NBER WORKING PAPER SERIES

THE MIRAGE OF EXCHANGE RATE REGIMES FOR EMERGING MARKET COUNTRIES

Guillermo A. Calvo
Frederic S. Mishkin

Working Paper 9808
http://www.nber.org/papers/w9808

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 2003

The Mirage of Exchange Rate Regimes for Emerging Market Countries
Guillermo A. Calvo and Frederic S. Mishkin
NBER Working Paper No. 9808
June 2003
JEL No. F3, F4, E5

ABSTRACT

This paper argues that much of the debate on choosing an exchange rate regime misses the boat. It begins by discussing the standard theory of choice between exchange rate regimes, and then explores the weaknesses in this theory, especially when it is applied to emerging market economies. It then discusses a range of institutional traits that might predispose a country to favor either fixed or floating rates, and then turns to the converse question of whether the choice of exchange rate regime may favor the development of certain desirable institutional traits. The conclusion from the analysis is that the choice of exchange rate regime is likely to be of second order importance to the development of good fiscal, financial, and monetary institutions in producing macroeconomic success in emerging market countries. This suggests that less attention should be focused on the general question whether a floating or a fixed exchange rate is preferable, and more on these deeper institutional arrangements. A focus on institutional reforms rather than on the exchange rate regime may encourage emerging market countries to be healthier and less prone to the crises that we have seen in recent years.

Guillermo A. Calvo
Chief Economist
Inter-American Development Bank
1300 New York Avenue NW
Washington, D.C., 20577
and NBER
gcalvo@iadb.org

Frederic S. Mishkin
Graduate School of Business
Uris Hall 619
Columbia University
New York, NY 10027
and NBER
fsm3@columbia.edu

In recent years, a number of emerging market countries have experienced devastating financial crises and macroeconomic turbulence, including Argentina (2001-2002), Turkey (2000-2001), Ecuador (1999), Russia (1998), east Asia (1997), Mexico (1994-95), and even Chile (1982). In the ensuing post-mortems, an active debate has followed over how the choice of exchange rate regime might have contributed to macroeconomic instability – and conversely, how a shift in exchange rate regime might contribute to improved macroeconomic performance. Should an emerging market economy prefer a floating exchange rate, a fixed exchange rate, or some blend of the two like an exchange rate that was usually fixed but might sometimes shift?

Many countries used to choose an intermediate path: that is, an exchange rate that was often stabilized by the central bank, but might sometimes shift, often known as a "soft peg." However, in the aftermath of the macroeconomic crisis across east Asia in 1997-98, a view emerged that this exchange rate regime was in part responsible for the depth of the macroeconononomic crisis. The governments of Thailand, Malaysia, South Korea, and other nations in that region had kept exchange rates fixed. There was no explicit institutional guarantee that the exchange rate would remain fixed, but the rates had been stable for long enough that local financial institutions borrowed in dollars abroad and then loaned freely in U.S. dollars to domestic borrowers. But when a surge of foreign investment stopped, the existing exchange rate became unsustainable. For example, when the Thai baht collapsed against the U.S. dollar, Thai borrowers were completely unable to repay their dollar-denominated loans – and in turn Thai financial institutions were nearly all insolvent. This meltdown of the financial sector led to an enormous economic contraction.

Thus, one often-told lesson of the east Asian experience is that nations must make a bipolar choice: either choose a framework for credibly guaranteeing a fixed exchange rate, known as a "hard peg," or else accept a freely floating exchange rate.[1] Yet neither of these extreme exchange rate regimes has an unblemished record.

There are two basic ways a government can offer a credible guarantee of a fixed exchange rate: a currency board and full dollarization. In a currency board the note-issuing authority, whether the central bank or the government, fixes a conversion rate for this currency vis-à-vis a foreign currency (say U.S. dollars) and provides full convertibility because it stands ready to exchange domestically issued notes for the foreign currency on demand and has enough international reserves to do so. Full dollarization involves eliminating the domestic currency altogether and replacing it with a foreign currency like the U.S. dollar, which is why it is referred to as dollarization, although it could instead involve the use of another currency like the euro. This commitment is even stronger than a currency board because it makes it much more difficult -- though not impossible -- for the government to regain control of monetary policy and/or set a new parity for the (nonexistent) domestic currency.

Argentina, for example, chose the currency board approach for ensuring a fixed exchange rate. Indeed, Argentina even recognized that full backing of the monetary base may not be enough, because that would leave the banking system without a lender of last resort or a situation where the government might need additional credit, so the Argentines also paid for contingent credit lines. From a legal perspective, the central bank of Argentina was highly independent. But in

[1] For a discussion of the why soft pegs have fallen out of favor and the rise of the bipolar view, see Obstfeld and Rogoff (1995), Eichengreen and Masson (1998), and Fischer (2001) in this journal.

2001, large budget deficits (including contingent government obligations, like supporting state-owned banks) forced the Argentine government to look for a new source of funds. After Domingo Cavallo became Minister of the Economy in April 2001, the supposedly independent central bank president, Pedro Pou, was forced to resign. Soon after, Argentina's prudential and regulatory regime for its financial sector, which had been one of the best in the emerging market world, was weakened. Banks were encouraged and coerced into purchasing Argentine government bonds to fund the fiscal debt. An attempt was made to reactivate the economy via expansive monetary policy. With the value of these bonds declining as the likelihood of default on this debt increased, bank's net worth plummeted. The likely insolvency of the banks then led to a classic run on the banks and a full-scale banking crisis by the end of 2001. Because most debt instruments in Argentina were denominated in U.S. dollars, the depreciation of the Argentinean currency made it impossible for borrowers to earn enough Argentinean currency to repay their dollar-denominated loans. The Argentine financial sector melted down, and the economy as well. Argentina's experiment with its currency board ended up in disaster.

The remaining option of freely floating exchange rates seems unattractive as well. Without further elaboration, "floating exchange rate" means really nothing other than that the regime will allow for *some* exchange rate flexibility. It rules out a fixed exchange rate regime but nothing else. A country that allows a floating exchange rate may pursue a number of very different monetary policy strategies: for example, targeting the money supply, targeting the inflation rate, or a discretionary approach in which the nominal anchor is implicit but not explicit (the "just do it approach", described in Mishkin, 1999b, 2000 and Bernanke et al., 1999). But regardless of the

choice of monetary regime, in many emerging market economies, exports, imports, and international capital flows are a relatively large share of the economy, so large swings in the exchange rate can cause very substantial swings in the real economy. Even a central bank that would prefer to let the exchange rate float must be aware that, if the country's banks have made loans in U.S. dollars, then a depreciation of the currency vs. the dollar can greatly injure the financial system. Under these circumstances, the monetary authority is likely to display "fear of floating" (Calvo and Reinhart, 2002), defined as a reluctance to allow totally free fluctuations in the nominal or real exchange rate, which Mussa (1986) showed are very closely linked.

Thus, the literature on exchange rate regimes seems to have backed itself into a corner where none of the available options is without problems. In this paper, we argue that much of the debate on choosing an exchange rate regime misses the boat. We will begin by discussing the standard theory of choice between exchange rate regimes, and then explore the weaknesses in this theory, especially when it is applied to emerging market economies. We discuss a range of institutional traits that might predispose a country to favor either fixed or floating rates, and then turn to the converse question of whether the choice of exchange rate regime may favor the development of certain desirable institutional traits. Overall, we believe that the key to macroeconomic success in emerging market countries is not primarily their choice of exchange rate regime, but rather the health of the countries fundamental macroeconomic institutions, including the institutions associated with fiscal stability, financial stability and monetary stability. In general, we believe that less attention should be focused on the general question whether a floating or a fixed exchange rate is preferable, and more on these deeper institutional arrangements.

The Standard Theory of Choosing an Exchange Rate Regime

Much of the analysis of choosing an exchange rate regime has taken place using the theory of optimal exchange rate regimes -- and its close relative the theory of optimal currency areas -- which owes much to Mundell (1961) and Poole (1970). Models of choosing an exchange rate regime typically evaluate such regimes by how effective they are in reducing the variance of domestic output in an economy with sticky prices.

If an economy faces primarily nominal shocks – that is, shocks that arise from money supply or demand – then a regime of fixed exchange rates looks attractive. If a monetary shock causes inflation, it will also tend to depreciate a floating exchange rate and thus transmit a nominal shock into a real one. In this setting, the fixed exchange rate provides a mechanism to accommodate a change in the money demand or supply with less output volatility.

On the other hand, if the shocks are real – like a shock to productivity, or to the terms of trade (that is, the relationship between export prices and import prices shifts due to movements in demand or supply) – then exchange rate flexibility of some sort becomes appealing. In this case, the economy needs to respond to a change in relative equilibrium prices, like the relative price of tradables with respect to nontradables. A shift in the nominal exchange rate offers speedy way of implementing such a change -- thus, ameliorating the impact of these shocks on

output and employment (De Grauwe, 1997). On the other hand, if a downturn is driven by real factors in an economy with a fixed exchange rate, the demand for domestic money falls and the central bank is forced to absorb excess money supply in exchange for foreign currency. The result is that (under perfect capital mobility) the decrease in the demand for domestic money leads to an automatic outflow of hard currency and a rise in interest rates. In this case, the hard peg contributes to increasing the depth of the downturn.

This standard model of choosing an exchange rate regime offers some useful insights. However, it ultimately fails to address a challenge issued by Mundell himself in his original 1961 paper and many of the underpinnings of the model do not apply especially well to emerging market economies.

The Mundell Challenge

In Robert Mundell's original 1961 paper on optimum currency areas, Mundell pointed out that this theory implies that the optimality of fixed exchange rates *within* a given country cannot be taken for granted. Why should Texas and New York in the United States, or Tucuman and Buenos Aires in Argentina, share the same currency? These regions are hit by different real shocks and would, according to the standard theory, benefit by the extra degree of freedom provided by having their own currencies and allow them to float against each other. We will call this deep observation the "Mundell challenge."

The usual response to the Mundell challenge is that a country has internal mechanisms that can substitute for regional exchange rate variability, including labor mobility between

regions and compensatory fiscal transfers from the central government. However, these arguments are only partially persuasive. Fiscal transfers, in contrast to currency devaluation, do not change relative prices. Moreover, labor mobility is a poor substitute for exchange rate flexibility. Imagine the social costs of having to ship people from Texas to New York, when a simple movement in the exchange rate would have restored equilibrium.

Indeed, the Mundell challenge cuts even more deeply. After all, why should exchange rate flexibility be limited to large regions like New York or Texas? Why not have differing exchange rates between cities, or neighborhoods? Indeed, why not move to a world of complete contingent contracts, with no money at all, and thus in effect have a different flexible exchange rate for every transaction? Of course, no one has pushed the theory to this implausible extreme. However, *not doing so* implies acknowledging the existence of other factors that are key and, actually, dominate the factors emphasized by the theory of exchange rate regimes.

An important set of such factors relate to the observation that modern economies have not yet been able to function without some kind of money. The fundamental functions of money are to reduce transactions costs and to address liquidity concerns, functions which are especially valuable in a world with seriously incomplete state-contingent markets. A common currency is a useful coordinating mechanism within a national economy, even if it can sometimes go awry. Similarly, a fixed exchange rate may be a useful mechanism for an economy, even if that country faces differential real shocks, because the gains from reducing transactions costs and providing liquidity are great enough. Thus, in choosing an exchange rate regime, it is not enough to analyze the nature of the shocks. The potential benefits from fixed exchange rates must be taken

into account, too.

The Realities of Emerging Market Economies

The standard framework for choosing an exchange rate regime is based on a number of implicit assumptions that do not apply well to many emerging economies. The standard theory presumes an ability to set up institutions that will assure a fixed exchange rate, but after the experience of Argentina, this assumption of an institutional guarantee seems improbable. The standard theory assumes that a time-consistent choice is made on the exchange rate regime, when in many countries the exchange rate regime may frequently shift. In the standard model of exchange rate choices, the focus is on adjustments in goods and labor markets and the financial sector is thoroughly ignored. However, no recent macroeconomic crisis in an emerging market has been free from financial turmoil of one form or another. Finally, as mentioned a moment ago, the standard exchange rate model pays no attention to transaction costs and liquidity considerations that are essential to explain why money should exist in the first place. This issue is especially severe for emerging market economies, where the lack of contingent contracts is more severe than in advanced economies.

To illustrate the shortcomings of the standard model of choosing an exchange rate regime for emerging markets, and also to highlight some of the main issues in making such a choice, it is useful to identify several institutional features that are common in emerging market economies: weak fiscal, financial, and monetary institutions; currency substitution and liability dollarization: and vulnerability to sudden stops of outside capital flows.

Weak fiscal, financial and monetary institutions make emerging market countries highly vulnerable to high inflation and currency crises. A key lesson from the "unpleasant monetarist arithmetic" discussed in Sargent and Wallace (1981) and the recent literature on fiscal theories of the price level (Woodford, 1994 and 1995) is that irresponsible fiscal policy puts pressure on the monetary authorities to monetize the debt, thereby producing rapid money growth, high inflation and downward pressure on the exchange rate. Similarly, poor regulation and supervision of the financial system can result in large losses in bank balance sheets that make it impossible for the monetary authorities to raise interest rates to control inflation or prop up the exchange rate because doing so would likely lead to a collapse of the financial system. Also a frail banking system can produce fiscal instability, and hence high inflation and devaluations, because the need for a bailout can imply a huge unfunded government liability (Burnside, Eichengreen and Rebelo, 2001). Weak monetary institutions in which there is little commitment to the goal of price stability or the independence of the central bank mean that the monetary authorities will not have the support or the tools to keep inflation under control or to prevent large depreciations of the currency. Thus in an economy where the government may run up enormous fiscal deficits, banks are poorly regulated, and the central bank may recklessly expand the money supply, the real value of money cannot be taken for granted.

Firms and individuals in emerging market countries react to the threat that their money may dramatically change in value – either through inflation or the exchange rate – by turning to currency substitution, where they use a foreign currency for many transactions (Calvo and Végh, 1996). Currency substitution is likely to be due not only to past inflationary experience resulting

from weak monetary, fiscal and financial institutions,.but also to the fact that a currency like the U.S. dollar is a key unit of account for international transactions. This phenomenon induces the monetary authority to allow banks to offer foreign exchange deposits – that is, a firm in Argentina can deposit U.S. dollars directly in an Argentine bank without converting to local currency.[2]

Foreign exchange deposits induce banks—partly for regulatory reasons that prevent banks from taking exchange rate risk—to offer loans denominated in foreign currency, usually U.S. dollars, leading to what is called *liability dollarization*. Liability dollarization leads to an entirely different impact of a sharp currency devaluation in an emerging market (Mishkin, 1996; Calvo, 2001). In emerging market countries, a sharp real currency depreciation creates a situation where those who have borrowed in U.S. dollars are unable to repay. The money they are earning is in local currency, but their debts are in U.S. dollars. Thus the net worth of corporations and individuals falls, especially those whose earnings are primarily in local currency. The result is many bankruptcies and loan defaults, a sharp decline in lending and an economic contraction. Liability dollarization may become a major problem for countries where the level of dollar borrowing has been especially high and where the economy is relatively closed so that most parties earn only in local currency, as has recently been the case in several emerging market countries (see Calvo, Izquierdo and Talvi, 2002). However, not all emerging market countries suffer from liability dollarization in a serious way; for example, Chile and

[2] In this fashion, a sudden switch away from domestic and into foreign money need not result in a bank run, since in the presence of foreign exchange deposits, such a portfolio shift could be implemented by simply changing the denomination of bank deposits. Otherwise, deposits would be drawn down to purchase foreign exchange, resulting in a bank run.

South Africa, which have stronger monetary, fiscal and financial institutions, are commonly cited exceptions (Eichengreen, Hausmann and Panizza, 2002).

Vulnerability to large negative changes in capital inflows, which often have a largely unanticipated component (Calvo and Reinhart, 2000), also contribute to susceptibility to currency and financial crises. Table 1 shows the incidence of these "sudden stops" over the last decade. Table 1 shows that this phenomenon is mostly confined to emerging market countries and is more likely to be associated with large currency devaluations in these countries, probably because of their weak fiscal and financial institutions. (The precise definition of a sudden stop and large devaluations are found in the note to the table.) In addition, preliminary evidence suggests that there is a high degree of bunching of sudden stops across emerging market countries. This is especially evident after the Russian 1998 crisis, and the recent Wall Street scandals that included Enron and other firms. This pattern leads us to conjecture that, to a large extent, sudden stops have been a result of factors somewhat external to emerging market countries as a group. In this symposium, Kaminsky and Reinhardt discuss how the process of contagion occurs.

The links from weak institutions and sudden stops to currency substitution and liability dollarization – and then the links from liability dollarization to a collapse balance sheets and economic downturn – naturally differ from country to country.[3] But currency depreciations and

[3] Among the factors that differ across countries, we would like to mention the problem of tax evasion. As a result of tax evasion, the tax base of many emerging market economies is very small, the informal sector large and, thus, any adjustment to shocks causes major distortion in the formal part of the economy, leading to capital flight. Effects could be large if resulting externalities give rise to multiple equilibria (Calvo, 2002).

sudden stops bring about large changes in relative prices, and have a deep impact on income distribution and wealth (Calvo, Izquierdo and Talvi, 2002). In addition, the sudden stop is typically associated with a sharp fall in growth rates if not outright collapse in output and employment. A floating exchange rate is clearly the wrong prescription for this situation, since it allows the sharp depreciation that cripples balance sheets and the financial sector. But under the dual stresses of weak institutions and sudden stops, it is not clear that a fixed exchange rate is sustainable, either. Rather than focusing on the choice of exchange rate regime, the appropriate answer to this situation would seem to be an improvement in fiscal, financial, and monetary institutions. Such an improvement would limit the amount of currency substitution and liability dollarization, and also make the economy more resilient in reacting to sudden stops when they occur. In other (more graphic) words, "it's the institutions stupid."

Choosing Between Exchange Rate Regimes

No exchange rate regime can prevent macroeconomic turbulence. But the choice of exchange rate regime can be better or worse suited to the economic institutions and characteristics of an economy. In the discussion that follows, we will focus primarily on the overall choice between fixed and floating exchange rates. However, it is worth remembering that exchange rate regimes come in a wide variety of arrangements: currency boards, dollarization, soft pegs, crawling bands, free floating, and many others. Moreover, a floating exchange rate regime can be accompanied by a number of different domestically oriented monetary policies

(inflation targeting, monetary targeting, or a "just do it" discretionary approach.)

The Ability to Have Domestic Monetary Policy

The strongest argument in favor of a floating exchange rate regime is that it retains the flexibility to use monetary policy to focus on domestic considerations. In contrast, a hard exchange rate peg leaves very narrow scope for domestic monetary policy, because the interest rate is determined by monetary policy in the anchor country to which the emerging market country has pegged. However, in emerging market economies, this argument is more relevant in some institutional contexts than others.

One difficulty that emerging market economies face is that their capital markets are geared to interest rates set in major financial centers. Frankel, Schmukler and Serven (2002) show, for example, that in Latin America all interest rates reflect changes in U.S. interest rates and, furthermore, that countries that do not peg to the dollar see their interest rates change by a larger factor than those that do. In addition, emerging market economies may be hit as a group with financial contagion, as noted earlier, which will affect their interest rates. The central bank in an emerging market country thus faces real practical difficulties.

Moreover, although a floating exchange rate raises the theoretical possibility for domestic monetary authorities to pursue countercyclical monetary policy, the central bank may not possess this capability in practice. If the monetary authorities have little credibility in terms of their commitment to price stability, then monetary policy may be ineffective. For a central bank without inflation-fighting credibility, an expansionary monetary policy will only lead to an

immediate jump in interest rates and/or the price level.

Building credible monetary institutions is a difficult task. It requires a public and institutional commitment to price stability. Some of this commitment can be expressed through laws and rules that assure the central bank will be allowed to set the monetary policy instruments without interference from the government, that the members of the monetary policy board must be insulated from the political process, and that the central bank is prohibited from funding government deficits. There is a large literature on the forms that central bank independence can take (for example, Cukierman, 1992), but what is written down in the law may be less important than the political culture and history of the country. The contrast between Argentina and Canada is instructive here. Legally, the central bank of Canada does not look particularly independent. In the event of a disagreement between the Bank of Canada and the government, the minister of finance can issue a directive that the bank must follow. However because the directive must be specific and in writing, and because the Bank of Canada is a trusted public institution, a government override of the bank is likely to cost the ruling party heavily in the polls. Thus, in practice the Bank of Canada is highly independent. In contrast, the central bank of Argentina was highly independent from a legal perspective. However, this did not stop the Argentine government from forcing the resignation of the highly respected president of the central bank and replacing him with a president who would do the government's bidding. It is unimaginable in countries like Canada, the United States or in Europe, that the public would tolerate the removal of the head of the central bank in such a manner, and indeed we do not know of any case of this happening in recent history.[4]

[4] The stability of the central bank in advanced countries may be partly explained by the size of the shocks, rather than by some advantage in the political culture. After all, except for the Great Depression,

Many emerging market countries, like Argentina, have had a history of poor support for the price stability goal, and laws supporting central bank independence in these countries are easily overturned. It is therefore important for such countries to develop genuine public and political support for central bank independence as well as legal independence in order to have the ability to successfully conduct domestic monetary policy.

If an emerging market country is able to develop fiscal, financial and monetary institutions that provide credibility for society's pursuit of price stability, then monetary policy can be used to stabilize the economy. Still, not all emerging market countries are up to this task, and so they may decide to choose a hard exchange rate peg instead. (However, the absence of strong institutions may make it difficult for them to sustain the hard peg.)

This interdependence between institutions and exchange rate regimes helps to explain the general empirical finding that whether a country has a fixed or flexible exchange rate tells us little about whether it has higher economic growth or smaller output fluctuations. Indeed, when you look more closely at which emerging market countries have successful macroeconomic performance, the exchange rate regime appears to be far less important than deeper institutional features of the economy relating to fiscal stability, financial stability and the credibility of monetary institutions that promote price stability.[5] However, there is some evidence that floating exchange rate regimes can

---

advanced countries have not been hit by equally large shocks as in Argentina and other emerging market economies.

[5] Indeed, Tommasi (2002) has argued that even deeper institutions, relating to politico-institutional rules as reflected in the constitution, electoral rules and informal practices of the polity, are crucial to the development and sustainability of strong fiscal, financial and monetary institutions. Also, Acemoglu, Johnson, Robinson and Thaicharoen (2003) provide evidence that deeper, fundamental institutions are more crucial to lowering economic volatility and raising growth than are specific macroeconomic policies.

help countries cope with terms-of-trade shocks and might promote economic growth (Broda, 2001 and Levy-Yeyati and Sturzenneger, 2003).

Reducing Inflation

Just as the main advantage of a floating exchange rate may be that it allows the monetary authorities some discretion and flexibility to use monetary policy to cope with shocks to the domestic economy, the main weakness of a floating exchange rate may be that it allows too much discretion to monetary policy and so may not provide a sufficient nominal anchor (for example, Calvo, 2001; Calvo and Mendoza, 2000).

Of course, many emerging market countries have been able to keep inflation under control with flexible exchange rate regimes and this is why the evidence on whether fixed versus floating exchange rate regimes are associated with lower inflation rates on average is not clear cut (e.g., Edwards and Magendzo, 2001 and Reinhart and Rogoff (2002)). But a central bank can only work to reduce inflation if it is supported by the public and the political process. In some countries, giving the central bank an explicit focus on inflation targeting can help focus the public debate so that it supports a monetary policy focus on long-run goals such as price stability (Bernanke et al., 1999). However, these benefits require excellent communication skills on the part of the central bank in what can be a swirling political environment in emerging market countries.

A Misaligned Exchange Rate?

One danger of a hard exchange rate peg is the risk of being locked into a misaligned

exchange rate, which can be defined as a sizable difference between its actual level and the one to which "fundamentals" would dictate. This possibility supports the case for flexible exchange rates, but again the situation is more complex than it may at first seem.

Even in a country with a fixed nominal exchange rate, it is possible to use taxes and subsidies on imports and exports to alter the effective real exchange rate. For example, a uniform tax on imports accompanied by a uniform subsidy on exports of the same size is equivalent to a *real* currency depreciation – even though the nominal exchange rate stays unchanged. Moreover, a tax-and-subsidy-induced fiscal devaluation has one built-in advantage over nominal denomination. The fiscal devaluation has an upper bound, determined by the fact that beyond a certain point tax evasion becomes rampant. Nominal devaluation, on the other hand, has no upper bound and can lead to high inflation.

But fiscal devaluation may be difficult to implement in a timely and effective manner without well-run fiscal institutions. For example, politicians may be quick to impose a tax on imports out of protectionist sentiment, happy to use a fiscal devaluation as an excuse, but then slow to remove that import tax later when the reason for the devaluation has evaporated.

Expanding the Gains from Trade

A hard exchange rate peg will tend to promote openness to trade and economic integration (Frankel and Rose, 2002; Rose, 2000). For example, an exchange rate fixed to the U.S. dollar will likely promote trade with the United States and other countries tied to the U.S. dollar. Fixed exchange rates or even a common regional currency as in the European Monetary

Union (EMU) may help regional economic integration in the context of a common currency may be an attractive project (this point is also discussed further below in connection with the effect of exchange rate regimes on institutions). Thus, countries which are seeking to expand trade would naturally place a higher value on some form of a fixed exchange rate with a trading partner..

Along with gains from trade, an economy that is more open to trade may also be less susceptible to sudden stops. An expansion of trade means that a greater share of businesses are involved in the tradable sector. Because the goods they produce are traded internationally, they are more likely to be priced in foreign currency, which means that their balance sheets are less exposed to negative consequences from a devaluation of the currency when their debts are denominated in foreign currency. Then, a devaluation which raises the value of their debt in terms of domestic currency is also likely to raise the value of their assets as well, thus insulating their balance sheets from the devaluation.[6] Moreover, the more open is the economy, the smaller will be the required real currency depreciation following a sudden stop (Calvo, Izquierdo and Talvi, 2002).

Reducing the Risk Premium in Interest Rates

Advocates of hard exchange rate pegs suggest that it can reduce the currency risk component in domestic interest rates, thus lowering the borrowing costs for both the government and the private sector and improving the outlook for financial deepening, investment and growth. Some, such as Schuler (1999), have even gone so far as to suggest that dollarization will allow domestic interest rates in emerging market countries to converge to those in the United States

However, the risk of government default and the related risk of confiscation of private assets

[6] If traded goods are not denominated in the same foreign currency as the debt, then this insulation may be incomplete unless the currency used for denominating debt moves very closely with the currency used for denominating traded goods.

denominated in both domestic and foreign currency are more likely to be the source of high interest rates in emerging market countries than is currency risk. The experience of Ecuador serves to illustrate this point. The spread between Ecuador's sovereign bonds and U.S. Treasury bonds remained at high levels in the first half of 2000, even though the government had already dollarized in January of the same year. Spreads came down considerably only after the government reached an agreement with its creditors in August 2000 that resulted in a substantial debt reduction of 40 percent. Sound fiscal policies which make government defaults extremely unlikely are thus essential to getting interest rates to approach those in advanced countries. Indeed, Chile, with its flexible exchange rate regime, has been able to achieve lower interest rates on its sovereign debt than Panama, which is dollarized (Edwards, 2001).

Flexibility in Wages and Prices

It is possible that emerging market economies, with their large informal sectors, have greater price and wage flexibility than developed economies. An economy with highly flexible wages and prices has less need of a flexible exchange rate.

To some extent, the degree of flexibility in wages and prices is controlled by government regulation. For example, public sector wages are often a component of the economy that is quite inflexible. However, it may be politically palatable to index public sector wages to their comparable private sector wages, and thus create greater flexibility. In general, an emerging market economy with a greater degree of flexibility in wages and prices will benefit less from the additional flexibility of a floating exchange rate.

Widespread Loans in a Foreign Currency

Liability dollarization makes a policy of freely floating exchange rates more difficult to sustain. When the monetary authority knows that a currency devaluation can lead to extreme stress on the financial sector, it cannot turn a blind eye to exchange rate fluctuations (Mishkin and Savastano, 2001). A large devaluation when there is extensive liability dollarization raises the value of the foreign denominated debt, deals a heavy blow to balance sheets, and therefore can lead to a full-fledged financial crisis (Mishkin, 1996).[7]

The extent of liability dollarization is partly affected by government financial regulatory policy. For example, regulations can help to ensure that financial institutions match up any foreign-denominated liabilities with foreign-denominated assets, and thus reduce currency risk. But even when the banks have equal foreign-denominated (dollar) assets and liabilities, if banks dollar assets are loans to companies in dollars who themselves are unhedged, then banks' are effectively unhedged against currency devaluations because the dollar loans become nonperforming when the devaluation occurs; for discussion of how this problem occurred in Mexico, see Mishkin (1996) and Garber (1999). Thus limiting currency mismatches may require additional government policies to limit liability dollarization or at least reduce the incentives for it to occur. If a country wishes to choose a floating exchange regime, it would be wise to implement financial regulatory policies to discourage currency mismatches and liability dollarization.[8] For example, both Chile and Argentina

[7] Furthermore, it may induce the government to provide subsidized hedging instruments, which could substantially increase fiscal imbalance (this was the case in Brazil after the 1999 large devaluation of the *real*), impairing credibility.

[8] However, the possible costs of pursuing such a policy also have to be taken into account. The literature

experienced a sudden stop after the 1998 Russian crisis, but the impact on the Chilean economy was relatively small because Chile's stronger fiscal, financial and monetary institutions has resulted in much less liability dollarization.

International Reserves

A hard peg exchange rate system, like a currency board, may require a substantial war chest of international reserves. It may seem that a floating exchange rate system could avoid the cost of these reserves, but this would be too simple.

Many large emerging market economies like Mexico, Chile, and Brazil, which have a floating exchange rate and have announced a domestic monetary policy aimed at targetting inflation, also have large international reserves. Indeed, they occasionally hold international reserves in excess of monetary base. Because of these large reserves, it could be said that such countries "float with a large life jacket." Why do large reserves appear to be necessary even with floating exchange rates? One explanation is that international reserves provide collateral for public bonds issued in connection with open market operations. Another explanation is that even a nation with a floating exchange rate must be concerned about the possibility of a run on its currency. Finally, policymakers in emerging market economies are very sensitive to the exchange rate because many such economies often exhibit a high pass-through coefficient; that is, devaluation often leads to inflation (González, 2000; Hausmann, Panizza and Stein, 2001).

Thus, nations with a domestically oriented monetary policy and floating exchange rates

---

on Liability Dollarization is still in its infancy and, thus, it is hard to tell whether these costs are significant (Eichengreen, Hausmann and Panizza, 2002; Jeanne, 2002).

also have good reasons to carry high reserves, and it does not appear that they typically have much smaller reserves than nations with fixed exchange rates.

Lender of Last Resort

A hard exchange rate peg is sometimes said to be at a disadvantage relative to a floating exchange rate regime because it cannot accommodate a money-printing lender of last resort. While this argument would seem to weaken the case for fixed exchange rates, the scope for a lender of last resort for emerging market countries with floating rates is oversold (Calvo, 2001; Mishkin, 1999a, 2001).

In advanced economies, the monetary authority can issue liquidity to bail out the banking system but this extra liquidity is expected to be soaked up by open market operations in the near future, so that bank bailouts can stabilize the banking system with little if any inflationary consequences. In contrast, in emerging market countries, central bank lending to the banking system in the wake a financial crisis—characterized by a sudden stop in capital inflows—is likely to unleash fears of an inflationary explosion and produce a sharp exchange rate depreciation. If there is substantial liability dollarization, the depreciation will then have a major negative impact on private sector balance sheets, which will then promote even more financial instability.

This discussion reemphasizes an earlier lesson. If monetary institutions are well-developed and the central bank has sufficient credibility, only then can the central bank act as a lender of last resort. Alternatively, a government can secure contingent credit lines (like the central bank of Argentina did during the so-called Convertibility Program), but these credit lines can be very

expensive and may not be sufficient when a crisis hits.

Shifts from Fixed to Floating Regimes

Even if a country might be better served in the long run by adopting a floating exchange rate regime, the timing of the shift from a peg can have serious economic consequences. The costs of shifting from a fixed exchange rate regimes to a floating regime under conditions of economic stress, like a sudden stop, are especially striking. As discussed earlier, a move from a fixed to a floating exchange rate regime in the midst of a sudden stop is likely to exacerbate the crisis. The initial devaluation which raises the value of foreign-denominated debt can cause widespread destruction of corporations' and household balance sheets, which sends the economy into a devastating downward spiral. Recent papers by Caballero and Krishnamurthy (2002) and Jeanne (2002) also suggest that de-dollarization (the reestablishment of a domestic currency) may require a major overhaul of the domestic financial sector. Development of the necessary institutions to support a successful domestically oriented monetary policy takes time.

Can Exchange Rate Regimes Improve Economic Institutions?

The discussion in the preceding section focuses on what institutional traits or policy concerns should cause a country to prefer fixed or floating exchange rates. But the possibility of reverse causation also deserves consideration. Perhaps the choice of exchange rate regime should not be analyzed as a response to existing institutional traits, but instead as a potential cause of preferred

institutional outcomes. Research on theories of institutional development in emerging market countries is in its early stages, but is developing rapidly.[9] But several intriguing hypotheses about how exchange rate regimes may improve institutions have been proposed.

Advocates of hard exchange rate pegs argue that they improve fiscal institutions and trigger sounder budgetary management, because if the central bank is focused on a fixed exchange rate, then the government no longer has access to the money printing press to finance its spending (for example, Hanke and Schuler, 1994). As the recent example of Argentina suggests, where the fiscal tensions between the provinces and the central government were not solved by the currency board, hard pegs may be less effective at constraining fiscal policy than was previously believed. Hard pegs may even weaken incentives for governments to put their fiscal house in order, because the hard peg may make it easier for governments to borrow foreign funds, thus allowing them to delay necessary reforms to fix fiscal imbalances. For example, Panama (which has been dollarized for close to a hundred years) has had poor fiscal performance, with fiscal deficits over 7 percent in the 1970s and averaging 5 percent in the 1980s – it is just in recent years that the fiscal position has improved to the point that the fiscal surplus averaged 1.4 percent during the 1990s. On the other hand, it is not clear that in floating exchange rate systems, the conduct of monetary policy has any particular impact in promoting fiscal responsibility. However, one might argue that a floating exchange rate, particularly if it involves the government in setting an inflation target, has the potential to promote government transparency and fiscal responsibility.

Advocates of hard pegs (e.g. Hausmann, 1999) also suggest that dollarization promotes a

[9] For example, see La Porta, Lopes-de-Silanes, Vishny and Shleifer (1998), Shleifer and Vishny 1999) and Boone, Breach, Friedman and Johnson (2000).

healthier financial system because it avoids currency mismatches and deepens the financial system, making it less prone to crisis. However, there is little evidence to support this view (Eichengreen, 2002). On the other hand, a hard exchange rate peg in the form of a currency board might encourage unhedged dollar (foreign-denominated) liabilities that non-financial and financial firms might be willing to undertake, thus making the financial system more vulnerable in case the system has to be abandoned, as illustrated by Argentina in 2002. The hard peg might also encourage the issuance of dollar liabilities because financial firms would believe that the government would feel responsible for any devaluation and would, thus, be more likely to offer a bail-out (McKinnon and Pill, 1999; Broda and Levy-Yeyati, 2000). However, the evidence that floating rate regimes lead to less liability dollarization is quite weak (Honig, 2003). After all, on its face a floating exchange rate would seem to encourage holding some assets in several different currencies as a form of diversification. For example, Peru, with its floating exchange rate regime has a tremendous amount of liability dollarization, while Brazil when it had a quasi-fixed exchange regime rate in the period of 1994 to 1999 did not.

Can the choice of exchange rate regime help improve monetary institutions that enable the monetary authorities to build credibility? If a fixed exchange rate regime is constructed with a full array of supporting institutions, then it would seem to offer at least a gain in credibility – although after the collapse of Argentina's fixed rate system, such credibility will always remain incomplete. Moreover, a floating exchange rate can be a mechanism for monetary credibility as well, Tornell and Velasco (2000) argue, because the foreign exchange market will anticipate the effects of policy inconsistency by devaluing the exchange rate, providing a clear signal that something is

rotten. Moreover, the signal itself could help establish some discipline in government's quarters and possibly lead to a timely rectification of policy inconsistencies (Mishkin, 1998).

Although at the outset, the credibility of the monetary authorities might be weak and the public support for central bank independence may not be all that strong, adoption of inflation targeting might help the central bank to work to produce "constrained discretion" (Bernanke and Mishkin, 1997) in which transparent discussion of the conduct of monetary policy and accountability of the central bank for achieving its inflation target might make it more difficult for the central bank to follow overly expansionary monetary policy. In addition, over time it may help obtain credibility for the central bank as it did in Chile, and it may also increase support for the central bank independence. Indeed, Mishkin and Posen (1997) and Bernanke et al. (1999) suggest that the support for central bank independence in the United Kingdom was a direct result of the inflation targeting regime. However, although inflation targeting might help with central bank credibility and support for central bank independence to some extent, a fair degree of support for good monetary institutions already needs to be present if inflation targeting is to have a chance of success.

There is some evidence that hard exchange rate pegs, particularly those in currency unions, do encourage openness to trade and integration with the countries to which the currency is pegged (Frankel and Rose, 2002; Rose, 2000). As we mentioned earlier, trade openness can reduce the vulnerability of emerging markets to financial crises, while economic integration with an anchor country reduces the cost of the loss of domestic monetary policy with a hard peg.

The possible connections between exchange rate regimes and the improvement of economic

institutions is a potentially important topic for future research.

The Choice of Exchange Rate Regimes in Context

When choosing between exchange rate regimes, one size does not fit all (or always). This argues against international financial institutions like the International Monetary Fund, the World Bank and other development banks having a strong bias toward one type of exchange rate regime. Instead, an informed choice of exchange rate regime requires a deep understanding of a country's economy, institutions, and political culture.

Indeed, we believe that the choice of exchange rate regime is likely to be of second order importance to the development of good fiscal, financial, and monetary institutions in producing macroeconomic success in emerging market countries. Rather than treating the exchange rate regime as a primary choice, we would encourage a greater focus on institutional reforms like improved bank and financial sector regulation, fiscal restraint, building consensus for a sustainable and predictable monetary policy, and increasing openness to trade. A focus on institutional reforms rather than on the exchange rate regime may encourage emerging market countries to be healthier and less prone to the crises than we have seen in recent years.

Acknowledgements

We are grateful to Luis Fernando Mejía for excellent research assistance and to Jose De Gregorio, Linda Goldberg, the editors of this journal (especially Tim Taylor), and participants in the Macro Lunch at Columbia University for helpful comments. The views expressed in this paper are exclusively those of the authors and not those of the Inter-American Development Bank, the University of Maryland, Columbia University, or the National Bureau of Economic Research.

References

Acemoglu, Daron, Simon Johnson, James A. Robinson and Yunyong Thaicharoen (2003). "Institutional Causes, Macroeconomic Symptoms: Volatility, Crises and Growth," *Journal of Monetary Economics (Carnegie-Rochester Conference Series)*, forthcoming.

Bernanke, Ben S., Laubach, Thomas, Mishkin, Frederic S. and Adam S. Posen (1999). *Inflation Targeting: Lessons from the International Experience* (Princeton: Princeton University Press).

Bernanke, Ben S. and Frederic S. Mishkin (1997). "Inflation Targeting: A New Framework for Monetary Policy?" *Journal of Economic Perspectives* 11(2): 97-116.

Boone, Peter, Alasdair Breach, Eric Friedman, and Simon Johnson (2000). "Corporate Governance and the Asian Crisis," *Journal of Financial Economics* 58(1-2): 141-186.

Broda, Christian (2001). "Coping with Terms-of-Trade Shocks: Pegs versus Floats," *American Economic Review* 91(2): 376-380.

Broda, Christian and Eduardo Levy-Yeyati (2000). "Safety Nets and Endogenous Financial Dollarization," mimeographed, Universidad Torcuato Di Tella.

Burnside, Craig, Martin Eichenbaum and Sergio Rebelo (2001). "Prospective Deficits and the Asian Currency Crisis," *Journal of Political Economy* 109(6): 1155-1197.

Caballero, Ricardo J. and Arvind Krishnamurthy (2002). "Excessive Dollar Debt: Financial Development and Underinsurance," mimeographed, MIT.

Calvo, Guillermo A. (2001). "Capital Markets and the Exchange Rate: with Special Reference to the Dollarization Debate in Latin America," *Journal of Money, Credit, and Banking* 33(2): 312-334.

Calvo, Guillermo A. (2002). "Explaining Sudden Stop, Growth Collapse and BOP Crisis: The Case of Distortionary Output Taxes," *Mundell-Fleming Lecture*, 3rd IMF Annual Research Conference, Washington, DC, November 7.

Calvo, Guillermo A., Alejandro Izquierdo and Luis-Fernando Mejía (2003). "On the Empirics of Sudden Stops." IADB Working Paper.

Calvo, Guillermo A., Alejandro Izquierdo and Ernesto Talvi (2002). "Sudden Stops, the Real Exchange Rate and Fiscal Sustainability: Argentina's Lessons," IADB Working Paper No. 469. Available at http://www.iadb.org/res/publications/pubfiles/pubWP-469.pdf.

Calvo, Guillermo A. and Enrique G. Mendoza (2000). "Capital-Market Crises and Economic Collapse in Emerging Markets: An Informational-Frictions Approach," *Papers and Proceedings of the American Economic Association, American Economic Review* 90(2): 59-64.

Calvo, Guillermo A. and Carmen M. Reinhart (2000). "When Capital Flows Come to a Sudden Stop: Consequences and Policy," in Peter B. Kenen and Alexander K. Swoboda, eds., *Reforming the International Monetary and Financial System* (Washington, DC: IMF).

Calvo, Guillermo A. and Carmen M. Reinhart (2002). "Fear of Floating" *Quarterly Journal of Economics* 117(2): 379-408.

Calvo, Guillermo A. and Carlos A. Végh (1996). "From Currency Substitution to Dollarization and Beyond: Analytical and Policy Issues," in Guillermo A. Calvo, *Money, Exchange Rates, and Output* (Cambridge, MA: The MIT Press): 153-175.

Cukierman, Alex (1992). *Central Bank Strategy, Credibility and Independence: Theory and Evidence* (Cambridge, MA: The MIT Press).

De Grauwe, Paul (1997). *The Economics of Monetary Integration*, 3rd Edition (London: Oxford University Press).

Edwards, Sebastian (2001). "Dollarization: Myths and Realities," *Journal of Policy Modeling* 23(3): 249-65.

Edwards, Sebastian and I. Igal Magendzo (2001). "Dollarization, Inflation and Growth," NBER Working Paper No. 8671.

Eichengreen, Barry and Paul Masson (1998). "Exit Strategies: Policy Options for Countries Seeking Greater Exchange Rate Flexibility," IMF Occasional Paper No. 168.

Eichengreen, Barry (2002). "When to Dollarize," *Journal of Money, Credit and Banking* 34(1): 1-24.

Eichengreen, Barry, Ricardo Hausmann and Ugo Panizza (2002). "Original Sin: The Pain, the Mystery, and the Road to Redemption," presented at the conference *Currency and Maturity Matchmaking: Redeeming Debt from Original Sin*, IADB, Washington, DC, November 21-22.

Fischer, Stanley, (2001). "Distinguished Lecture on Economics in Government -- Exchange Rate Regimes: Is the Bipolar View Correct?" *Journal of Economic Perspectives*, 15(2): 3-24.

Frankel, Jeffrey A. and Andrew K. Rose (2002). "An Estimate of the Effect of Common Currencies on Trade and Income," *Quarterly Journal of Economics* 117(2): 437-466.

Frankel, Jeffrey A., Sergio L. Schmukler and Luis Serven (2002). "Global Transmission of Interest Rates: Monetary Independence and Currency Regime," NBER Working Paper No. 8828.

Garber, Peter (1999). "Hard-Wiring to the Dollar: From Currency Board to Currency Zone," in *Global Markets Research* (London: Deutsche Bank).

González, José A. (2000). "Exchange Rate Pass-through and Partial Dollarization: Is there a Link?" CREDPR Working Paper No. 81, Stanford University.

Hanke, Steven. and Kurt Schuler (1994). C*urrency Boards for Developing Countries: A Handbook* (San Francisco: ICS Press).

Hausmann, Ricardo (1999). "Should there be 5 currencies or 105?" *Foreign Policy*, 116: 65-79.

Hausmann, Ricardo, Ugo Panizza and Ernesto Stein (2001). "Why Do Countries Float the Way They Float?" *Journal of Development Economics* 66: 387-414.

Honig, Adam (2003). "Dollarization, Exchange Rate Regimes and Government Myopia." mimeographed, Columbia University, March.

Jeanne, Olivier (2002). "Why Do Emerging Economies Borrow in Foreign Currency?" presented at the conference *Currency and Maturity Matchmaking: Redeeming Debt from Original Sin*, IADB, Washington, DC, November 21-22.

La Porta, Rafael, Lopes-de-Silanes, Florencio, Shleifer, Andrei and Vishny, Robert (1998). "Law and Finance," *Journal of Political Economy* 106(6): 1113-1155.

Levy-Yeyati, Eduardo and Federico Sturzenegger (2003). "To Float or Fix: Evidence on the Impact of Exchange Rate Regimes on Growth," *American Economic Review*, forthcoming.

McKinnon, Ronald and Huw Pill (1999). "Exchange Rate Regimes for Emerging Markets: Moral Hazard and International Overborrowing," *Oxford Review of Economic Policy* 15(3): 19-38.

Mishkin, Frederic S. (1991). "Asymmetric Information and Financial Crises: A Historical Perspective," in R. Glenn Hubbard, ed., *Financial Markets and Financial Crises* (Chicago: University of Chicago Press): 69-108.

Mishkin, Frederic S. (1996). "Understanding Financial Crises: A Developing Country Perspective," *Annual World Bank Conference on Development Economics*: 29-62.

Mishkin, Frederic S. (1998). "The Dangers of Exchange Rate Pegging in Emerging-Market Countries," *International Finance* 1(1): 81-101.

Mishkin, Frederic S. (1999a). "Lessons from the Asian Crisis," *Journal of International Money and Finance* 18(4): 709-723.

Mishkin, Frederic S. (1999b). "International Experiences with Different Monetary Policy Regimes," *Journal of Monetary Economics* 43(3): 579-606.

Mishkin, Frederic S. (2000). "What Should Central Banks Do?" *Federal Reserve Bank of St. Louis Review* 82(6): 1-13.

Mishkin, Frederic S. (2001). "The International Lender of Last Resort: What are the Issues?" in Horst Siebert, ed., *The World's New Financial Landscape: Challenges for Economic Policy* (Berling: Springer-Verlag): 291-312.

Mishkin, Frederic S. (2001). "Financial Policies and the Prevention of Financial Crises in Emerging Market Countries," NBER Working Paper No. 8087, forthcoming in Martin Feldstein, ed., *Economic and Financial Crises in Emerging Market Countries* (Chicago: University of Chicago Press).

Mishkin, Frederic S. and Adam Posen (1997)."Inflation Targeting: Lessons from Four Countries,"Federal Reserve Bank of New York, *Economic Policy Review*, vol. 3, #3 (August 1997): 9-110

Mishkin, Frederic S. and Miguel Savastano (2001). "Monetary Policy Strategies for Latin America," *Journal of Development Economics* 66(2): 415-444.

Mundell, Robert A (1961). "A Theory of Optimum Currency Areas," *American Economic Review* 51(3): 657-665.

Mussa, Michael (1986). "Nominal Exchange Rate Regimes and the Behavior of Real Exchange Rates: Evidence and Implications," *Carnegie-Rochester Conference Series on Public Policy* 25: 117-213.

Obstfeld, Maurice and Kenneth Rogoff (1995). "The Mirage of Fixed Exchange Rates," *Journal of Economic Perspectives* 9(4): 73-96.

Poole, William (1970). "Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro Model," *Quarterly Journal of Economics* 84(2): 197-216.

Reinhart, Carmen M and Kenneth S. Rogoff (2002). "The Modern History of Exchange Rate

Arrangements: A Reinterpretation," NBER Working Paper No. 8963 (June).

Rose, Andrew K. (2000). "One Money, One Market: Estimating the Effect of Common Currencies on Trade," *Economic Policy* 15: 7-46.

Sargent, Thomas and Neil Wallace (1981). "Some Unpleasant Monetarist Arithmetic," *Federal Reserve Bank of Minneapolis Quarterly Review*, 1-17.

Schuler, Kurt (1999). "Encouraging Official Dollarization in Emerging Markets," *Joint Economic Committee Staff Report* (Washington, DC: United States Senate).

Shleifer, Andrei and Robert Vishny (1999) *The Grabbing Hand: Government Pathologies and Their Cures* (Harvard University Press, Cambridge, Mass.)

Tommasi, Mariano (2002), "Crisis, Political Institutions, and Policy Reform: It is not the Policy, it is the Polity, Stupid," forthcoming in *Annual World Bank Conference on Development Economics,* University of San Andres, mimeo.

Tornell Aaron and Andrés Velasco (2000). "Fixed versus Flexible Exchange Rates: Which Provides More Fiscal Discipline?" *Journal of Monetary Economics*, 45(2): 399-436.

Woodford, Michael (1994). "Monetary Policy and Price Level Determinacy in a Cash-in-Advance Economy," *Economic Theory* 4: 345-380.

Woodford, Michael (1995). "Price Level Determinacy without Control of a Monetary Aggregate," *Carnegie-Rochester Conference Series on Public Policy* 43: 1-46.

Table 1

The Incidence of Sudden Stops (SS), 1992-2001

Number of episodes

Event Type		Emerging Markets	Developed Economies
Devaluations associated with SS		12	4
Of which:	First SS, then devaluation	8	2
	First devaluation, then SS	4	2
Devaluations not associated with SS		7	19

% of total

Event Type		Emerging Markets	Developed Economies
Devaluations associated with SS		63	17
Of which:	First SS, then devaluation	42	9
	First devaluation, then SS	21	9
Devaluations not associated with SS		37	83

Note: A sudden stop is defined as a reversal in capital inflows that i) exceeds the mean minus two standard deviations of the annual change in capital inflows observed since 1990, and ii) is associated with a decline in output. The exercise also considers rises in the real exchange rate that i) exceed the mean plus two standard deviations of the annual change in the real exchange rate observed since 1990, and ii) are greater than 20 percent. The sample consists of 15 emerging economies and 17 developed countries. See Calvo, Izquierdo and Mejía (2003) for further details and some sensitivity analysis.

The Mirage of Exchange Rate Regimes for Emerging Market Countries
Guillermo Calvo and Frederic S. Mishkin
NBER Working Paper No.
JEL Nos. F3, F4, E5.

ABSTRACT

This paper argues that much of the debate on choosing an exchange rate regime misses the boat. It begins by discussing the standard theory of choice between exchange rate regimes, and then explores the weaknesses in this theory, especially when it is applied to emerging market economies. It then discusses a range of institutional traits that might predispose a country to favor either fixed or floating rates, and then turns to the converse question of whether the choice of exchange rate regime may favor the development of certain desirable institutional traits. The conclusion from the analysis is that the choice of exchange rate regime is likely to be of second order importance to the development of good fiscal, financial, and monetary institutions in producing macroeconomic success in emerging market countries. This suggests that less attention should be focused on the general question whether a floating or a fixed exchange rate is preferable, and more on these deeper institutional arrangements. A focus on institutional reforms rather than on the exchange rate regime may encourage emerging market countries to be healthier and less prone to the crises that we have seen in recent years.

Guillermo A. Calvo
Chief Economist
Inter-American Development Bank
1300 New York Avenue NW
Washington, D.C., 20577
gcalvo@iadb.org

Frederic S. Mishkin
Graduate School of Business
Uris Hall 619
Columbia University
New York, NY 10027
fsm3@columbia.edu