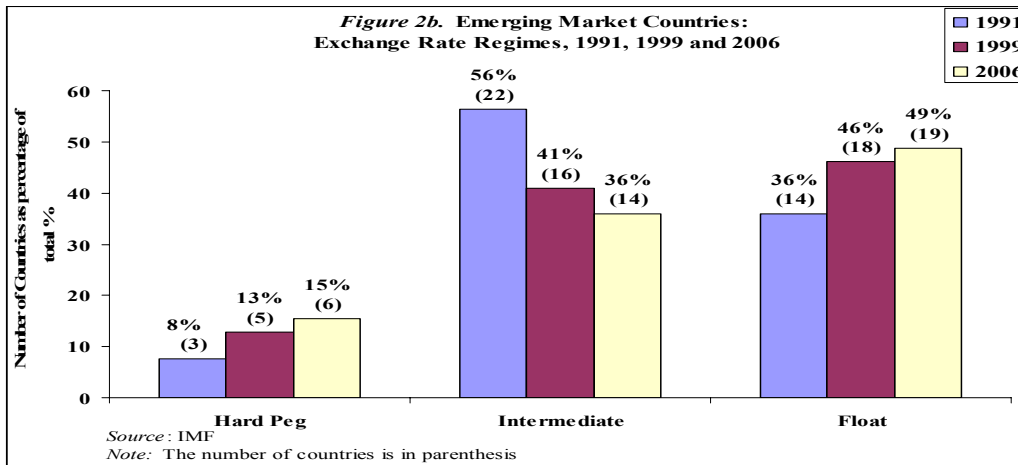
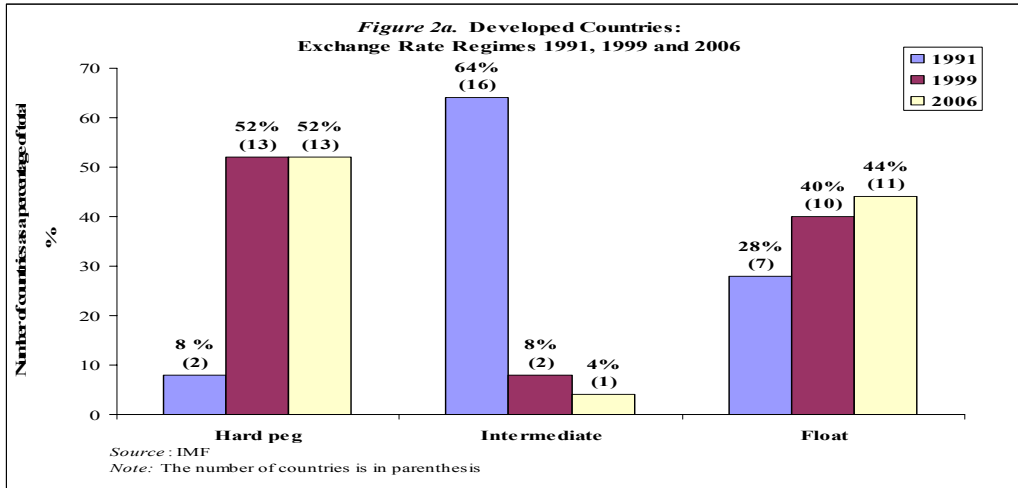
Table 1: De Facto Exchange Rate Classification

Category	Consists of
Hard Peg	No separate legal tender
	Currency Board
Intermediate	Other pegs
	Pegged rate in horizontal band
	Crawling peg
	Rates within crawling bands
Float	Managed float
	Independent float

source: IMF AREAER database

Figure 2 breaks the "Advanced and emerging market countries" grouping down into its two parts – for advanced (Figure 2a) and emerging market (Figure 2b) countries respectively. Among the 25 advanced countries, bipolarity is almost complete, with only Denmark, which shadows EMU monetary policy, in the intermediate category. Among the 39 emerging market countries, a considerable number still remains in the intermediate category. Tables 2a and 2b list the advanced and emerging market countries and their exchange rate regimes. Note that the intermediate category for the emerging market countries includes five countries that are in the process of joining EMU, so that the shift to bipolarity for this country grouping is likely to continue in the coming years.

great bulk of their trade. This suggests a note of caution about the reclassification of these countries' currency regimes.



It thus appears that the bipolarity view is broadly consistent with recent exchange rate regime developments, for the advanced and emerging market countries grouping. I should though emphasize two qualifications. First, the bipolarity hypothesis is about countries open to international capital flows, which is why the data examined in Figures 1 and 2 are for the advanced and emerging market group – though, to be sure, some of the countries listed as "emerging market" have significant capital controls. Second, the "floating" group does not consist only of freely or almost freely floating exchange rate regimes, for it includes managed floats: indeed, for both the emerging market and "other" categories, there are more "managed" than "independent" floaters among the countries listed as having floating exchange rates. ; Further even among the "independent" emerging market floaters, there are several countries that intervene frequently and significantly.

Table 2a. Advanced Countries Grouped by Exchange Rate Arrangement
(as of December 31, 2006)

Exchange Rate Regime (Number of Countries)	Countries
No separate legal tender/currency board (13)	Austria, Belgium, Finland, France, Germany, Hong-Kong, Ireland, Italy, Luxembourg, Netherlands, Portugal, San Marino, Spain
Other fixed pegs	
Pegged rate in horizontal band (1)	Denmark
Crawling peg	
Rates within crawling bands	
Managed float (1)	Singapore
Independent float (10) (*2)	Australia, Canada, Iceland(*), Japan, New Zealand, Norway(*), Sweden, Switzerland, United Kingdom, United States

Source: IMF AREAER database

Note: * indicates country whose exchange rate regime has changed since 1999

Table 2b. Emerging Market Countries Grouped by Exchange Rate Arrangement
(as of December 31, 2006)

Exchange Rate Regime (Number of Countries)	Countries
No separate legal tender/currency board (6) (*2)	Bulgaria, Ecuador (*), Estonia, Greece (*), Lithuania, Panama
Other fixed pegs (10) (*5)	Argentina (*), Egypt (*), Jordan, Latvia, Morocco, Nigeria (*), Pakistan, Qatar, Slovenia (*), Venezuela (*)
Pegged rate in horizontal band (3) (*2)	Cyprus, Hungary (*), Slovak Republic (*)
Crawling peg (*1)	China (*)
Rates within crawling bands	
Managed float (10) (*6)	Colombia (*), Czech Republic, India, Malaysia (*), Peru (*), Philippines, Romania (*), Russia, Sri Lanka (*), Thailand (*)
Independent float (9) (*3)	Brazil, Chile, Indonesia, Israel (*), Korea, Mexico, Poland (*), South Africa, Turkey (*)

Source: IMF AREAER database

Note: * indicates country whose exchange rate regime has changed since 1999

The well-known difficulty of classifying exchange rate systems has led to a considerable literature, including articles by Levy-Yeyati and Sturzenegger (2000), Reinhart and Rogoff (2004), Frankel (2004),⁴ Eichengreen and Razo-Garcia (2006), Tavlas, Dellas and Stockman (2006), and others. The fundamental issue in the classification discussion relates to how to classify countries whose policies appear to be different than they are declared to be by the country (or by someone else's classification scheme). For instance, how should one classify countries that declare they have a pegged exchange rate but that in practice change the peg frequently? Or, as in the case of the "freely falling" category of Reinhart and Rogoff, how should one classify rates that are flexible only because extremely high inflation prevents their being anything other than flexible? And most important from the viewpoint of this

⁴ Frankel (2004) notes: "Placing actual countries into ... categories is far more difficult than one who has never tried it would guess".

paper, how should one classify heavily managed exchange rate regimes that are in principle flexible, but where the authorities intervene frequently and extensively?⁵

While this discussion is important, I believe *the essential question is whether the authorities are committed to defending a particular exchange rate or narrow range of exchange rates*, for these are the unstable exchange rate regimes when the capital account is open. Further, while there are countries whose currencies float freely, as noted in the quote from my 2001 paper above I do not regard intervention *per se* as being inconsistent with an exchange rate that is defined as flexible.

The data presented thus far relate to the proposition that as countries become more advanced and open their capital accounts, they also tend to leave the middle ground of soft pegs, and move towards either a hard peg or a floating (including managed floating) regime.⁶ Another way of examining this proposition is to focus on the empirical relationship between countries' choice of exchange rate regime and the extent of their capital controls. The IMF has an index of capital controls for which the latest year is 2005.⁷ It is available for only 90 of the 186 countries for which exchange rate regime data are available.

A probit regression was run of the exchange rate regime (coded 1 if an intermediate regime, 0 otherwise) on the extent of capital controls, an index that runs from zero to one (e.g. Japan and the UK are zero, the United States is 0.2, and India is 0.95). The estimated relationship is positive but weak,⁸ and significant only at the 15% level. On further examination of the data, it appears that there might be a bias with regard to the countries for which capital controls data are available: among the advanced countries, the capital controls index is available for 23 out of 25 countries; for the emerging market countries, the capital controls variable is available for 32 out of 39 countries; and for the "other" category (data on which are presented in Table 3

⁵ From the viewpoint of this paper, I should add that the grouping of countries into "advanced", "emerging market", and "other" categories is also not entirely obvious *ex ante*.

⁶ While this is a statement about facts, I also believe – for reasons that will be explained below – that countries *should* move away from the soft center as they remove capital controls.

⁷ The capital controls data are from the AREAER database.

⁸ The coefficient on the capital controls variable is 0.20, implying that a one point increase in the capital controls variable – which runs from zero to one – increases the probability that the exchange rate regime is intermediate only by 20 percent.

below), capital controls data are available for only 35 of 118 countries. It is quite likely that the extent of capital controls among the countries in the "other" group for whom the capital controls index is not available, is significantly higher than in the advanced and emerging market groupings. The frequency of intermediate regimes is also higher in the "other" group (47.5% versus 4% for advanced countries and 35.9% for emerging market countries).

Table 3. Other Countries Grouped by Exchange Rate Arrangement
(as of December 31, 2006)

Exchange Rate Regime (Number of Countries)	
No separate legal tender/currency board (28) (*1)	Antigua and Barbuda, Benin, Bosnia, Brunei Darussalam, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Rep of, Cote d'Ivoire, Djibouti, Dominica, El Salvador (*), Equatorial Guinea, Gabon, Grenada, Guinea-Bissau, Kiribati, Mali, Marshall Islands, Micronesia, Niger, Palau, Senegal, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Togo
Other fixed pegs (51) (*20)	Afghanistan (*), Angola (*), Aruba, Bahamas, Bahrain, Barbados, Belarus (*), Belize, Bhutan, Bolivia (*), Cape Verde, Comoros, Costa Rica (*), Eritrea (*), Ethiopia (*), Fiji, Ghana (*), Guyana (*), Honduras (*), Iran, Kuwait, Lebanon, Lesotho, Libya, Macedonia, Maldives, Malta, Mauritania (*), Mongolia (*), Namibia, Nepal, Netherlands Antilles, Oman, Rwanda (*), Samoa, Saudi Arabia, Sierra Leone (*), Solomon Islands (*), Suriname, Swaziland, Syria, Trinidad and Tobago, Tunisia (*), Turkmenistan, Ukraine (*), United Arab Emirates, Uzbekistan (*), Vanuatu, Vietnam (*), Yemen R. (*), Zimbabwe
Pegged rate in horizontal band (1)	Tonga
Crawling peg (4) (*3)	Azerbaijan (*), Botswana (*), Iraq (*), Nicaragua
Rates within crawling bands	
Managed float (33) (*13)	Algeria, Armenia, Bangladesh (*), Burundi, Cambodia, Croatia, Dominican Republic, Gambia (*), Georgia, Guatemala, Guinea, Haiti (*), Jamaica, Kazakhstan, Kenya, Kyrgyz Republic, Lao PDR, Liberia (*), Madagascar (*), Malawi, Mauritius, Moldova (*), Mozambique (*), Myanmar, Papua New Guinea (*), Paraguay, Sao Tome and Principe, Serbia (*), Seychelles (*), Sudan (*), Tajikistan, Uruguay (*), Zambia (*)
Independent float (5) (*1)	Albania, Congo Democratic Republic (*), Somalia, Tanzania, Uganda

source: IMF AREAER database

Note: * indicates country whose exchange rate regime has changed since 1999

I would like here to make two comments on the impossible trinity, in relation to Jeff Frankel's statement that one can have half stability and half independence of monetary policy. In the first instance, while the impossible trinity is usually stated in terms of an independent *monetary* policy, it should more accurately be stated in terms of independent *macroeconomic policy*, for when a currency comes under serious pressure, typically both monetary and fiscal policy have to adjust if the exchange rate is to be maintained. This was, for instance, clear in the collapse of the Argentine currency peg.

Second, an "independent" monetary policy in this context is one that is targeted at something other than the exchange rate. For many countries that have given up exchange rate pegging, the monetary regime switches to inflation targeting, in practice typically flexible inflation targeting. For others, monetary policy is directed to a range of targets, including inflation and growth, sometimes also the real exchange rate, with tradeoffs among them to be determined by the policymakers. Once the goals of monetary policy have been specified, monetary policy is no longer

independent of the factors that move the economic variables that it is targeting. For instance, in setting the policy interest rate, the Bank of Israel, an inflation targeter, has to take into account changes in foreign interest rates that affect the exchange rate and through it the inflation rate.

Thus in practice by giving up exchange rate pegging and shifting to inflation targeting, a central bank does not gain monetary independence in the sense that its monetary policy becomes independent of monetary policy – more generally of economic developments – in other countries. Rather it has switched from targeting one economic variable – the exchange rate – to another, namely the inflation rate, both of which depend to differing extents on economic developments abroad and at home. This appears to be the meaning of Jeffrey Frankel's statement that a country can have half stability and half monetary policy independence [of the exchange rate].

Why then the general recommendation to countries to avoid the intermediate regimes if they are open to capital movements? Primarily because such regimes are crisis prone, in part because their policy dynamics are unstable: we are all familiar with the syndrome in which when the exchange rate is not under pressure, the country sees no need to change the regime; and when it is under pressure the country is reluctant to change it because it is unclear by how much it will have to change if it is repegged, or where it will go if it is allowed to find its own level. As they develop and open their capital accounts, some countries that have good reasons to do so – for instance those who meet the conditions for being part of an optimum currency area, or who expect that after joining the hard currency grouping, will meet those conditions – will choose to move towards harder pegs. Others will move towards more flexible exchange rates. As noted by Rogoff *et al* (2003), for advanced countries "free floats register faster growth than other regimes without incurring higher inflation".

II. Managed Floating

As is evident from the fact that there are more managed than independent floaters among the floating group for the emerging market and "other" countries, very few countries, if any, are indifferent to the behavior of the exchange rate. For a strict inflation targeting country, the behavior of the exchange rate matters, but only to the

extent that it affects inflation. For other countries the nominal exchange rate may matter because changes in the nominal rate also lead to (partially or wholly temporary) changes in the real exchange rate and thus in net exports, which are targets of policy.

Interest rate and/or fiscal policy can be used to try to affect the exchange rate; for instance the Taylor Rule for a central bank that is also targeting the exchange rate can include an additional term in which the interest rate responds to deviations of the real exchange rate from its target level. Monetary policy effects on the real exchange rate are likely to be temporary, but may be of sufficient duration to have a transitional effect on exports and imports. More fundamentally, changes in fiscal policy can be deployed to affect the real exchange rate over a longer period: by tightening fiscal policy and increasing national saving, the government can expect to generate a real depreciation and increase net exports.

There is also the option of foreign exchange market intervention, which can be seen as introducing an extra policy instrument to deal with an extra target of policy.⁹ Some countries, such as the United States, Chile, and Israel and more recently Japan – as well as the ECB – do not intervene in the exchange markets, or intervene very rarely. Even these central banks have not totally foresworn intervention; rather they reserve the right to intervene if market conditions become disorderly, or in other extreme or emergency situations. If they intended *never* to intervene then they would presumably not hold foreign exchange reserves.¹⁰ In the Israeli case we have not intervened since 1997, and Chile has intervened only twice since 1999. New Zealand had not intervened since 1985, but did so in 2007.

A policy of non-intervention is however rare among emerging market countries, even those with flexible rates. Among countries listed as having flexible rates in Table 2, Japan (\$544 billion), Russia (\$263 billion), Korea (\$136 billion), and India (\$125 billion) have each accumulated over \$100 billion in reserves since the

⁹ The early work on targets and instruments suggested the need for as many instruments as targets. In the presence of uncertainty, having an extra instrument could be useful even if there were not an extra target.

¹⁰ A few years ago the Reserve Bank of New Zealand considered whether to stop holding reserves. This would have sent a powerful though not totally convincing signal that there would be no intervention, because intervention can also be financed by borrowing.

start of 2001 – and these numbers pale by comparison with the accumulation of over a trillion dollars of reserves by China during that period. Countries may intervene to build up their reserves, as many did after the crises of the 1990s. But clearly, the great bulk of the accumulation of reserves during the last few years is a result of the desire to prevent exchange rate appreciation.

Ishii *et al* (2006) identify four circumstances under which countries intervene in the foreign exchange market:¹¹ (i) to correct misalignments or to stabilize the exchange rate at a predetermined level – in other words, to try to set the exchange rate at a desired level, e.g. one which will encourage exports; (ii) to calm disorderly markets; (iii) to accumulate reserves; and (iv) to supply foreign exchange to the market – this occurs when the government is a major recipient of foreign exchange (e.g. through royalty payments for mineral extraction), and will not be discussed further.¹²

With regard to (ii), the stabilization of disorderly markets: *in extremis*, the central bank may have to intervene to stabilize a disorderly market, but it needs to be aware that the more frequently and easily it intervenes, the more it will impede the development of a deep and robust market, in which it is possible to hedge against exchange rate changes without having to rely on government intervention.¹³ With regard to (iii), the accumulation of reserves, the question is how best to do this. A variety of approaches has been used, including buying preannounced amounts of foreign exchange at a steady rate over a period of months. Other central banks have added to reserves on an opportunistic basis.

¹¹ Included in Ishii *et al* (2006) is material on the mechanics of foreign exchange intervention, which can be seen as providing a partial answer to the IEO's concerns that Fund staff are not equipped to give practical advice on intervention and other practical exchange rate issues, including how to develop the needed market infrastructure. In any case, it is not entirely clear that the staff should be experts in the nitty-gritty of exchange rate intervention, which is highly country and institution dependent. It is probably better in this area for the Fund to help the central bank of the concerned country to obtain technical assistance from a central bank that is or has been in a similar situation. This was attempted in the Indonesian program in 1997, but it became clear there that the forces moving the exchange rate were too powerful to be stemmed by intervention alone, however sophisticated it might be.

¹² I have avoided using the Calvo-Reinhart term "fear of floating", preferring rather to try to explain why countries often intervene.

¹³ Ishii *et al* (2006) describe the approach of the Mexican authorities, which involved selling options to sell foreign exchange if the exchange rate depreciated to a specified value. This approach may have encouraged the development of hedging instruments by the private sector.

Case (i) is most significant from the viewpoint of the new Decision on Bilateral Surveillance, for it relates to exchange rate manipulation. Why might such intervention work? Here the authors identify three channels: (i) a *signaling* channel – where the signal is one about future monetary policy or more generally the authorities' preferences about the desired range of values of the exchange rate; (ii) a *portfolio balance* channel – where the central bank is a sufficiently large player in the foreign exchange market to affect the exchange rate; and (iii) a *microstructure* channel – where the central bank has sufficient information about the operation of the market and the forces active in it to be able to intervene in particular ways or at a particular time such that it can move the rate.

In the face of significant capital flows, these channels are unlikely to be able to influence the rate for very long without supportive macroeconomic policy. That is why it has been so hard to find major effects of intervention *per se* on the exchange rates of the major industrialized countries. However, where capital flows are controlled or the country is not yet well integrated into the global capital markets, and provided policymakers are willing to intervene on a sufficiently large scale, the portfolio balance channel can operate to enable the country to have a sustained effect on the exchange rate, as the Chinese and the Russian cases illustrate.

Interventions are not costless. Unless they are sterilized they are likely to have an inflationary effect, and as they become larger, they become harder to sterilize. If domestic interest rates are higher than those abroad, monetary sterilization is expensive for the central bank; and if in any case the exchange rate will eventually have to appreciate against the currency in which the reserves are held, there will also be potentially large capital losses on the reserves on that account. Clearly though, some countries regard the growth- and export-promoting effects of such actions as worth the cost, for the cost issues are well understood by the countries accumulating reserves on a massive scale.

In cases where the export proceeds accrue to the government, they can be sterilized by being reinvested abroad through a sterilization fund. They can also be sterilized through running a larger fiscal surplus, and building up a stabilization fund that may also invest abroad. Russia has used exchange market intervention and fiscal

policy in the form of building up a stabilization fund, but nonetheless is paying a price for its sterilization in terms of inflation that is above the desired level.

Why despite the many reasons central banks may want to intervene in the foreign exchange markets do some central banks do their best not to intervene? In the case of Israel, where there are essentially no capital controls, the non-intervention policy is based on the view that intervention is unlikely to have a sustained effect on the exchange rate, and that monetary policy decisions are more fundamental. Further, we believe that the foreign exchange market works better when market participants do not expect the central bank to intervene except in extreme circumstances, and thus have to focus in their decisions on the underlying forces that determine the exchange rate.

The passthrough from the exchange rate to prices is large and rapid in Israel – close to 0.3 within a quarter – and exchange rate movements are therefore taken into account in predicting inflation and the effects of interest rate decisions on prices. But this connection has not led us to want to intervene in the foreign exchange market, a decision that we believe – in IMF language – has served the economy well.

III. Other Countries

Turning to countries other than those defined as developed or emerging market countries, Figure 3 shows that while the evolution of exchange rate regimes between 1991 and 1999 was consistent with the bipolar hypothesis, the evolution of exchange rate regimes for this group of countries since 1999 is not. Rather on balance there has been a move from the floating rate to the intermediate regimes.

There has been a considerable amount of movement among exchange rate regimes in Figure 3. Fifteen countries moved into the intermediate regime from the floating regime and six moved from the intermediate regime to floating. El Salvador moved from an intermediate regime to dollarization. Table 3 lists the countries in this group along with their exchange rate regimes; asterisks indicate changes in the exchange rate regime (including shifts among subcategories within the three major categories) between 1999 and 2006, with asterisked numbers in brackets indicating

the number of countries in each of the seven categories in the table that were not in that category in 1999.

The economics literature has not yet developed a strong position on which exchange rate system developing countries should adopt. Frankel (1999 and 2004) and Mussa *et al* (2000) emphasize that "no single currency regime is right for all countries or at all times". Nonetheless, Rogoff *et al* (2003) summarize their review of the evidence of the impact of the exchange rate regime on developing countries' economic performance thus: "relatively rigid regimes – pegs and intermediate flexibility arrangements – appear to have enhanced policy credibility and thus helped achieve lower inflation at little apparent cost in terms of lost growth, higher growth volatility, or more frequent crises."

Mussa *et al* (2000) provide a list of factors that would favor a country pegging its rate: (i) low capital mobility; (ii) a high share of trade with the country to which it is pegged; (iii) the shocks it faces are similar to those facing the country to which it pegs; (iv) it already relies extensively on its partners' currency; (v) fiscal policy is flexible and sustainable; (vi) its labor markets are flexible; (vii) it has high international reserves.

In other words, to sustain a pegged rate a developing economy should have the capacity to perform well and flexibly, and maintain low inflation. Otherwise it would be advised to adopt a floating exchange rate regime, thereby allowing the exchange rate to act as an extra shock absorber. Of course, the requirements listed by Mussa *et al* are also those that, together with a strong financial system, would enable the country successfully to maintain a flexible exchange rate system. Mussa *et al* also note that as countries develop and become more financially sophisticated and more integrated into global markets, they should consider more flexible exchange rate regimes.

This is far from a detailed manual or formula that tells each country what exchange rate system to adopt. Indeed, if the Fund were to develop a detailed manual it would be accused of having a cookie cutter approach to the issue. It is not surprising that there is no such manual, for there is no way of specifying the right

exchange rate system for a country without a careful analysis of its circumstances – and there is no question that among those circumstances is its exchange rate regime history. "If it ain't broke, don't fix it" – unless it is likely to break soon, or is being held together only with the help of economically distortionary and costly measures – is good advice in this area too.

The general presumption then is that as countries become more developed, they should be moving away from intermediate regimes, towards greater flexibility of the exchange rate – or in some cases towards a hard peg.

IV. Exchange Rate Surveillance and Advice

To return now to the new Decision on Bilateral Surveillance, the quotes with which this paper opens raise two questions. First, there seems to be a tension between the focus on an unsustainable balance of payments position, and that on exchange rate manipulation, which relates to an undervalued exchange rate. From the viewpoint of what types of situation might give rise to disruptive exchange rate movements, a currency that is overvalued, or a balance of payments deficit that is so large as to be unsustainable, can give rise to rapid exchange rate movements. One example is the current account deficit of the United States in recent years. There was no exchange rate manipulation; nonetheless by most measures the currency was overvalued. Possibly the overvaluation could be offset – though not fully, so long as other countries maintained their dollar pegs – through fiscal policy, thereby reducing the underlying threat to stability of the global exchange rate system. Which takes us to the second question: why does the decision relate to "exchange rate policies that *result* in external instability, regardless of their purpose ..." (underlining added) rather than to "policies that result in external instability, regardless of their purpose"?

The failure to use fiscal policy to deal with an unsustainable current account deficit would be as deserving of staff and Board censure as would policies – such as sustained intervention – to manipulate the exchange rate to increase net exports. Presumably the emphasis on exchange rate policies was included to deal with the difficulty that if other countries peg to the dollar, then a significant part of the normal adjustment mechanism is neutralized – and that the pegging decision was not that of

the United States. That is understandable, but should not have led to what appears to be a too narrow focus on exchange rate policies rather than overall economic policy.

As a central banker from a small economy, I am also concerned that the new decision may focus too narrowly on external stability. For many countries, the Article IV report is the most thorough and professional evaluation of the country's economy and economic policies. As such, it provides a valuable service for the smaller members of the Fund. I hope the new decision does not significantly reduce the scope and depth of Article IV reports for such countries.

There has been a great deal of criticism of the Fund for failing to censure the Chinese authorities more seriously over their exchange rate policies and huge and growing current account surplus. There are two questions to answer here. First, why are the Chinese pursuing these policies? The answer is that the undervaluation and export promotion strategy has been a highly successful growth strategy, not only for China but also for other countries. The policy works, spectacularly so in the case of China.

Second, why have the world's entreaties and pressures – bilateral from the United States, in European-Chinese meetings, and via the Fund's surveillance – to revalue not had a substantial impact on Chinese policies? Presumably for the same reason, that the present policies have worked spectacularly, for China.

The standard analysis of the costs and dangers to China and to the world economy of its massive rate of reserve accumulation is correct. So what should the Fund – newly equipped with the new decision on surveillance – be doing with its analysis? Mussa (2007) asserts that the Fund's management should have taken an increasingly tough stand, mentioning "the possibility of formal censure of a country's policies by the Executive Board as a final resort for those rare and highly regrettable cases where all vigorous but less extreme efforts at persuasion have failed".

There is no question that the Fund staff should state its professional judgment clearly and unambiguously in all surveillance reports. There is also no question that in contacts with the authorities, the staff should be explaining its professional

judgments and giving its advice more frankly than is possible in written reports. I am sure that at present, as in the past, very frank but confidential policy discussions take place at all levels with the authorities of member countries. I also believe that these discussions have an impact. But of course, the Fund's capacity to influence a member's policies is greater in the context of a program than in the context of consultations.

One of my mentors once asked me: "Who do you listen to, your friends or your enemies?" The answer is that it is easier to accept advice from friends, whom you believe support your objectives. But it is also necessary to listen to your enemies – sometimes they are right. Thus the Fund should be working very hard to gain the trust of its member countries (something that a cooperative organization should be doing in any case), should state its views firmly at all times, should press for policy changes that it believes are important through every effective channel, and reserve for very rare occasions a decision to enter into open conflict with a member.

A final word – or rather two final stories – about advice. I was struck by the emphasis the IEO report on IMF exchange rate advice put on country's responses to questions about the quality of the advice they receive from the Fund. The mentor mentioned above used to say when asked for advice "Tell me what advice you would like me to give you." And I fondly remember an aunt who lived in a small town in Zambia who twice a year used to visit my parents in the bigger town in Zimbabwe in which we lived. She had a significant weight problem. Before each visit she would ask my parents to arrange for her to see a doctor. They would ask whether she would like to see the same doctor as last time. She gave the same answer each time: "No, I need a different doctor, that doctor was no good, he told me to eat less."

Sometimes advice is valued less for its quality and more for its agreeableness, and that is simply a fact of life with which the Fund has to contend.

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