



Bank of Israel

Proceedings of the International Conference on Third Countries in a World of Two Major Currency Blocs

Jerusalem International Conference Centre
Monday, November 29, 2004

Moderator: Jacob Frenkel, Vice-Chairman, AIG, past Governor of the Bank of Israel

Session I

Leszek Balcerowicz, President, National Bank of Poland

Guillermo Ortiz Martinez, Governor, Bank of Mexico

Jean-Pierre Roth, Chairman, Swiss National Bank

Allan Meltzer, Carnegie Mellon University

Session II

Tommaso Padoa-Schioppa, Member of the Executive Board, European Central Bank

Andrew Crockett, President, JP Morgan Chase International, past General Manager of BIS.

Stanley Fischer, President, Citigroup International, past First Deputy Managing Director of the International Monetary Fund.

November 9, 2005

**Introductory Remarks
by David Klein**

Governor, Bank of Israel January 2000–January 2005

By the time the International Conference, whose proceedings follow, was held in Jerusalem as part of the events marking the 50th anniversary of the Bank of Israel, the Bank was already practically independent. Twenty years earlier, in 1985, and since it was established in 1954, it was not much more than another government ministry with an additional special feature—the ability to print money to finance the state budget and extend credit to the private sector according to government directives. The result was hyperinflation and a growing crisis of confidence that threatened to bring the economy to a standstill.

It took the terms of four Governors—Mandelbaum, Bruno, Frenkel and myself—with occasional collaboration of the government, to bring about the following:

- The Bank stopped lending to the government and the private sector;
- The government basically stopped borrowing directly from institutional investors, turning to the capital market to finance its deficit;
- The government and the Bank adopted Maastricht-like criteria for the conduct of macroeconomic policy, putting a ceiling on the budget deficit and fixing a price-stability target for the Bank;
- The exchange control regime was gradually abolished, and the fixed exchange rate was replaced by a floating-rate regime;
- The money and capital markets were allowed to develop by removing various anachronistic restrictions, thus enforcing more efficiently fiscal discipline and creating the necessary base for conducting monetary policy to maintain price stability at international rates of interest.

All these changes were a necessary derivative of the basic strategy of all Israeli governments in the last 20 years, assuming that an economy like that of Israel can exhaust its growth potential only by being open to the world. This strategic approach was developed long before globalization turned out to be a major driving force shaping the destiny of the world economy. For some time now Israel has enjoyed price stability and a reasonable growth rate.

The Conference speakers, all of them well known internationally, strengthened our belief that we have chosen the right course. Those countries which are not part of the two major currency blocs have to adapt to the new rules of the economic game if they want to achieve durable growth. That does not mean, let the reader be aware, that there is a single well defined model to reach the optimal course and stay with it. Each country still has its own history and structural characteristics, Hence variations on the main theme are still required and the speakers provided ample fascinating illustrations.

I would like to express my gratitude to the speakers for their contribution to the conference which turned it to be the highlight among the several events that took place on this occasion celebrating the Jubilee of the Central Bank of Israel.

First Session

Dr. David Klein, Governor of the Bank of Israel, opened the proceedings, and invited Professor Jacob Frenkel to act as moderator of the conference.

Prof. Jacob Frenkel

Thank you very much Governor Klein, it's always a pleasure to share a podium with you, and in this particular case, participating in a event of the Bank of Israel. This is a unique event, it happens once in thirty years and we are all privileged to be here, under your kind hospitality. Present here are former governors of the Bank of Israel, governors of many central banks, senior officers from international organizations and other central banks; professionals from the Israeli business community and financial institutions and of course, with us are colleagues from the Bank of Israel.

We all are here for a single purpose: to commemorate this special event of this unique institution. It is an institution that, as was described yesterday by our deputy Prime Minister, is a centerpiece in the evolution and development of Israeli economy, Israeli society, and Israeli institutions in the modern era. In this regard, that several factors combine to commemorate this event: First, last evening, an evening of culture and an evening of heritage, was an evening that suggests that we are, after all, in Israel. Second, this conference really manifests the fact that the Israeli economy has come a long way. Maybe we are in an era of globalization, an era in which developments in the rest of the world impact all of us significantly, an era in which our own actions impact us significantly through developments in world markets, and therefore, the idea of a knowledge-based conference is very fitting.

And to have it all here, at the International Conference Center of Jerusalem, a place that did not exist when the Israel was created 54 years ago in 1954, is itself a treat. Those of you who cannot see the first couple of rows here will be pleased to know that I see a lot of individuals who laid the foundations of this great institution.

The very title of the conference, "Third Countries in a World of Two Major Currency Blocs", can be a subject for discussion. What does it mean to be a Third Country? Is a Third Country the same for all, so long as it is not part of two major zones; or, is there an individual story, an individual set of constraints for each and every country? Second, we are talking about two major currency blocs. Yesterday on the bus, I was sitting with one of the panelists, who will participate after the break, who raised the question of whether we are going to end up with two currency blocs? Given that we now have two currency blocs, are we going to a single currency, or are we going to three currency blocs? Where is Israel?

I will leave it all to the discussion as it comes along.

We have governors who all come from Third Countries. We have a country that is very much impacted by the United States, not the United States, but Mexico.

There is a country that is very much impacted by its neighborhood within the eurozone, but it is not a member of the eurozone, Switzerland. We have the governor of the Bank of Switzerland.

We have a country that knows where it wants to go, but is still not there, Poland. Wrap up of the analytical structure of the first session, will be presented by Allan Meltzer, who not only comes from the major country, the major zone, the United States, but more important for this morning, he is here in another capacity, to deliver the David Horowitz lecture. The David Horowitz Lecture is named after our legendary first governor, David Horowitz. We are privileged to have Allan Meltzer participating in this panel and delivering the Horowitz lecture.

Our first speaker is President Leszek Balcerowicz, President of the National Bank of Poland.

Mr. Leszek Balcerowicz

Ladies and gentlemen, I am very happy to be here on the occasion of the 50th anniversary of the Bank of Israel. Yesterday, the tremendously important transition of the Israeli economy was mentioned, and I'm happy to say that Poland also belongs to the category of countries in transition. Perhaps a few words about this transition would be in order so as to lead us to the present and the future. The whole transition has been concentrated into the last fifteen years. Poland's transition has affected not only in its economy, but also its political system; the political system moved from a dictatorship to a democracy, and to the rule of law. The economic transition was from a state-dominated non-market economy to a free-market economy dominated by private enterprise. We moved from a relatively closed economy to an open one; we underwent complete financial liberalization, starting from a very repressed financial regime, (fortunately managing to avoid any major crises along the way); and we moved from a non-convertible to a convertible currency. We started in 1989, under conditions of near hyperinflation. I remember that vividly: inflation rates of 20 to 40 percent a month. And we have successfully gone through nearly every type of exchange rate regime. In early 1990, we started with a rate pegged to the dollar, then we switched to a rate pegged against currency baskets, which changed several times. Later, we gradually moved to a more flexible exchange rate regime that culminated in a fully floating exchange regime in the year 2000. We have no time to discuss the experiences of transition in Poland or in other countries. Let me only say that there is a lot of research on the subject and it all points to one basic lesson: There have been tremendous differences in both the economic and the non-economic outcomes in post-communist countries. The main factor accounting for these differences is the extent to which these countries moved towards a free-market system, or, in other words, towards a rational limit of the state's role in the economy.

What about the present? I moved closer to the topic of this conference when I mentioned the present monetary regime in Poland, as introduced in 2000. Since that time, we have continued with direct inflation targeting and the clean float. There have been no interventions. Under this regime, we have managed to bring inflation down from a level of over 10 percent in 2000 to below 2 percent in 2003. Given the clean float, the exchange rate regime is not an intermediate target, but

the exchange rate channel is very important in monetary policy. The exchange rate was fairly volatile after we moved to the clean float, but comparisons with other countries show that it was not excessively so.

What about our prospects? As a new member of the European Union, we don't have an opt-out clause, so the question is not whether we will join the eurozone, but when. But it is not only legal obligation that makes us see the euro as an attractive target; there are some important economic arguments as well, provided the large members of the eurozone overcome their fiscal problems, and thus preserve the foundations of the Stability and Growth Pact. Joining the eurozone is an attractive target for Poland because of our structural characteristics. We are already highly integrated through trade with the eurozone. Approximately 60 percent of our trade takes place with that region, and 48 percent of that consists of intra-industry trade. There is substantial business cycle synchronization. And, we belong to those countries that – like Spain, Portugal, and Greece previously, and in contrast perhaps to Switzerland – would gain in macro-economic credibility by joining the eurozone.

The benefits of joining the eurozone, given the above, are fairly obvious, so let me mention only the major ones: reduction of macro-economic risks, increased trade and investment, reduced transaction costs due to cheaper capital, and more competition thanks to easier comparability of prices. As a result, one can reasonably expect more growth.

There are also some potential costs related to the possibility that the future European Central Bank (ECB) common monetary policy may prove less effective as a stabilization tool than domestic monetary policies. However, these costs should not be large due to our current relatively high degree of integration with the eurozone. Becoming a member of this group would further increase that integration. Also, the potential costs will be reduced through Poland need for a decisive fiscal consolidation and increased market flexibility, especially for the labor market.

At the National Bank of Poland, we have done some research based on rather conservative assumptions. The results suggest that an earlier entry into the eurozone, as opposed to a delayed entry, would increase our annual growth rate by 0.2 to 0.4 percent, mostly through increased investment and trade. Calculations for other new members suggest that the net gains could be larger because they are smaller countries. To sum up, if the essentials of the Stability and Growth Pact are preserved, then given our structural characteristics, the euro is an attractive target.

What about the transition? The most interesting problems are usually related to transitions, not targets. As is well known, entry into the eurozone requires the simultaneous fulfillment of all convergence criteria: fiscal, monetary (that is, inflation and interest rate criteria), and stability-of-exchange-rate criteria. In addition, in the case of Poland, it is also desirable to achieve greater market flexibility through structural reforms, especially of the labor market.

I think there are two major challenges or tasks to accomplish. The first of these is fiscal consolidation. The new members can be divided into two groups: those who managed to preserve or introduce fiscal discipline (these are smaller countries – the Baltic States, Slovenia, and perhaps, Slovakia will also be in that position),

and those in which fiscal discipline is currently lacking (the larger countries, such as Poland, the Czech Republic, and Hungary). Regardless of euro targeting, the latter countries must introduce structural reforms through which they will permanently reduce their budget deficits, which is in the interest of long-term growth. In addition, it will enable them to adopt the euro. Perhaps one should also mention that the newest research carried out at the National Bank of Poland suggests that fiscal consolidation in small countries, such as the Baltic States, tended to produce non-Keynesian effects; that is to say, fiscal consolidation leads to accelerated growth. But even if the non-Keynesian effects are not taken into account, long-term considerations demand decisive fiscal consolidation. Let me also emphasize that what is going to happen to the Stability and Growth Pact in the European Union matters to all members, new and old, because it influences politics, and fiscal policy still belongs, unfortunately, to the more politicized of policies.

If the fiscal problem were solved, then the second difficulty would be much reduced, but would still be present for Poland, and also for the Czech Republic and Hungary. The problem would be that of making a transition from direct inflation targeting and a floating exchange rate, through the Exchange Rate Mechanism (ERM)-2, to the eurozone. To go through the ERM-2 is a challenge, given such starting conditions. I hope that the exchange-rate stability criteria will not be interpreted too rigidly, as a narrow margin would certainly make a successful transition much more difficult.

Mr. Jacob Frenkel: Thank you very much Leszek Balcerowicz for giving us such a good start describing the experience of Poland.

Our next speaker is Guillermo Ortiz Martinez, Governor, Bank of Mexico

The following is the full text of the paper prepared by Governor Ortiz, a shortened version of which was presented at the conference.

The Mexican Experience Under a Floating Exchange Rate Regime¹

Guillermo Ortiz Martínez
Governor, Banco de México

Revised January 12th, 2005

Abstract

This paper reviews Mexico's experience under a floating exchange rate regime over the past decade and analyzes how this regime has interacted with other elements of the macroeconomic framework in general, and the monetary policy regime in particular. The Mexican experience is analyzed in light of some of the advances in our understanding – as well as outstanding challenges – on the topic of the choice of exchange rate regimes, particularly as it concerns the policy options available to third countries outside the two main currency blocs.

I. Introduction

It has now been a decade since Mexico adopted a flexible exchange rate regime following the December 1994 crisis. Thus, it seems like a propitious occasion to reflect on the performance of this regime and analyze how it has interacted with other elements of the macroeconomic framework in general, and the monetary policy regime in particular. This paper reviews some of the advances in our understanding – as well as some outstanding challenges – on the topic of the choice of exchange rate regimes, particularly as it concerns the policy options available to third countries outside the two main currency blocs. In the second section, I begin by giving the motivation for the subject matter of this paper and framing it in terms of both the academic literature and the recent events that have led to a major revival of interest in this topic. Then, in the third section, I review some of the key empirical facts on the dominance of the US dollar and the euro in international trade and capital markets, as well as the evolution of exchange rate arrangements across countries. In the fourth section, I comment on the recent theoretical and empirical developments on the topic of the choice of exchange rate regimes. In the fifth section, I describe Mexico's experience under a floating exchange rate and how this exchange regime has interacted with the current inflation targeting (IT) monetary policy framework.

¹ I would like to thank Rodrigo García-Verdú and Lorenza Martínez Trigueros for their valuable help in preparing this document.

Finally, in the sixth section, I offer some final thoughts regarding the future of third countries in a world of two major currency blocs.

II. Motivation

Over the past two decades, there has been a change in paradigm among policymakers and academics alike regarding the choice of the most appropriate exchange rate regime. In this section, I provide a very brief overview of how this paradigm has evolved over the period analyzed.

Following the debt crisis of the early 1980s and up until the early to mid-1990s, fixed exchange rates were the prescribed regimes of choice for countries that were engaged in stabilization and disinflation programs. The exchange rate was a core element of most of these programs as it served as the nominal anchor of the economy. It was argued, at the time, that fixing or pegging the exchange rate to a hard currency was the best or even the only way of bringing inflation down quickly, particularly for those countries that lacked monetary policy credibility. Although several of these fixed exchange rate regimes collapsed because the stabilization plans were often not accompanied by the required fiscal adjustment, countries soon attempted to fix the exchange rate again, as soon as they were able to build up enough foreign exchange reserves to defend a given parity.

Then, beginning in the early to mid-1990s, a series of major international financial crises called into question the sustainability of fixed exchange rate regimes. This series of currency crises – beginning with the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) in 1992-1993, Mexico in 1994-1995, East Asia in 1997, Russia in 1998, Brazil in 1998-1999, Turkey in 2001 and Argentina in 2001-2002 – challenged the accepted knowledge on the topic of the optimal exchange rate arrangement and began to lead to major revisions of the existing theories. The frequency, magnitude, and severity of these episodes were powerful reminders that there was much to learn about the appropriate exchange regime for each country and at each moment in time, particularly in a rapidly changing environment like the one that characterizes the world today.

Towards the end of the 1990s, the introduction of the euro and the successful integration of economies into the European Monetary Union (EMU) supported the case for monetary union, dollarization, and currency boards. In particular, the successful integration of twelve national economies into the EMU, beginning in January 1999, as well as the prospect of future integration by the group of ten countries that joined the European Union (EU) in May 2004, has reinforced the view that a monetary union is one of the viable alternatives for many countries, particularly for those on the periphery of the euro.

Towards the end of the 1990s and beginning of the 2000's, a renewal of academic interest in the topic of the choice of exchange rate regimes emerged. This renewed interest was largely a response to the events outlined above. As several authors have noted, including Fischer (2001), in each one of the crises mentioned, some form of fixed exchange rate regime had been in place prior to the onset of the crisis. It is not

surprising then that the topic of the optimal exchange rate arrangement has, once again, been at the forefront of the economics research agenda.²

One of the most widely discussed hypotheses to emerge from the academic literature in recent years has been the “hollowing-out of the middle”, “bipolar” or “two-corner solution” theory of exchange rate regimes.³ According to this hypothesis, in a world of ever more interconnected international capital markets, the middle ground of soft peg exchange rate regimes (e.g., fixed exchange rates, crawling pegs, exchange rate bands, etc.) has become more prone to speculative attacks and is, therefore, becoming increasingly unsustainable. Correspondingly, we have witnessed a concentration of exchange rate regimes into one of the two extremes: fully fixed (i.e., monetary union or a currency board) or fully flexible (i.e., managed floating or independently floating) regimes.

Another influential view that has emerged from the academic literature is the “fear of floating” hypothesis.⁴ According to this hypothesis, several emerging market countries that are officially classified as free floaters are, in fact, reluctant to let their currencies float, despite their stated intention of actually doing so. This fear of floating may be due either to a high exchange rate pass-through or to a high level of balance sheet mismatches, both of which make countries’ reluctant to adopt a free floating regime. If true, this hypothesis implies that the number of freely floating regimes may be overestimated, and that most of the transitions in terms of exchange rate arrangements may, in fact, have been from soft pegs to more rigid regimes.

Two closely related topics that have also gained prominence in recent years are the difference between the *de jure* and the *de facto* classification of exchange rate regimes and the effectiveness of capital controls.⁵ The former topic bears directly on the bipolar view and the fear of floating hypotheses, since, in order to determine the trends in the choice of exchange rate arrangements, one must first have an appropriate classification of such regimes.⁶ The latter topic is of the essence for countries pursuing an independent monetary policy under a fixed exchange rate regime, as effective capital controls are a *sine qua non* condition for the feasibility of such a combination of policies.⁷ If capital controls were to become less effective as a result of increasing financial markets integration, this would reinforce the notion that soft pegged exchange regimes had become increasingly unsustainable.

A third hypothesis, which received some attention in the academic literature and in policy discussions, is the so-called “original sin”. According to this hypothesis, small countries that lack credibility cannot issue long-term debt in their own

² This literature started with the seminal work of Mundell (1961) on optimal currency areas.

³ See, among others, Eichengreen (1994), Obstfeld and Rogoff (1995), Frankel (1999), Summers (2000), Masson (2001), Fischer (2001), Bubula and Otker-Robe (2002) and Bubula and Otker-Robe (2003).

⁴ This hypothesis was first advanced by Calvo and Reinhart (2002).

⁵ See Bubula and Otker-Robe (2002), Levy-Yeyati and Sturzenegger (2002), and Reinhart and Rogoff (2002) for three alternative *de facto* classifications of exchange rate regimes. On the effectiveness of capital controls, see, among others, De Gregorio *et al.* (2000).

⁶ There is now an agreement that the classification of countries according to these two criteria differs significantly, and that many countries may have been incorrectly classified as free floaters when, in fact, they are not.

⁷ This is the well known “impossible trinity”, on which there is more below. The literature on the topic of capital controls has typically found that the effectiveness of capital controls diminishes over time as markets find ways around them.

currencies. The need to issue foreign currency denominated debt results in balance sheet mismatches. This vicious cycle may, in turn, translate into fear of floating.⁸

All of these theoretical developments and policy events have naturally called into question the role of small economies with open capital accounts pursuing an independent monetary policy in a world increasingly dominated by two currency blocs. While there is, as yet, no consensus on the “hollowing-out of the middle”, “fear of floating”, or “original sin” hypotheses, there is general agreement among both academics and policymakers that the process of growing integration of international capital markets poses a great challenge for countries with liberalized capital accounts. As a result, countries open to the international capital markets that pursue inconsistent monetary and fiscal policies are likely to face the consequences sooner rather than later, independent of the monetary policy and exchange rate regimes adopted. The presence of a fixed exchange rate regime may worsen the situation by increasing both the likelihood of a speculative attack and the vulnerability of the country.

From 1994 to date, and concurrently with the development of these academic hypotheses, we have witnessed the successful experience of some emerging market countries that decided to float their currencies. This group of countries includes Mexico in 1994, Indonesia, South Korea and South Africa in 1997, Brazil, Chile and Peru in 1999, Philippines and Poland in 2000, Colombia and the Czech Republic in 2001, and Argentina in 2002. The success of these countries has challenged the notion that a flexible exchange rate regime could not be sustained by developing countries, which was the assumption behind many of the earlier exchange-rate-based stabilization programs.

These are some of the issues that have dominated the debate on the choice of the optimal exchange rate regime, and the recent real-world events that have led to the renewed interest in this topic. Before analyzing some of these issues in more detail, the next section presents some key empirical facts about the dominance of the two main world currencies, the US dollar and the euro, in the international markets, as well as the evolution of the choice of exchange rate regimes in different countries.

III. Overview of the importance of the US dollar and the euro in international markets

This section presents some basic statistics showing the importance of the US dollar and the euro in terms of foreign exchange trading, international reserves holdings, international bond issuance, and the invoicing of trade flows. I will indirectly address the role of the Japanese yen and other currencies as potential third currencies in the world economy.

⁸ See Barry Eichengreen and Ricardo Hausmann (1999) and Eichengreen, Hausmann and Panizza (2003).

III. 1. Foreign exchange trading, reserves holdings, bond issuance, and the invoicing of trade flows

The first fact that becomes evident, when analyzing the data on the foreign exchange market, is the overwhelming dominance of the US dollar and – to a lesser extent – the euro as the two most traded currencies in the world. As Table 1 shows, the US dollar is, by far, the most traded currency in the world, accounting for almost 90 percent of all foreign exchange transactions. The euro is a distant second, with close to 37 percent.⁹ Thus, these two currencies together account for over 120 percent of all transactions involving foreign exchange.¹⁰

As discussed below, whether it is in the form of reserve holdings, bond issuance, or the invoicing of trade flows, these two currencies account for the lion's share of international transactions.

Table 1
Currency distribution of reported foreign exchange market turnover
(percentage shares of average daily turnover in April of each year)

Currency	(percent)	
	2001	2004
US dollar	90.3	88.7
Euro	37.6	37.2
Japanese yen	22.7	20.3
Pound sterling	13.2	16.9
Swiss franc	6.1	6.1
All other currencies	30.1	30.8

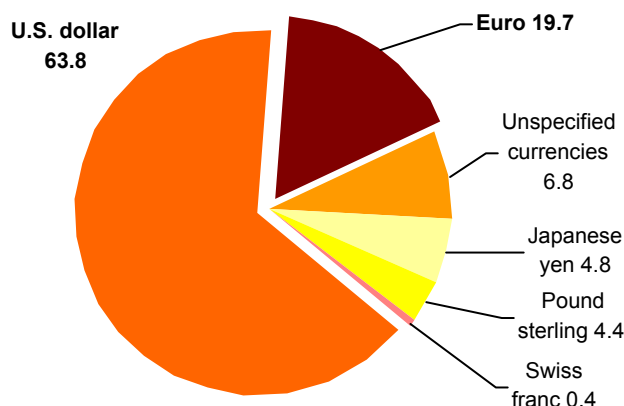
Source: BIS Triennial Central Bank Survey of Foreign Exchange and Derivative Market Activity, 2004

In terms of the national currencies in the total identified official holdings of foreign exchange reserves, the US dollar and the euro are by far the most commonly held currencies. As can be seen from the next figure (Figure 1), between 1999 and 2003, on average, the US dollar and the euro jointly accounted for over 80 percent of the official holdings of foreign exchange reserves. The Japanese yen and the pound sterling are very distant third and fourth places, respectively, with the former accounting for close to 4.8 percent and the latter for close to 4.4 percent of official holdings of foreign exchange.

⁹ Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200 percent instead of 100 percent. The figures refer to reported “net-net” turnover, i.e., they are adjusted for both local and cross-border double-counting. See, Bank of International Settlements (BIS) (2004).

¹⁰ According to the Triennial Survey conducted by the BIS 2004, foreign exchange turnover averages \$1.88 trillion US dollars per day in the spot, outright forwards, and foreign exchange swaps markets, and \$1.22 trillion U.S. dollars per day in the Over-the-Counter (OTC) foreign exchange instruments and interest rate derivatives markets. In real terms, the growth rate in total foreign exchange turnover between 2001 and 2004 was 36 percent.

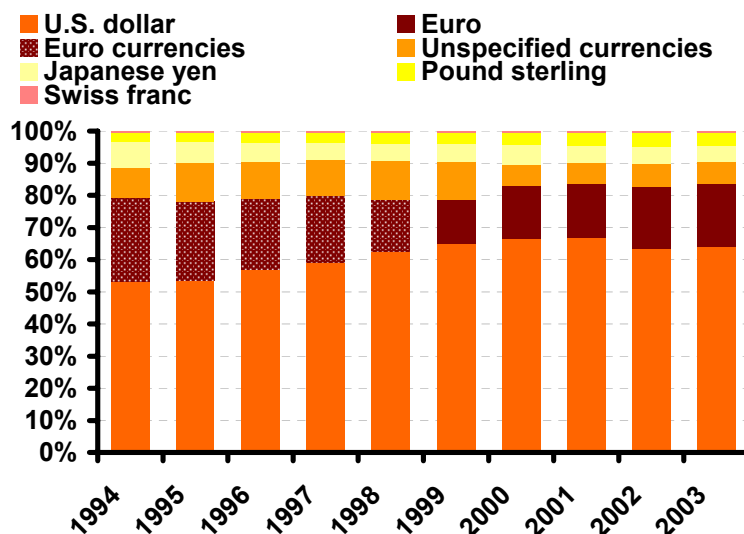
Figure 1
Share of National Currencies in Total Identified Official Holdings of Foreign Exchange in All Countries, Average 1999-2003 (percent)



Source: IMF Annual Report 2004

Another important fact in this figure is the dominance of the US dollar over the euro in terms of the identified official holdings of foreign exchange, with the US dollar accounting for almost 64 percent and the euro for close to 20 percent. It is also worth noting that this dominance by the US dollar had been increasing up until 2001, a trend that seems to have been counteracted by the emergence, in 1999, of the euro as a competing reserve currency. This phenomenon is evident in the following graph (Figure 2).

Figure 2
Share of National Currencies in Total Identified Official Holdings of Foreign Exchange in All Countries: 1994-2003 (percent of currencies)



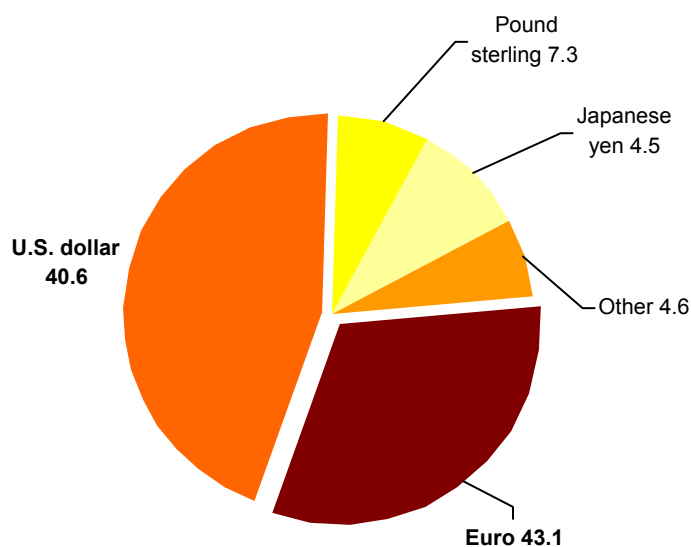
Source: IMF Annual Report 2004

It is also important to note that in these figures, the share of all other currencies taken together – including the Japanese yen, the pound sterling, the Swiss franc, and other unspecified currencies – is not only small, but has been falling gradually over time. Thus, as far as foreign exchange reserves holdings are concerned, the world is indeed largely a two-currency world.

Another important dimension when analyzing the predominance of the US dollar and the euro in the world economy is the currency in which debt securities are denominated. In this case, the data again show that the US dollar and the euro are, by far, the main currencies that participants in the global capital markets choose to denominate the debt they issue.¹¹

As the next figure (Figure 3a) shows the US dollar and the euro accounted for over 80 percent of the outstanding amounts of international debt securities, on average, over the period 1996-2003. The next two most chosen currencies for denominating debt securities are the pound sterling, with 7.3 percent, and the Japanese yen, with 4.5 percent, while all other currencies account for the remaining 4.6 percent.

Figure 3a
Amounts outstanding of international debt securities,
Average 1996-2003

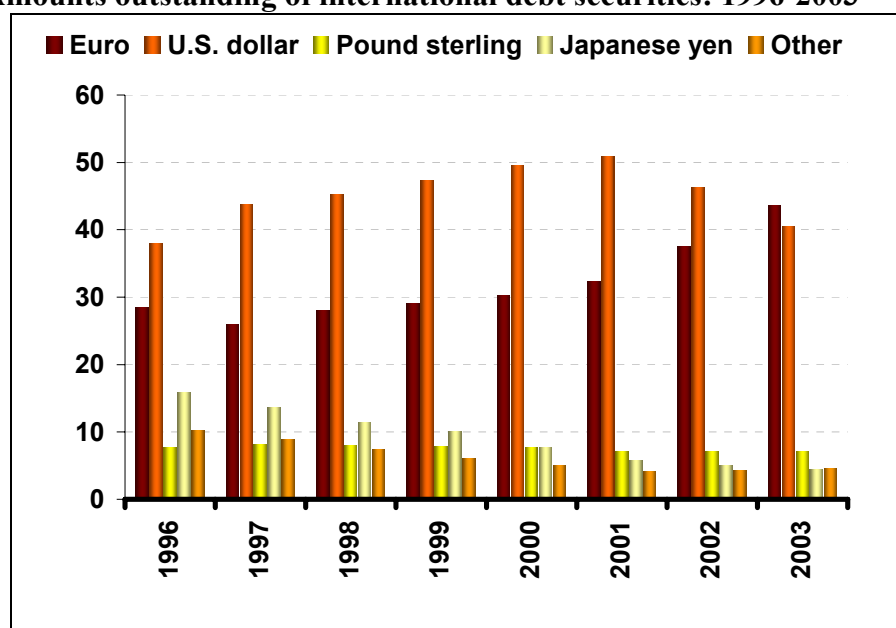


Source: Global Financial Stability Report, IMF, September 2004

An interesting fact shown in the next figure (Figure 3b) is the extent to which the amount outstanding of international debt securities has increasingly been denominated in euros over the period 1996-2003, and particularly so after 2001. In terms of the other main currencies, the share of the pound sterling has remained relatively stable, while that of the Japanese yen has been steadily losing ground.

¹¹ This issue is related to the “original sin” hypothesis described below.

Figure 3b
Amounts outstanding of international debt securities: 1996-2003



Source: Global Financial Stability Report, IMF, September 2004

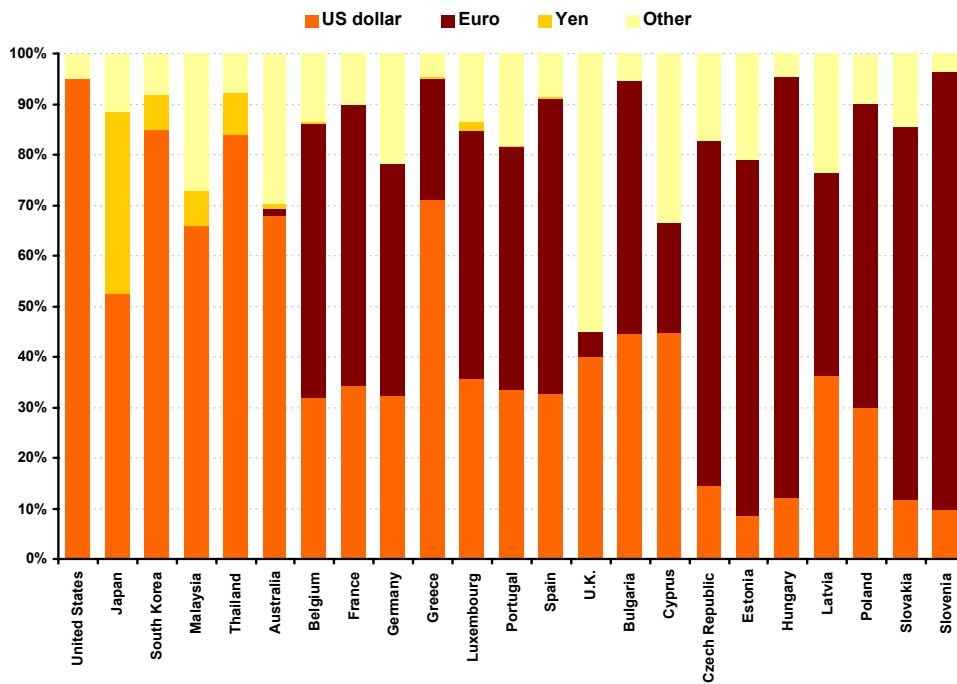
Thus, as is the case with the holdings of foreign exchange reserves, the US dollar and the euro eclipse all other currencies when it comes to the currency of choice in the denomination of international debt securities.

Next, I review the evidence on the currency in which trade flows are denominated, an issue known as currency invoicing.¹² This is a particularly important topic in international economics as it bears directly upon the issues of the exchange rate pass-through and pricing to market. As can be seen from the next two graphs (Figures 4a and 4b), the US dollar and the euro again dominate all other currencies in invoicing, at least for those countries for which data are available. What is perhaps most impressive from these figures is the extent to which these two currencies are used as vehicle currencies (i.e., a currency used in international trade transactions that do not involve the US or the eurozone as a direct counterpart).

¹² Much research has been devoted to understanding the reasons that lead to the adoption of these vehicle currencies, including the role of reference priced goods, organized exchanged traded goods, changes in economic volatility, standardization, the role of industry characteristics, and the degree of product market competition. See, for example, Goldberg and Tille (2004) and McKinnon and Schnabl (2004) on this topic.

Figure 4a

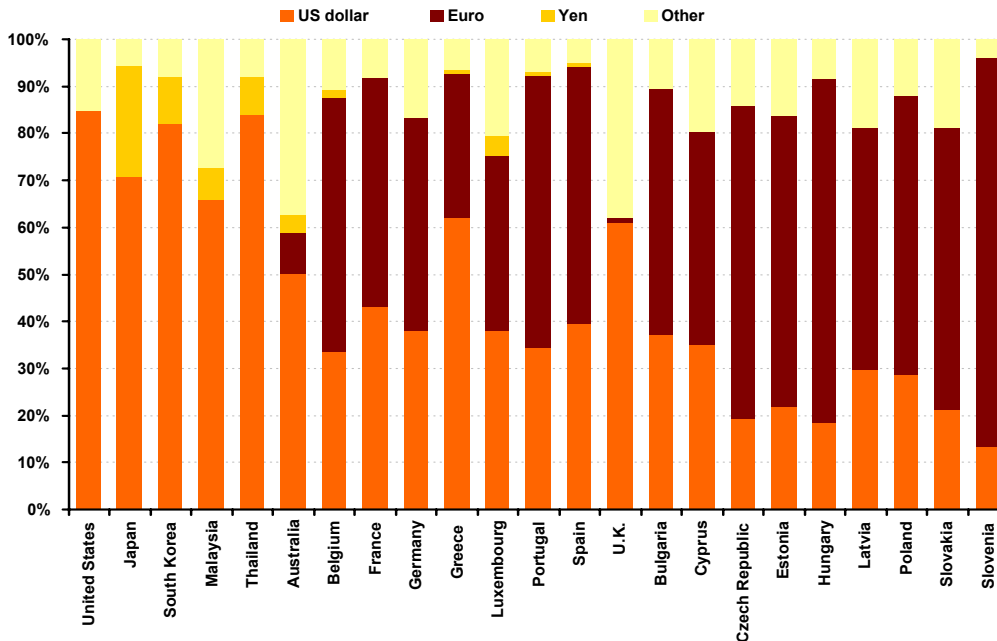
Share of Exports with Currency Invoicing in Different Currencies



Source: Goldberg and Tille (2004)

Figure 4b

Share of Imports with Currency Invoicing in Different Currencies



Source: Goldberg and Tille (2004)

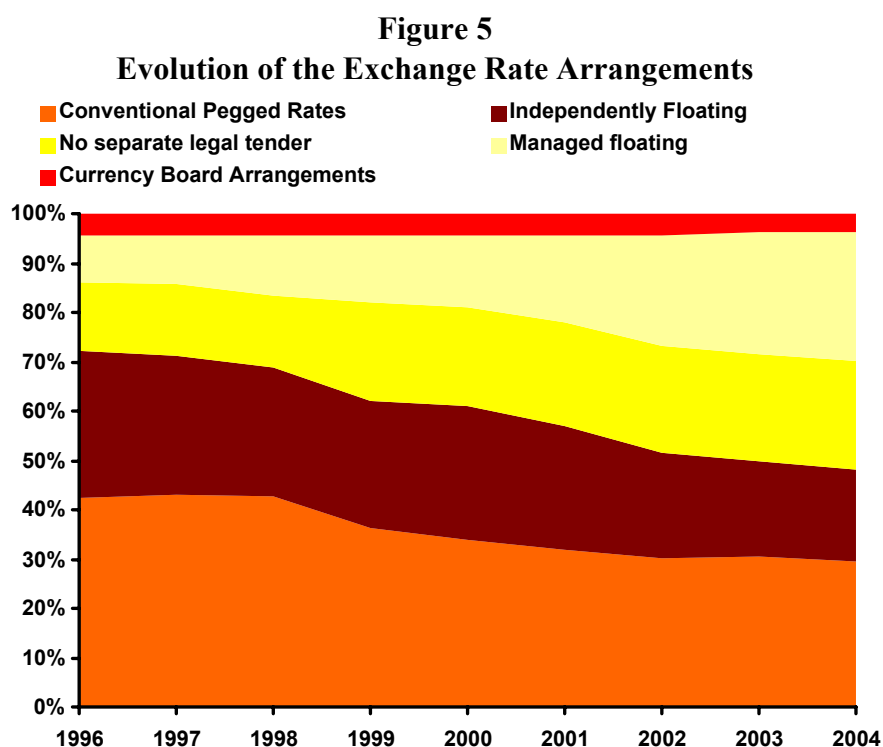
It is also apparent from these data, which correspond to almost all the countries for which this type of data is available, that Asian countries have played a large role in

the US dollar's prevalence as a vehicle currency, while the European countries have played a similar role in the case of the euro.

III. 2. Cross-country distribution of exchange rate regimes

In this section, I present some updated evidence on the evolution of the choice of exchange rate regimes across countries. In particular, I examine the distribution of exchange rate arrangements among IMF members over the past eight years. As mentioned before, this is a topic that has gained considerable attention as it concerns the “hollowing out of the middle” or “bipolar” hypothesis. Figure 5 presents the *de facto* exchange rate arrangement according to the IMF classification.

During the last five years, we have observed a significant reduction in the number of pegged arrangements (fix-pegs, horizontal bands, crawling pegs, and crawling bands); the percentage of countries that uses this kind of arrangement fell from 42 percent in 1996 to 29 percent in 2004. Part of this reduction can be explained by the 1999 conformation of the EMU, which eliminated the EMS, changing the exchange rate arrangement from pegged rates to “no separate legal tender” in some European countries. Another important aspect of the distribution of exchange rate arrangements is the increase in the number of managed floating regimes, and the reduction of the freely floating regimes during the last five years.



Source: IMF Annual Reports and Rogoff (2002)

This graph reinforces the view, set forth by Fischer (2001), that the “hollowing out of the middle” hypothesis has to include a qualification. In particular, the statement

that intermediate exchange rate regimes (between the extremes of fully fixed and fully flexible regimes) were increasingly unsustainable has been true only for those countries with liberalized capital accounts. Thus, although the increasing openness of capital accounts does raise the issue of the sustainability of intermediate exchange rate regimes, for the time being, the middle does not seem to be disappearing for.

IV. Currency blocs and the importance of having a national currency

In this section, I review the main economic rationale for having a national currency and its importance for conducting stabilizing monetary policy.

IV. 1. Why is it important to have a national currency?

Advantages and disadvantages: stabilization vs. balance sheet mismatches

International experience has shown that the three main reasons for a country to hold on to its own currency are: (a) seigniorage; (b) the need for a lender of last resort; and (c) the adjustment to shocks, both the ones that originate domestically and those coming from abroad.

Certainly, keeping a national currency means the possibility of having recourse to the Central Bank as the lender of last resort in trying to get out of a financial crisis, given that the financial crisis has already emerged.¹³ Another advantage of having a national currency is the seigniorage the government obtains from printing its own money, although this benefit seems to be less important for countries that already have responsible fiscal policies, an independent Central Bank, or those that have an inflation targeting regime.¹⁴ An advantage that is no less important is the possibility of conducting stabilization through monetary policy when the economy is subject to terms of trade and other idiosyncratic shocks. I will refer to this in more detail below, when I discuss the ability to conduct independent monetary policy.¹⁵

Nevertheless, despite all the advantages that keeping a national currency has, there are some disadvantages too.¹⁶ Countries with low levels of domestic savings, and whose domestic financial markets are not fully developed, have difficulties in borrowing in their national currencies at long maturities, which makes it difficult to finance long-term investment. This has come to be known as the “original sin” problem.¹⁷

Countries that suffer this “original sin” problem face two possibilities. The first option is to take long-term loans in foreign currency in the international markets. However, this option typically generates a balance sheet mismatch problem, for the liabilities of the economy are denominated in a foreign currency, whereas its assets are denominated in the domestic currency. Indeed, the emerging market economies have historically suffered from an excessive dollarization of both firms’ and

¹³ Of course, there is a negative *ex-ante* effect in having the Central Bank act as the creditor of last resort, on account of the well known moral hazard problem it creates. I will touch upon this point later.

¹⁴ See Chang and Velasco (2002) and Ize and Parrado (2002).

¹⁵ A further benefit of preserving the national currency is that countries keep the “exit option” to abandon the fixed exchange rate in the future as many emerging countries have done in the last decade. See Berg and Borensztein (2000).

¹⁶ This is the tradeoff which Frankel (1999) so forcefully reminds us of.

¹⁷ See Eichengreen, Hausmann, and Panizza (2003).

governments' liabilities. Empirical studies have shown to us that this currency mismatch problem, generated by the excessive dollarization of the liabilities of the economy, gets exacerbated when the country is not open to international trade, when the country has a fixed exchange rate regime – which eliminates the incentives for firms to hedge against variations in the value of the exchange rate – and when the country has such a bad history of inflation that the agents of the economy prefer to set their balance sheets in terms of the stable foreign currency.

The problem is that this currency mismatch makes these economies vulnerable to large and sudden variations in the exchange rate. Shocks in the level of the exchange rate can potentially generate banking crises, negatively affecting investment and the balance of payments of the economy, thus generating more volatility in output and prices. In trying to avoid these consequences, many small economies find it optimal to keep a fixed exchange rate regime or something close to it. But this “fear of floating” that small open economies experience is not always effective in preventing a crisis. In fact, many of these emerging countries have been vulnerable to “sudden stops” in the international capital inflows that, in some cases, have, indeed, generated twin balance of payments and banking crises.¹⁸ But problems for these economies do not stop there, for even if the “fear of floating” is effective in preventing currency and foreign debt crises, it has, in turn, other negative consequences. In particular, the “fear of floating” prevents the country from managing its monetary policy more freely, impedes the Central Bank from acting as a lender of last resort, potentially makes it more difficult to target inflation, and makes it harder to strengthen the domestic financial system.

If a small open economy with the “original sin” decides not to borrow in a foreign currency, the second option the economy has is to borrow in the domestic market at short-term maturities. But this option then creates a maturity mismatch problem when financing long-term investment projects, as liabilities are due in the short term but the flows of income from the project typically are raised in the long term. This maturity mismatch situation makes the economy vulnerable to variations in the interest rates as well as to variations in the international capital flows into the domestic market. In this context, a “sudden stop” in the inflows of capitals to the economy can again generate a banking crisis due to the difficulty in rolling over debt. In this case, countries find it helpful to keep a floating exchange rate, in order to be able to use an appropriate monetary policy to stabilize the level of the interest rates.¹⁹

Thus, when a small open economy makes its decision about which optimal exchange rate regime to adopt, the decision depends on, among other things, the ability to get itself funded with long term loans in the domestic currency (*i.e.*, on the extent of the balance sheet mismatches). There are a number of emerging market economies that have been able to start borrowing long term in their domestic currencies, thus escaping from these mismatches. Such is the case of Taiwan, India, South Africa, the Slovak Republic, Thailand, Singapore, Israel, Hungary, Poland, Philippines, Chile, the Czech Republic, Hong Kong, Egypt and Mexico, among

¹⁸ See De Nicoló, Honohan and Ize (2003).

¹⁹ Another measure, in the last years, that some emerging markets have taken is the implementation of capital controls to reduce the volatility of the international capital inflows. However, it is still controversial whether these capital controls have actually helped in reducing the volatility of output.

others. Empirical research has found that the key factors that have enabled these countries to start using long-term debt issued domestically was a set of sound macroeconomic policies, monetary credibility, some degree of capital controls, and a somewhat flexible exchange rate.²⁰ But there are also a growing number of countries that, just recently, have started issuing debt in their domestic currency in the international financial markets.²¹ However, as what really matters is avoiding the balance sheet mismatch problems, many emerging markets could find it easier to develop their domestic financial markets in order to enlarge the stock of funds available for investment and to extend their average maturity.

We have seen how the level of dollarization of liabilities affects the selection of the exchange rate regime. But the reverse causation between dollarization and exchange rates can also be true: a government that shows a willingness to maintain a fixed exchange rate gives incentives to firms to contract more debt in the foreign currency, exacerbating the problem of balance sheet mismatches through a moral hazard problem. Hausmann and Panizza (2003) recently presented evidence showing that for a cross section of countries, the ability to get long-term funding in the domestic currency – this is, to escape from the balance sheet mismatch problems – is positively correlated with the presence of a floating exchange rate regime, among other things. In the case of Mexico, there is clear evidence that after the exchange rate regime changed from fixed to fully flexible in 1995, firms in the country started hedging themselves better against the exchange rate risk by reducing the level of dollarization of its liabilities.²²

Therefore, the level of balance sheet mismatches and the degree of flexibility of the exchange rate are endogenous and inversely related. Now, what is the relation between these two and the ability to conduct an independent monetary policy? I turn to this question next.

IV. 2. In an environment dominated by two currency blocs, how independent can the monetary policy of an emerging market be?

Balance sheet mismatches, exchange rate regimes and monetary policy

Empirical observation shows that, on the one hand, economies with serious problems of balance sheet mismatches prefer to stabilize the level of the exchange rate, which makes them use monetary policy so as to have the domestic interest rate closely follow the variations of the international interest rates.²³ On the other hand, countries, for which balance sheet mismatches are not so heavy a burden, can follow a more flexible exchange rate regime, and have more room to use monetary policy to stabilize output in the presence of idiosyncratic shocks, or to target inflation. Thus, intuition suggests that the more important balance sheet mismatches are the less independent monetary policy is likely to be.²⁴

²⁰ See Hausmann and Panizza (2003).

²¹ For instance, the Czech Republic, South Africa, New Zealand, Poland, Hong Kong, China, Denmark, Canada, Singapore, Australia and Taiwan.

²² See Martínez and Werner (2002) and Pratap, Lobato and Somuano (2003).

²³ See Choi and Cook (2004), Cook (2004) and Galindo, Panizza and Schiantarelli (2003).

²⁴ Frankel, Schmukler and Servén (2004) show that, in the long run, both developed and developing countries closely follow the movements of the international interest rates (i.e. those of the US, Germany and Japan). But, in the short run, countries with a flexible exchange rate seem to have more independence than countries with fixed exchange rates.

However, Reinhart, Rogoff and Savastano (2003) have shown that emerging countries with a balance sheet mismatch can, in fact, still pursue independent objectives of monetary policy. In particular, highly dollarized emerging economies, which have a higher pass-through from exchange rate to inflation and are thus supposed to suffer from “fear of floating”, have still been able to use monetary policy to disinflate the economy as effectively as countries with a low degree of dollarization. Thus, the question should not be how independent can monetary policy be, but rather, when and to what extent is it optimal to pursue an independent monetary policy, given the degree of dollarization of the economy’s liabilities.

But just as monetary policy independence is somewhat determined by the degree of dollarization, the extent of dollarization is also affected by the government’s monetary policy capability. For instance, an already highly dollarized economy may find it optimal to fully dollarize the economy, forgoing its monetary policy and the use of its currency altogether. Or, on the contrary, a highly dollarized country might find it helpful to de-dollarize the economy in order to have a higher degree of monetary policy independence. Going one way or the other basically depends on the ability to implement a monetary policy to stabilize the economy.

Edwards and Magendzo (2003), for example, have shown that countries that have gone for full dollarization are small open countries where monetary policy is not credible (*i.e.*, there is a history of high inflation and high uncertainty), and some are not politically independent.²⁵ In a similar fashion, Mendoza (2000) finds that the cause of the increased dollarization in Mexico was a non-credible monetary policy and the presence of credit constraints. Thus, we can say that dollarization only helps a country that has lost its monetary credibility, and only in those cases in which there is no longer a role for monetary policy.²⁶ Monetary policy loses its effectiveness because it becomes less risky to lend in a stable foreign currency, given the high volatility of the domestic inflation and exchange rate.²⁷ It is also true that countries with these problems have low levels of domestic financial development, which often makes dollarization the only form of financial intermediation.²⁸ In fact, De Nicoló, Honohan and Ize (2003) present empirical evidence showing that, apart from the low credibility of macroeconomic policy and high volatility of the exchange rate, low quality legal and political institutions and lack of legal protection for domestic creditors also provide incentives for dollarization.²⁹

A country that has or needs more independence in its monetary policy can go the other way around, embarking on a process of de-dollarization and strengthening its financial system. De-dollarization would be useful because empirical evidence shows

²⁵ Dollarization here means forgoing the national currency and adopting a strong currency, whether it be the US dollar or some other currency.

²⁶ See Chang and Velasco (2002), De Nicoló, Honohan and Ize (2003) and Alesina, Barro and Tenreyro (2002).

²⁷ For empirical evidence see Jeanne (2002), and Ize and Levy-Yeyati (2003).

²⁸ See De Nicoló, Honohan and Ize (2003), and Ize and Parrado (2002). Also see Catão and Terrones (2000) for a model in which countries that experiment with dollarization in the banking system are countries with high volatility in the interest rate and the exchange rate, high costs in the banking sector, credit market imperfections, and low collateralization of domestic currency loans.

²⁹ These legal and political institutions include legal protection, political stability and accountability, rule of law, regulatory burden, government effectiveness and corruption. For more on this, see, Kaufmann, Kraay, Zoido-Lobaton (1999).

that the more dollarized an economy is, the more volatility there is in that economy.³⁰ Correspondingly, it is also clear that countries with a floating exchange rate have been better able to resist the shocks of the last decade.

Therefore, again we can conclude that the right monetary policy to stabilize output is to preserve an important degree of independence, which goes hand in hand with the development of the domestic financial system and the reduction of balance sheet mismatches. As I next discuss, a free floating exchange rate regime may be an important instrument that complements monetary policy in achieving the goal of stabilization.

IV. 3. The exchange rate regime and the capital account

Balance sheet mismatches, exchange rate regimes, and capital account liberalization: To float or not to float? To liberalize or not to liberalize?

During the last two decades, there has been a great deal of interest in ascertaining how the liberalization of the capital account is related to balance sheet mismatches, the exchange rate regime, independence of monetary policy, and to domestic financial development.

Experience shows us that countries that have liberalized their capital account successfully have, beforehand, moved to a floating exchange rate regime, and have a sufficiently developed domestic financial market.³¹

There is no clear evidence on the effects of capital account liberalization on output for emerging countries. There have been countries that gain in terms of higher and less volatile output when liberalizing the capital account, but there have also been bad experiences.³² It seems that liberalizing in countries with a low level of development or poor macroeconomic policies may have a negative effect when whereas countries with good policies and sound institutions gain by liberalizing. The explanation may lie with the level of financial development and the presence of balance sheet mismatches. If a country does not have a well-developed financial market and suffers balance sheet mismatches, then the liberalization of the capital account is more likely to cause trouble than to help, as it can increase the volatility of international capital flows and of the exchange rate, aggravating the currency and maturity mismatches, and possibly, even increasing the probability of experiencing a banking or a currency crisis. Thus, for emerging economies with mismatch problems, the liberalization of the capital account can bring about dire consequences.³³

Only in countries that have sound macroeconomic policies and solid institutions – with financial institutions among them – has liberalization resulted in a positive effect on output.³⁴ This positive outcome could work through a “discipline effect” by giving

³⁰ For the negative effect of dollarization on volatility, see, Edwards and Magendo (2003), Edwards (2001), and De Nicoló, Honohan and Ize (2003). Calvo and Izquierdo (2004) show that the more dollarized an emerging market is, the more “sudden stops” it experiences.

³¹ See Demirgüç-Kunt and Detragiache (1998).

³² See, Ranciere, Tornell and Westermann (2004), and Kaminsky and Reinhart (1999).

³³ Kaminsky and Reinhart (1999) show that financial liberalization may spur crises. Berganza and García-Herrero (2004) found that countries with balance sheet mismatches and a fixed exchange rate suffer an increase in the country’s risk premium after a depreciation of the currency, but the effect is greater for countries with financial imperfections.

³⁴ See, Demirgüç-Kunt and Detragiache (1998).

the country a stronger incentive to implement better domestic policies, in view of the new international competition after the liberalization.³⁵ Of course, this positive effect of the liberalization would take a longer time to work out than the negative effects we already talked about, and only provided that the balance sheet mismatches do not represent a big problem. In fact, Kaminsky and Schmukler (2003) show that emerging countries experience more volatility in the short run than in the long run after they liberalize the capital account. Similarly, Chinn and Ito (2002) note that financial openness helped domestic financial development only in the emerging countries that already had high levels of shareholder protection and good accounting standards. This means that for the emerging countries where the liberalization of the capital account has worked well, the liberalization occurred after the balance sheet mismatch problem had been contained, and the liberalization went along with the development of the domestic financial markets.³⁶

Thus, we can say that capital account liberalization is not a sufficient condition for growth, since some countries have done badly after they liberalize. These are the countries that do not have well-developed domestic financial markets and that have balance sheet mismatch problems. But if we look at the experience of some emerging economies, we can also say that capital liberalization is not a necessary condition for output growth either, as there are countries that have not liberalized their capital account and still have done well in terms of output.³⁷ Some of these are countries that have been able to develop a strong domestic financial market and avoid the balance sheet mismatches.

Therefore, we can say that what is relevant for an emerging economy is not so much whether to liberalize or not to liberalize, but rather, is to strengthen its domestic financial markets with the intention of having funds available in the domestic currency to finance long-term investment (*i.e.*, de-dollarization and financial deepening). Once an emerging market already has achieved this, the next useful step is to move towards making the exchange rate and the capital account more flexible in order to gain the ability to stabilize output and obtain long-term investment financing.³⁸

V. Mexico's experience under a flexible exchange rate regime

In this section, I will outline the main developments over the past two decades in Mexico's exchange rate policy, with particular reference to the experience under the current flexible exchange rate regime. I will argue that this regime has been particularly beneficial in terms of promoting macroeconomic stability, and is thus likely to remain in place for the foreseeable future. I will also argue that this regime has worked particularly well in the Mexican case since it has complemented the inflation targeting framework with which monetary policy has gradually converged over the past eight years.

³⁵ See, Arteta, Eichengreen and Wyplosz (2001).

³⁶ See Rogoff *et al.* (2003) and Prasad *et al.* (2003).

³⁷ China is perhaps the most prominent example of a country with a closed capital account and a very successful track record of macroeconomic performance.

³⁸ See Rogoff *et al.* (2003).

V. 1. Background and evolution of the exchange rate regime

Throughout its history, Mexico has experimented with several exchange rate arrangements. From the pegged-but-adjustable regime that prevailed during the Bretton-Woods Agreements era to the current freely floating regime, the implementation of each exchange rate regime has not always proceeded smoothly or responded to a planned design. Instead, the adoption of some exchange rate arrangements has, at times, been the result of rather trying circumstances.³⁹

Mexico has presided over two of the largest international financial crises of the last two decades, beginning in 1982 with the debt crisis, and then in December 1994, with the currency and financial crisis, commonly referred to as the Tequila crisis, and termed by Michael Camdessus, “the first financial crisis of the twenty-first century”. In both cases, the crises involved a sharp devaluation of the currency and the transition to a new exchange rate regime.

It has now been a decade since Mexico embarked on uncharted territory by adopting a flexible exchange rate regime. To appreciate the extent to which this was a brave new world for us, it is important to remember that Mexico was the only emerging market economy at the time to adopt a free float.⁴⁰ This regime had previously been confined to more developed economies and, particularly, to the G-3.⁴¹ Furthermore, the country had a long history of having used the exchange rate as the nominal anchor of the economy.

Thus, as there was no precedent for other soft-currency economies successfully adopting this exchange rate regime, and given the country’s tradition of using the exchange rate as the nominal anchor, there was, at first, understandable skepticism as to whether this arrangement would be maintained or not. Another source of doubt regarding the sustainability of a freely floating regime was the volatility and uncertainty that this regime would introduce into the economy.

It is important to emphasize that the adoption of this regime was the only choice Banco de Mexico had following the December 1994 crisis. Nevertheless, even as the country regained basic macroeconomic and financial stability and the Central Bank accumulated substantial foreign exchange reserves, it was decided to maintain the floating exchange rate arrangement. Thus, despite the initial skepticism and uncertainty, the Central Bank decided to maintain the float as the benefits of this exchange rate regime became apparent.

³⁹ As an institutional matter, it is important to note that the exchange rate policy is actually not determined solely by Banco de Mexico, but rather, by the Exchange Commission, a body composed of four members: the Secretary and the Under-Secretary of Finance (Secretaria de Hacienda y Credito Publico), and the Governor and one Deputy Governor of the Central Bank. They take decisions based on a simple majority voting rule, with the Secretary of Finance having the decisive vote in case of a tie.

⁴⁰ According to the *de facto* classification of exchange rate regimes by Bubula and Otker-Robe (2002), as of the end of 1994 Mexico was the only emerging market country with an independently floating regime. While there were other developing countries classified under such a regime, they were mostly small economies closed in terms of their capital accounts (e.g., Afghanistan, Albania, Gambia, Haiti, Mongolia, Mozambique, Papua New Guinea, Sierra Leone, Somalia and Zambia). Since, other emerging market economies including Indonesia, South Korea and South Africa in 1997, Brazil, Chile and Peru in 1999, Philippines and Poland in 2000, Colombia and the Czech Republic in 2001, and Argentina in 2002 have followed Mexico’s steps in adopting an independently floating regime.

⁴¹ According to Bubula and Otker-Robe (2002), only Australia, Japan, New Zealand, Switzerland and the United States were consistently classified as independent floaters throughout the period 1990-2001. Sweden and the United Kingdom joined this group in 1992, following their abandonment of the ERM.

Over time, this regime has proven to be a key element in Mexico's quest to attain macroeconomic stability, to the point that few, if any, serious observers are now suggesting a return to the previous era of a predetermined exchange rate regime. At the same time, it is important to recognize that the floating exchange rate regime has come about in a gradual fashion, with Banco de Mexico increasingly abandoning any form of intervention and withdrawing from the foreign exchange market.

Prior to the crisis of December 1994, monetary policy in Mexico had been subordinated to the exchange rate regime. In particular, the exchange rate had been used as the nominal anchor in the economy, and monetary policy was geared towards sustaining a predetermined exchange rate regime. Immediately following the 1994 crisis, there was a transition phase in which monetary policy focused on stabilizing inflation and reestablishing orderly financial market conditions. This was achieved through setting limits to the growth of net domestic credit, targeting intermediate narrow monetary aggregates, and rebuilding foreign exchange reserves.

Following the collapse of the pegged exchange rate regime in December 1994, the Central Bank was in need of an alternative framework for conducting monetary policy, *i.e.*, an alternative nominal anchor. Once macroeconomic stabilization was achieved, attention began to shift to inflation goals, then to annual inflation targets and, eventually, to a multi-annual inflation target. The targeting of narrow monetary aggregates was abandoned in favor of explicit inflation targets. Although the IT framework was not officially adopted until 2001, several of its key elements were present before this date.

The flexible exchange rate regime has been one of the three pillars on which macroeconomic stability in Mexico has been based. The second pillar has been the adoption and implementation of an IT monetary policy framework. The third pillar has been fiscal discipline, the existence of which is a precondition for attaining monetary stability. These three pillars have jointly allowed the Central Bank to pursue an independent monetary policy and, for the first time in many years, to conduct a countercyclical monetary policy.

As mentioned before, the country has gradually converged to an IT framework over the past eight years, although the framework was formally adopted only in 2001. Inflation targeting has often been described as a monetary policy framework of "constrained discretion."⁴² In this sense, the combination of a flexible exchange rate regime, an open capital account and an IT framework have complemented each other well in the case of Mexico. Given that the combination a floating exchange rate regime and an open capital account gives the Central Bank certain flexibility to pursue an independent monetary policy, the constant accountability and transparency imposed by the IT framework acts as a way of insuring economic agents that the Central Bank will react to deviations from its target inflation rate, despite the absence of the exchange rate as the nominal anchor. Thus, these three policies have provided Banco de Mexico with the ability to implement an independent monetary policy within a framework of "constrained discretion."

In the case of Mexico, transparency has come in the form of an explicit long-run numerical target, given in terms of headline inflation, which was announced at 3

⁴² Bernanke and Mishkin (1997).

percent with a +/-1 percent band around it at the end of 2002. Accountability has come mainly in the form of the Monetary Policy Decision announcements (released fortnightly) and the longer communiqués (released every month). The communiqués contain a brief analysis of the economic conditions that lead the Monetary Policy Committee to take a particular decision. These explanations are further expanded in the Quarterly Inflation Report, which is presented to the public in a press conference with a question and answer session with the Bank's board.

Of course, there were two other key elements or pillars that made the adoption of a flexible exchange arrangement and an IT regime successful. The first was the absence of fiscal dominance that was the result of a major fiscal adjustment effort in 1995 and the automatic stabilizers that were included in the budget in case sharp falls in projected revenues occurred. The second was the constitutional reform that led to the independence of Banco de Mexico from the federal government and its new mandate to preserve price stability as its primary goal. These two pillars or institutional reforms set the basis for an independent monetary policy.

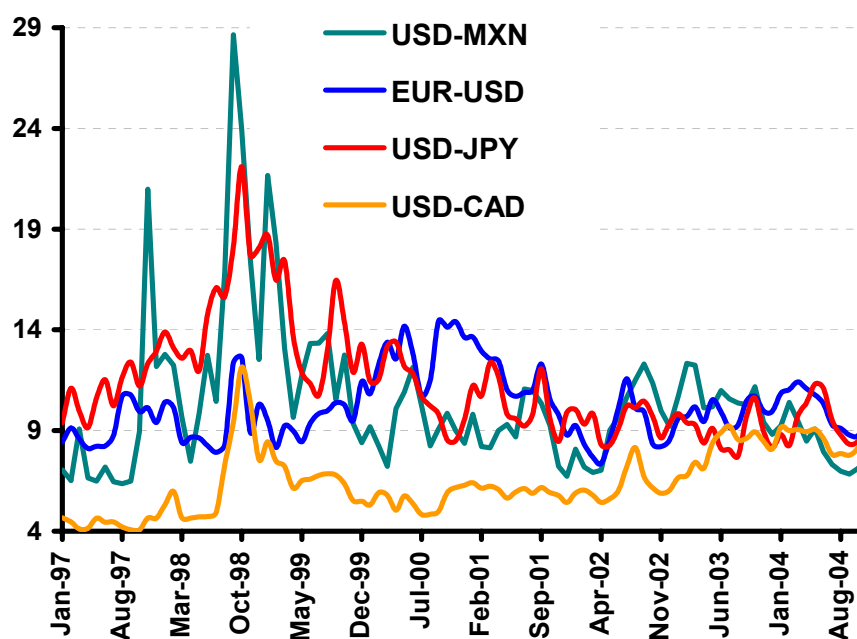
V. 2. An assessment of Mexico's experience under an exchange rate regime

The experience of Mexico with a floating exchange rate regime has been very successful. It has allowed Banco de Mexico to pursue an independent monetary policy. The adoption of this exchange rate arrangement has also brought about several benefits in addition to the ability it has given the Central Bank to implement an independent monetary policy. Next, I review some of the most important effects observed following the introduction of the floating exchange rate regime.

One of the most important effects of the introduction of a flexible exchange rate regime has been that the volatility of the exchange rate, and the uncertainty that accompanies it, have in no way hindered the growth in trade or capital flows. This fact is of key importance, given that the certainty and stability brought about by a fixed exchange rate regime is one of the main rationales for adopting such an arrangement.

In terms of volatility, in practice, the floating exchange rate regime has worked remarkably well. In fact, the Mexican peso volatility has not been greater in recent years than that of other major currencies, as shown by Werner (1997a). As the next figure (Figure 6) depicts, the volatility of the nominal exchange rate between the Mexican peso and the US dollar, implicit in the price of options, as measured by the 30-day moving average, has been similar to the volatilities of the nominal exchange rates between the US dollar and the euro, the Japanese yen and the Canadian dollar.

Figure 6
Implicit Volatility in the Options for Different Currencies
 (Monthly average of the daily data, in percent)



Source: Banco de México

This fact can also be appreciated in the next table (Table 2), which summarizes the volatilities of the nominal exchange rate of some of the main currencies vis-à-vis the US dollar, as measured by the average coefficient of variation of the daily nominal exchange rate of the US dollar vis-à-vis the Mexican peso and other currencies.

One of the most important benefits of having adopted a floating exchange rate is the flexibility that this variable has given the economy for absorbing and adjusting to external shocks. In the ten years since the adoption of this regime, the country has been able to effectively weather several major international financial crises, including the episodes in East Asia in 1997, Russia in 1998, Brazil in 1998-1999, Turkey in 2001 and Argentina in 2001-2002. It has also allowed the country to transit smoothly along the business cycle during the most recent downturn of the US economy (2001-2002). Moreover, the country's adjustment to the current cycle of global monetary policy tightening has proceeded in an orderly way, in contrast to previous episodes – such as in 1982 and 1994 – when increases in the world interest rate brought about major disruptions and the onset of two major financial crises.

Table 2
Average coefficient of variation of the daily nominal exchange rate of the Mexican peso and other currencies vis-à-vis the US dollar

Year	Mexican peso	Euro	Japanese yen	Pound sterling
1995	0.028	-	0.017	0.008
1996	0.007	-	0.009	0.007
1997	0.007	-	0.013	0.009
1998	0.011	-	0.019	0.008
1999	0.010	0.010	0.014	0.008
2000	0.008	0.015	0.010	0.010
2001	0.008	0.012	0.011	0.008
2002	0.008	0.010	0.012	0.008
2003	0.011	0.013	0.009	0.010
2004*	0.008	0.010	0.011	0.011

* Year to date (November)

Source: Banco de México

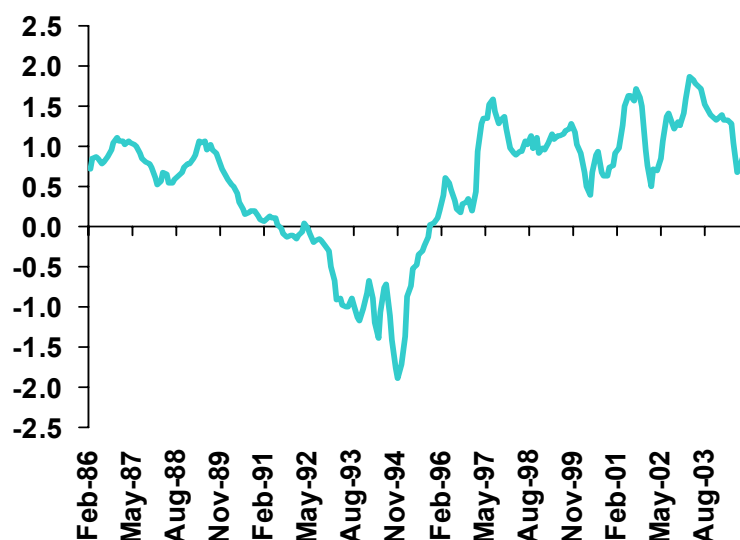
Another major benefit of having adopted a floating exchange rate is that this regime has helped eliminate the moral hazard problem created by the fixed or pegged exchange rate regimes that was at the root of the December 1994 crisis. It is now commonly agreed that these regimes often provide investors with one-sided bets and promote short-term speculative capital flows. Furthermore, by offering an explicit guarantee to economic agents that the currency will not depreciate, it encourages excessive borrowing in foreign currency (mainly in US dollars). Thus, it discourages firms and investors from hedging their foreign currency positions as it reduces the perceived risks of an abrupt devaluation. In the case of Mexico, this was true not only in the case of firms in the tradables sector that had revenues in US dollars, but also of firms in the non-tradables sector. Moreover, the financial sector engaged in excessive lending as a result of inappropriate supervision and regulation and also, as a result of the implicit guarantee that they would be bailed out in case of a devaluation. This led to major balance sheet mismatches, and to an increase in the vulnerability of firms' and banks' financial positions to movements in the exchange rate.

As noted earlier, there is now agreement that the crawling peg exchange rate regime was partly responsible for the 1994 crisis because it allowed imbalances to build up and made the country more vulnerable to external shocks. Instead, under the current freely floating regime, we have witnessed a major balance sheet re-adjustment process: the de-leveraging and re-composition of portfolios in favor of domestic-currency-denominated debt and against foreign-currency-denominated debt. This has, in turn, promoted the development of local bond markets, and the extension of the duration of several existing debt instruments.

As the next figures (Figures 7 and 8) show, a major adjustment of the balance sheets of the private commercial banking sector, as well as of the non-financial corporate sector, has been taking place in Mexico since the crisis of December 1994. This adjustment process has implied a major recomposition of liabilities, which has increased the share of local-currency denominated debt and reduced the share of foreign-currency-denominated debt. As a result, currency mismatches, which existed

at the origin of the 1994 peso crisis, have been substantially reduced over the period analyzed. This, in turn, has made the private commercial banking sector and the non-financial corporate sector less vulnerable to exchange rate volatility.

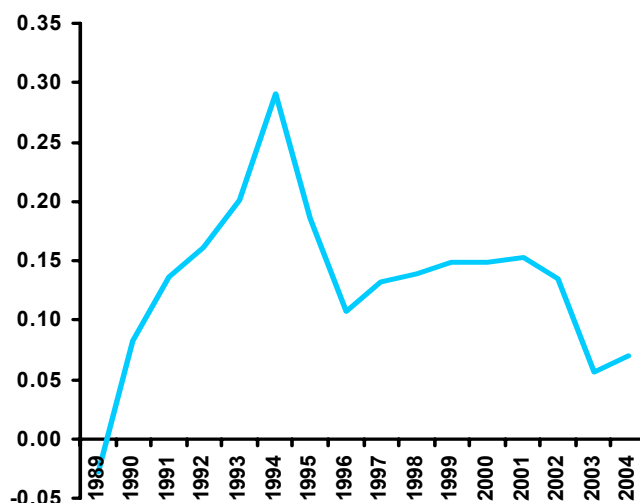
Figure 7
Currency Mismatches: Banking Sector: 1986-2003
(3-month moving average as a percent of GDP)



N.B. A currency mismatch is defined as the ratio of the difference between assets and liabilities of the banking sector in foreign currency to total liabilities.

Source: Own calculations using data from Banco de México

Figure 8
Currency Mismatches in the Corporate Sector: 1998-2004

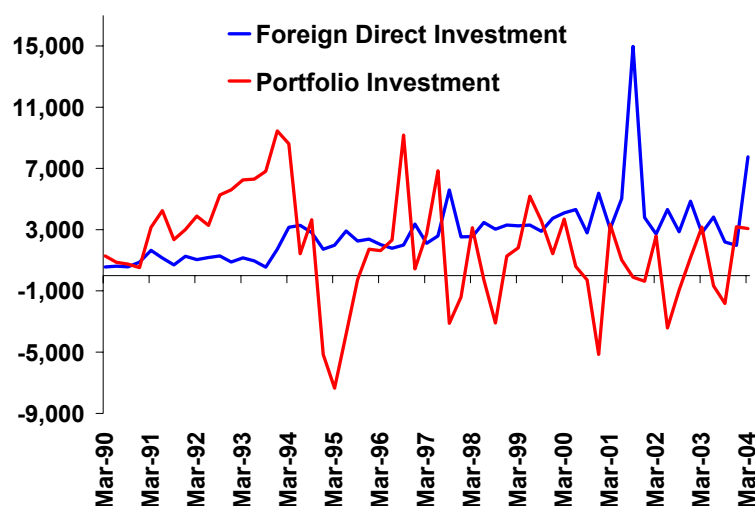


N.B. Currency Mismatch (CM) is defined as the difference between a firm's foreign currency liabilities and total exports, normalized by total liabilities.

Source: Own calculations using data from the Mexican Stock Exchange (BMV)

At a more aggregate level, the flexible exchange rate regime has strengthened the position of Mexico's balance of payments by encouraging a recomposition of the structure of capital flows. In particular, short-term capital inflows, which are by nature more volatile, have lost importance as a share of total capital inflows. At the same time, foreign direct investment (FDI) has gained importance as a share of total investment.⁴³ As the next figure (Figure 9) shows, there has been a substantial recomposition of foreign investment in Mexico following the December 1994 crisis: from 1990 until 1994, FDI accounted for about a third of total foreign investment, with portfolio investment accounting for the other two thirds; in contrast, from 1995 until today, these proportions have been reversed.

Figure 9
Foreign Investment in Mexico: 1990-2004
(Millions of US dollars)

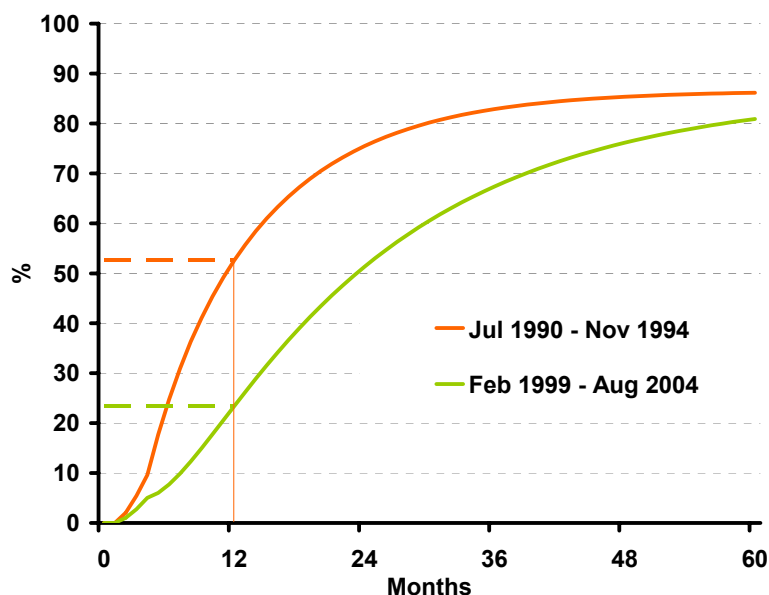


Source: Banco de México

There is also evidence that the floating exchange rate regime has brought about a change in pricing behavior of firms. In particular, the floating exchange rate regime appears to have reduced the pass-through from changes in the nominal exchange rate to domestic inflation. This is probably the result of the perception among firms and other economic agents that under the current regime, nominal exchange rate depreciations are likely to be followed by appreciations. Thus, firms are now less keen to change prices in response to a change in the nominal exchange rate until they have more information as to whether the change is transitory or permanent. As shown in the next two figures (Figures 10 and 11), there is evidence that the pass-through coefficient of the nominal exchange rate to domestic prices (both in the case of the core goods prices and core services prices) has fallen significantly over time.

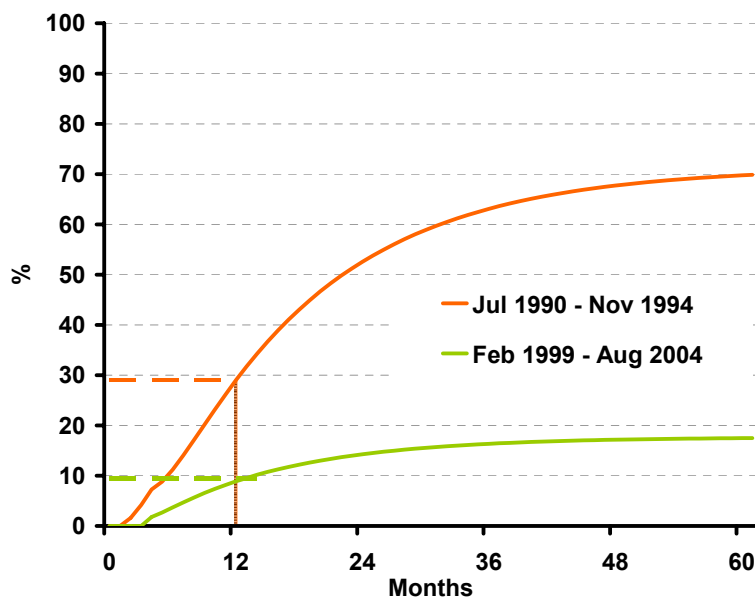
⁴³ The increasing importance of workers' remittances as a capital inflow, a phenomenon unrelated to the exchange rate regime, has also aided in bringing about a more stable composition of capital inflows within the balance of payments.

Figure 10
Pass-through of the nominal exchange rate to core goods prices
(accumulated effect, %)



Source: Own calculations using data from Banco de México

Figure 11
Pass-through of the nominal exchange rate to core services prices
(accumulated effect, %)



Source: Own calculations using data from Banco de México

It is likely that the improved credibility that economic agents accord to the monetary authority has contributed to the decrease in the exchange rate pass-through. Another important aspect in which an increase in the credibility of the Central Bank may be reflected is in the dollar deposit in the banking system as a share of total deposits. If so, then an increase in the credibility in monetary policy has indeed been

occurring in Mexico; for, the share of dollar deposits has been falling steadily since the December 1994 crises (Figure 12). And although some of the decrease might be the result of the nominal exchange rate appreciation during the period, the frequent, and sometimes prolonged, episodes of depreciation are inconsistent with this explanation.

Figure 12
Deposit Dollarization
(percent of total deposits)



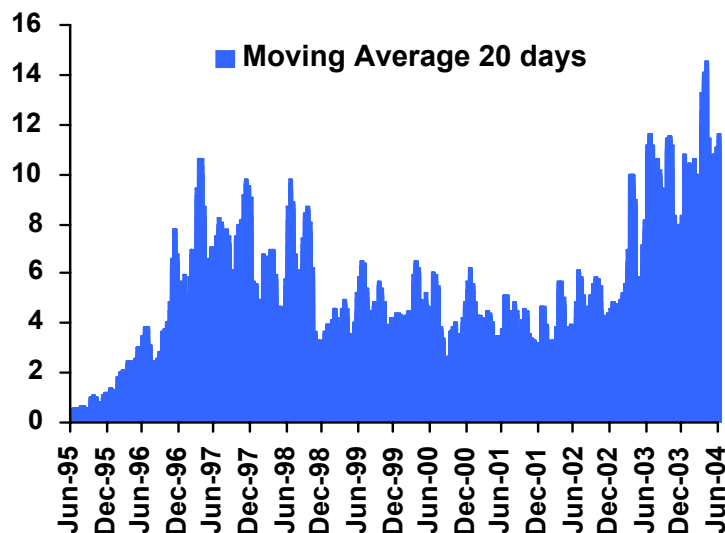
Source: Banco de México

While the flexible exchange rate regime has worked well for Mexico, such an arrangement may not be the most appropriate arrangement for all countries with an independent currency. There is a series of conditions that can help a country to successfully implement such an arrangement, including the introduction of financial instruments to allow economic agents to manage exchange rate risks, and thus, cope with the uncertainties inherent to a floating rate regime. Moreover, a relatively well diversified export base is also important as a way of developing a deep foreign exchange market and avoid sharp exchange rate movements associated with commodity price fluctuations.

One important condition that has allowed Mexico to successfully implement a free floating regime has been the existence of a reasonably well developed financial market and the more recent introduction of instruments to hedge exchange rate risk, such as the currency futures and options on the Mexican peso. There are now well developed financial markets for such instruments both in Mexico and abroad, including the Chicago Mercantile Exchange (CME) and the Mexican Derivatives Market, or Mexder.⁴⁴ Mexican peso futures at the CME began trading in April 1995, just four months after the December 1994 peso crisis, and were the first emerging

market currency product to be traded on the exchange.⁴⁵ The volume of contracts traded in this market has increased steadily, and it is now a very liquid market (Figure 13). The Mexder initiated operations in December 1998, and introduced futures contracts in the Mexican peso-US dollar exchange rate from the beginning.

Figure 13
Daily traded volume of Mexican peso futures
in the Chicago Mercantile Exchange (CME)
(In thousands of contracts)



Source: Chicago Mercantile Exchange

⁴⁵ Other emerging market currencies have since followed, including the Brazilian real, the Czech koruna, the Hungarian forint, the Polish zloty, the Russian ruble and the South African rand.

Table 3
Currency distribution of reported foreign exchange market turnover⁴⁶
Percentage shares of average daily turnover in April

	(percent)					
Currency	1989	1992	1995	1998	2001	2004
US dollar	90	82	83.3	87.3	90.3	88.7
Euro					37.6	37.2
Deutsche mark	27	39.6	36.1	30.1		
French franc	2	3.8	7.9	5.1		
ECU and other EMS currencies	4	11.8	15.7	17.3		
Japanese yen	27	23.4	24.1	20.2	22.7	20.3
Pound sterling	15	13.6	9.4	11	13.2	16.9
Swiss franc	10	8.4	7.3	7.1	6.1	6.1
Australian dollar	2	2.5	2.7	3.1	4.2	5.5
Canadian dollar	1	3.3	3.4	3.6	4.5	4.2
Swedish krona		1.3	0.6	0.4	2.6	2.3
Hong Kong dollar		1.1	0.9	1.3	2.3	1.9
Norwegian krone		0.3	0.2	0.4	1.5	1.4
Korean won				0.2	0.8	1.2
Mexican peso				0.6	0.9	1.1
New Zealand dollar		0.2	0.2	0.3	0.6	1
Singapore dollar		0.3	0.3	1.2	1.1	1
Danish krone		0.5	0.6	0.4	1.2	0.9
South African rand		0.3	0.2	0.5	1	0.8
Polish zloty				0.1	0.5	0.4
Taiwan dollar				0.1	0.3	0.4
Indian rupee				0.1	0.2	0.3
Brazilian real				0.4	0.4	0.2
Czech koruna				0.3	0.2	0.2
Thai baht				0.2	0.2	0.2
Hungarian forint				0	0	0.2
Russian rouble				0.3	0.4	0.7
Chilean peso				0.1	0.2	0.1
Malaysian ringgit				0	0.1	0.1
Other currencies	22	7.7	7.1	8.2	6.5	6.1
All currencies	200	200	200	200	200	200

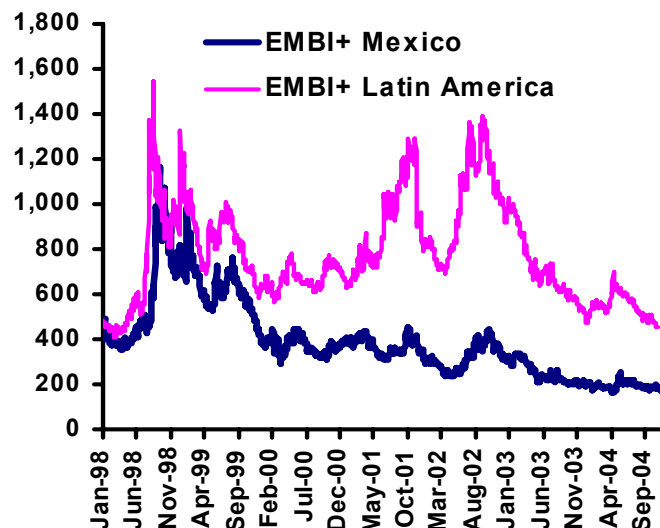
Source: Table 3 in the BIS Triennial Central Bank Survey of Foreign Exchange and Derivative Market Activity, 2004

The flexible exchange rate regime has complemented the other elements of the macroeconomic framework well, including fiscal discipline and the IT framework,

⁴⁶ Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200 percent instead of 100 percent. The figures relate to reported “net-net” turnover, i.e., they are adjusted for both local and cross-border double-counting. Data for April 1989 exclude domestic trading involving the Deutsche mark in Germany. For 1992-98, the data cover local home currency trading only. See BIS (2004).

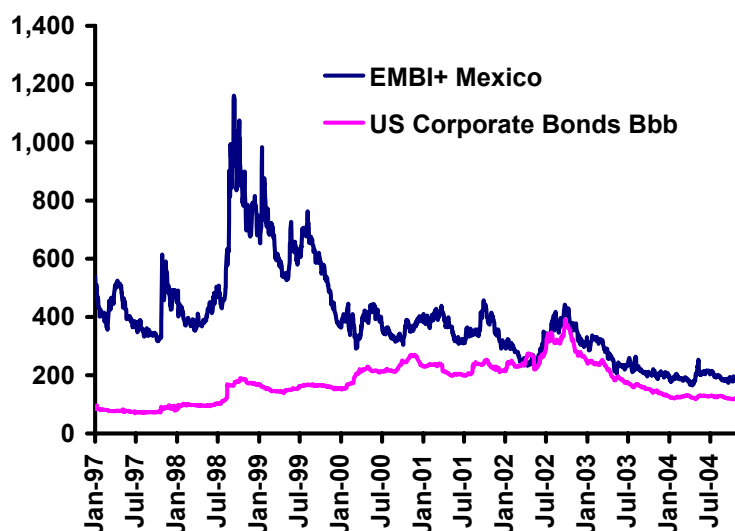
and has contributed to building a more stable macroeconomic environment. This has been reflected in the reduction of the volatility of the country risk premium, as the next figures show (Figures 14 and 15). In fact, it may be seen that Mexico's country risk premium has detached itself from other countries in Latin America and has begun to behave more in synchronization with the US corporate sector.

Figure 14
Country risk premiums (EMBI+)
(basis points)



Source: J.P. Morgan

Figure 15
Country risk premiums (EMBI+)
(basis points)

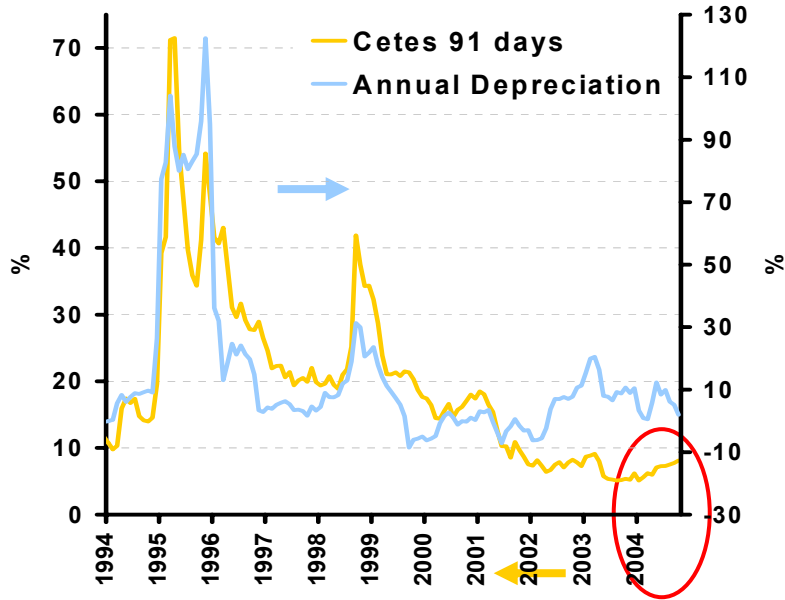


Source: J.P. Morgan

The reduction in the volatility of the country risk premium has permitted the transition towards a monetary tightening phase of the cycle in an orderly way, and

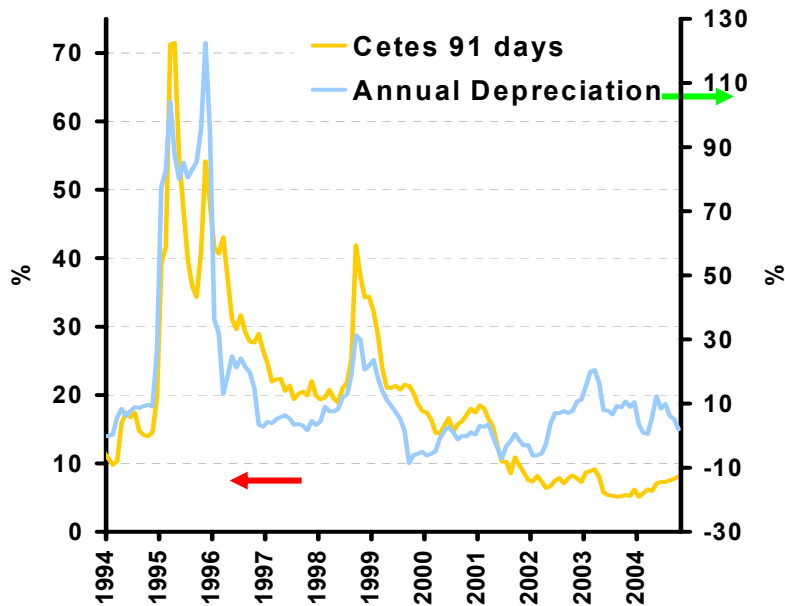
without a similar increase in the depreciation rate of the currency for the first time in several decades, as the next two figure (Figures 16 and 17) show.

Figure 16
Nominal interest rate on the 91-days government bond (Cetes)
and the annual depreciation of the nominal exchange rate
(in percent)



Source: Author calculations using data from Banco de México

Figure 17
Interest rate on the 91-day Cetes and correlation coefficient
with the depreciation of the nominal exchange rate
(left scale in percent, right scale in units)



N.B. The correlation coefficient corresponds to a 5-year moving average

Source: Author calculations using data from Banco de México

As is apparent from these figures, the latest episode of increases in the interest rate has not been accompanied by a corresponding increase in the Mexican peso-US dollar depreciation rate. As the country risk premium has stabilized, interest rates have begun behaving in a way consistent with the phase of the economic cycle the economy is undergoing. Thus, as the expansionary phase of the cycle continues, interest rates have been increasing, while the nominal exchange rate has maintained a stable tendency.

VI. Conclusions

As I noted at the beginning, it has been a decade now since Mexico adopted a flexible exchange rate regime. Overall, the Mexican experience with a floating regime has been very successful, as this arrangement has allowed Banco de Mexico to pursue an independent monetary policy. Moreover, the volatility of the exchange rate, and the uncertainty that accompanies it, have in no way hindered the growth of trade or capital flows. Despite the country's long history of having used the exchange rate as the nominal anchor of the economy, following the collapse of the pegged exchange rate, monetary policy and the IT regime themselves soon replaced the exchange rate and began acting as the nominal anchor of the economy.

In addition to the ability to implement an independent monetary policy, the flexible exchange rate regime has also brought other important benefits in terms of macroeconomic stability, financial sector development, and policy credibility. In terms of building credibility on monetary policy, this is reflected in three pieces of evidence. Empirical analysis suggests that the exchange rate pass-through to domestic inflation has been declining since the adoption of the floating regime. The second piece of evidence is related to the decline in the ratio of foreign currency deposits to total deposits (dollarization) in the Mexican banking system. The third, and probably the most direct test of credibility, is the gap between inflation expectations and the inflation target, which declined very rapidly after 1998, while it remained at low levels, affected only by certain supply shocks to non-core inflation.

As far as the reduction in the vulnerability of the economy is concerned, there is substantial evidence that, as a result of the new exchange rate regime, today, there is a much lower level of balance sheet mismatches, both in the banking sector as well as in the non-financial corporate sector. At a more aggregate level, there has been a recomposition of capital flows in favor of FDI and against short-term portfolio investments, which are typically more volatile. There is also evidence that the floating regime, along with the inflation targeting framework and other structural reforms, has contributed to more stable behavior of key economic variables, including the country risk premium, output, and interest rates.

While a flexible exchange rate regime may not be the most appropriate arrangement for all emerging economies, it has worked remarkably well in Mexico. Of course, there is a series of conditions that can help a country to successfully implement such an arrangement, including a well-diversified export base and the introduction of financial instruments to allow economic agents to manage exchange rate risks and thus, cope with the uncertainties inherent to a floating rate regime.

These two elements are likely to lead to a deep foreign exchange market. In our case, it is important to highlight two key elements, or pillars, that made the adoption of this exchange rate regime possible. The first was the absence of fiscal dominance, which was the result of major fiscal adjustment efforts in 1995 and the inclusion of automatic stabilizers in the government budget. The second is the constitutional reform that led to the independence of Banco de Mexico from the federal government and its new mandate to preserve price stability as its primary goal.

After many years of experimenting with different exchange rate regimes in Mexico, we have arrived at the same conclusion that Canada reached several years before: even relatively well integrated economies differ in several dimensions, including the most relevant shocks that affect each of them. In this situation, a floating exchange rate regime provides the much-needed flexibility to the economy so as to adjust to these shocks. Given that the floating exchange rate regime has worked well for Mexico over this past decade, I believe it will remain as a fundamental element of our macroeconomic framework for the years to come.

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Jacob Frenkel: Many thanks to Guillermo Ortiz Martinez for giving us that insight into Mexico's experience of a floating exchange rate regime.

Our next speaker is Jean-Pierre Roth, the chairman of the governing board of the Swiss National Bank.

Mr. Jean-Pierre Roth

Let me turn to the Swiss franc and the euro: our experience in Central Europe. I think it is commonplace to say that what happened in Europe in '99 was a real monetary revolution. And the word "revolution" seems to be very appropriate. Giving up the national currency and transferring monetary policy to the ECB was indeed a very bold political move. And using a single currency for continental Europe will have long-lasting consequences, economic consequences for the continent, which cannot yet be fully appreciated. That is the privilege of revolution: you start a revolution and you never know exactly where you will be at the end. The word "revolution" is also appropriate for Switzerland, which is not a member of the EU, and of course, not a member of the eurozone. It is a revolution because, for the first time in our history, we are fully surrounded by a huge monetary zone. In fact, this is good news. This is good news for a small country, very open to international trade (40 percent of our GDP), very much integrated in Europe, and always dreaming of a stable international monetary order. But it is also a risky situation for a country with a flexible exchange rate – we moved to floating in 1973 – and a country with an independent monetary policy. We at the Swiss National Bank were somewhat worried in the late 1990s, before the introduction of the euro. We were concerned about three possible negative influences of the euro on the Swiss franc. First, we felt that the euro could destabilize the Swiss franc. Our experience in the past with foreign exchange volatility was sometimes painful. In case of monetary disorder, the German mark and the Swiss franc were the preferred safe currency on the market. But due to the limited use of the Swiss franc, and maybe also because of the lack of liquidity of our market, the Swiss franc always overreacted, appreciating or depreciating more than the German mark. Of course, that was very painful for our export industry. Sometimes, there were tensions between the financial centers of Switzerland and the exporters. But now, without the German mark around, what would happen in case of dollar weakness and what could be the reaction of the Swiss franc if there were some doubt on the market about the value of the euro itself? That was our first fear.

The second apprehension we had was the loss of our monetary independence and the stability of the interest rate. You have to know that, traditionally, interest rates in Switzerland are clearly lower than German levels by about one hundred to two hundred base points. What would happen to our monetary independence if Switzerland were to be integrated; would we see the Swiss interest rate rising towards the old level? There were good reasons to believe so. Switzerland is very well integrated in European trade; as in Poland, two thirds of our trade is with

Europe. The monetary principles in Switzerland, Germany, and France are very similar. They are not identical, but they are similar. Further, the ECB, like the Swiss National Bank, is conducting a policy aimed at price stability. Would the market still cause a difference between the Swiss franc and the euro? Would not the market force the Swiss National Bank to shadow the policy of the ECB, and eventually, push Swiss interest rates up to the European level?

The third fear we had was of the so-called “euroization” of Switzerland. With so many Europeans and tourists around, with the single currency not starting to circulate in Switzerland and even the Swiss franc rendered obsolete, the Swiss started to pay themselves in Swiss francs. Because of this very concrete fear, our banks decided, before the introduction of the euro, to adapt all the ATM machines for parallel distribution of euro and Swiss francs so that everywhere in Switzerland you could find the euro in the ATM machine. What happened?

What happened showed that our fears were really exaggerated. First, I will start with the last point: The euroization of Switzerland did not take place. The Swiss franc was not crowded out by the euro. Indeed, the euro notes do circulate in Switzerland, but not more than the French Franc, German mark, or Italian lira did in the past. Anywhere in Switzerland, you can pay with the euro, but it is not usually the way tourists pay. They pay by credit card or with Swiss francs because they see that in Switzerland, the prices denominated in the euro are not very attractive. If you check the menu in a restaurant, you will see the price in euros and Swiss francs. You will immediately understand that the restaurant is not exactly a bank, and you will probably get a better rate by going to a bank or an ATM machine, using your card to get some Swiss francs. . This is not a surprise because usually you see one currency replacing another in a situation of hyperinflation –maybe it isn’t necessary to say that because there is no risk of hyperinflation in Switzerland. The second fear was of losing our monetary policy independence, our independent setting of the interest rates. The second fear was also misplaced. The interest rates of the franc and euro have not converged, and the Swiss National Bank has been able to conduct an independent monetary policy. Let me give you few examples: We started to lower interest rates in March 2001, a few months before the ECB, and our activity in 2002 and 2003 was more rapid and more aggressive than the policy of the ECB. Of course, we had a different situation; we had almost zero inflation compared to one of almost 2 percent in the eurozone. Switzerland was under an asymmetrical shock. As a country exporting investment goods and one with a large financial center, we were, of course, greatly affected by the stock market crash and its effect on investment.

And what about the third fear, the fear of the euro destabilizing the Swiss franc? Here again, things turned out much better than we had expected. Contrary to our expectation, today we see that the volatility between the Swiss franc and the euro is much lower than the volatility we had between the Swiss franc and the German mark. This is, of course, excellent news for our export industry. In real terms, we see that without any intervention in the financial market, or without having some explicit objective on the foreign exchange market, the fluctuation band of the Swiss franc/euro, in real terms, has been plus or minus 2.5 percent.

The 2.5 percent reminds us of the old rules of the fixed exchange rate regime. It was a nominal term by that time; in real terms, it is exactly what happened. So, what kind of conclusion can we draw from that? I think that for me, the first conclusion –that flexible exchange rates do work – is a very important conclusion for Switzerland, and could be for Mexico as well.. Markets are not particularly erratic; they are able to assess a situation and make changes. The foreign exchange market does see that there may be a slight difference in monetary principles between Switzerland and the eurozone, that maybe the fundamentals are similar, but they are not identical. And the market gives room to the monetary authority to conduct some independent monetary policies. As noted above, when describing the policy we implemented in 2000/20003, given the situation of the Swiss economy, we were still able to react a little bit earlier than the ECB. In other words, the market considered the franc and euro as sister currencies, but not twin currencies.

The second conclusion is that the euro has probably changed the functioning of the international monetary system. Today, the euro and US dollar act as mutual shock absorbers. In case of a dollar weakness, the euro leans to the other side. And in case of doubts about the value of the euro, you see a strengthening of the US dollar. Therefore, third currencies are under less pressure than earlier. We are, more or less, a third currency protected by the international monetary system because it is now a two-headed monetary system. From a global point of view, the euro has rebalanced the international monetary order. A strong currency now exists which can compete with the U.S dollar as a spare currency and as a reserve currency; this should bring about more discipline within the system. Because the eurozone, as the US, is relatively closed, , the euro is, of course, the currency which was needed to absorb speculation in flows in case of dollar weakness. The eurozone is much less affected than Germany or Switzerland were in the past. In that sense, it is a plus for the international monetary order. I would like to conclude by saying that, indeed, being a Chairman of the Swiss National Bank – it is possible for the chairman to have a good life because the introduction of the euro has been very good for Switzerland. We now have a more stable international monetary system and that is very important for us; we see the market respecting our monetary independence so we can pursue our policy of price stability without being obliged to shadow the policy of the ECB. Switzerland is probably on a figurative monetary island in the middle of the euro ocean. It is a new situation for us, but as I noted at the beginning of my speech, in recent years Switzerland has made impressive progress in sailing.

Jacob Frenkel: Thank you Jean-Pierre Roth for those remarks on the Swiss franc vis-à-vis the euro.

This year, we are privileged and honored to have Allan Meltzer as our **David Horowitz lecturer**.

Allan Meltzer

It is an honor to give this lecture in honor of David Horowitz, first Governor of the Bank of Israel, and to participate on this the fiftieth anniversary of the Bank. In 1948, Governor Horowitz faced the very difficult task of establishing a new currency while at the Treasury during the war of independence. Then in December 1954, he was the prime mover in shifting responsibility for monetary policy from a bureau in the Ministry of Finance to the newly established Bank of Israel.

The Bank did not become responsible for foreign exchange operations until 1978. Our topic at today's symposium, the appropriate foreign exchange policy for a country like Israel, did not arise then. In 1948 and 1954, the US dollar was universally demanded. The trading part of the world economy was on a dollar standard, and exchange rates were fixed to the dollar.

The developers of this system at Bretton Woods looked backwards to the monetary problems of the interwar period. They worried about the return of deflation; if they had concerns about inflation, especially US inflation, they remained silent.

To officials in large countries, fixed exchange rates seemed the natural order. Even in the late 1960s or early 1970, when first the D-mark and then the dollar floated, the dominant belief was that the float was a temporary aberration, a brief period of adjustment between fixed exchange rate systems.

Some may have known that there is no natural order. Economic theory does not tell us that one system of exchange rates is right for everyone. In fact, much theory teaches that the choice of exchange rate system does not matter in the long run. However, the dynamics of transition from one of full equilibrium can matter a great deal.

I accept the long-run conclusion. However, transitions are important and can be costly. To quote Keynes, it is not enough for economists to tell us that when the storm is over, the sea will be calm. The issue about choice of exchange rate system is the cost of alternative ways of adjusting.

The well-known policy trilemma restricts policymakers to two of three choices: fixed exchange rates, independent monetary policy, and freedom of capital movements. Large increases in capital flows during the recent past provide the opportunity for lenders to diversify their portfolios and seek higher returns, and for borrowers to finance economic development. For a country like Israel, severe restrictions on capital movements seem undesirable and counter-productive. That limits the choice to either an independent monetary policy with a

floating exchange rate or a fixed exchange rate and very limited and restricted use of monetary policy.

I take as given the commitment by the major developed economies to fluctuating rates. Central banks may intervene at times to adjust the dollar, euro, or yen, but the system of floating exchange rates, independent monetary policy, and relatively free capital movements is likely to remain. Experience has shown that a commitment of monetary policy to maintain low inflation has reduced the variability of both inflation and output. This benefits everyone.

Long ago, I proposed that international arrangements could be improved for the benefit of all countries. Each of the three main central banks should choose and achieve a common rate of inflation, say, between plus and minus 1 percent a year or perhaps, 0 to 2 percent. As events confirmed that these inflation ranges should be expected to remain, changes in exchange rates for the three principal currencies would mainly reflect real events. For example, increased productivity growth in one region would attract capital inflow and appreciate the real exchange rate. Exchange market adjustment would contribute to stability.

The experience of the 1990s suggests that this mechanism worked successfully. Floating exchange rates produced a revaluation of the dollar. The rest of the world provided resources that permitted the US to expand with little inflation. The rest of the world shared the returns from increased productivity.

Do the advantages of floating extend beyond the dollar, the euro, and the yen? Several years ago, I divided countries into three groups. The first group consists of the large floaters that I just discussed. They have similar inflation objectives, as I proposed. They should continue to float and announce common goals for inflation.

A second group consists of small countries that either are not open and have little trade or have most of their trade with a dominant trading partner. Examples of the latter are countries or areas such as Hong Kong or Panama. They have chosen to dollarize. They increase domestic money when they receive dollars or dollar equivalents and reduce domestic money when they experience a dollar outflow. Bosnia and some of the Baltic states use the euro in a similar way. These countries have what is known as a "hard peg". They are excellent examples of the kind of currency arrangement described many years ago by Jacob Frenkel and the late Harry Johnson.

For many small countries, a firmly fixed exchange rate is often the best solution. If they are open to trade, they import a very diversified basket of goods and services. They have very limited opportunities to use monetary policy to change the domestic price level. Many of their prices are set abroad. Often, they do not have the institutional structure to successfully support a floating exchange rate.

The facts tell us that very few countries choose hard fixed exchange rates. Pride and desire for local control may explain why. The costly end of Argentina's experiment does not encourage countries to try.

For small countries with little trade, the choice of exchange rate is not very important. In effect, they have the equivalent of rigid exchange controls. They can adopt an independent monetary policy and a fixed exchange rate. But if they do

not trade with the rest of the world, the exchange rate is not relevant for decisions affecting resource allocation. Usually, they would gain by opening their economy.

Many countries, Israel among them, lie between the two extremes. They can choose to fix their exchange rate to a single currency, to a basket of currencies – say the dollar and the euro as in the case of Israel that trades with both – or, they can adopt a floating rate. In practice, the last choice is rarely a totally free float.

What are some considerations leading to one or another of these choices? Every country would like to have both price and exchange rate stability. No country can do that acting alone. If it fixes its exchange rate, it gets exchange rate stability but imports inflation or deflation from the rest of the world. Its money supply and interest rate cannot be a matter of choice. If it chooses a fluctuating rate, it can maintain reasonable price stability but must accept the exchange rate that the market sets. Israel's past experience, as so many others, teaches that a country can avoid these principles for a time, but only for a time. Usually the cost of adjustment increases with delay.

If the three major currencies maintain price stability or a common low inflation rate, they offer a public benefit to all other countries. By fixing its exchange rate, a country can import reasonable price stability through its exchange rate policy. Its inflation rate cannot deviate greatly from the rate in the country to which its exchange rate remains fixed. That way, it has both price and exchange rate stability that it cannot have by acting alone. If many countries adopt fixed exchange rates, the large countries benefit also. They provide the benefit of reasonably stable prices and gain the benefit of reasonably stable exchange rates.

This should be an attractive choice for a country situated like Israel. Since it would be Israel's choice, it has the option of floating if its trading partners do not fulfill their commitments to price stability. If it floats its currency, it can maintain domestic price stability, but it bears the cost of greater nominal exchange rate variability. Much academic research shows that increased real exchange rate variability accompanies increased nominal exchange rate variability. Short-term variability may not be very costly, but central bank efforts to smooth variability of the real exchange rate may simply delay adjustment and possibly increase its cost.

Governor Klein asked a second question. In a world with the dollar and the euro as major currencies, and assuming that Israel chooses a fixed exchange rate system, should it peg to one or a basket consisting of both currencies? Israel trades with both the dollar and the euro blocs, so changes in the euro/dollar exchange rate are an important source of variability for Israel.

To answer the question, I will put aside my skepticism about prospects for the euro. It was adopted mainly to fulfill an understandable political desire for harmony in Europe. But good politics is not the same as sound economics. Despite much chatter about optimal currency areas, it established a firmly fixed exchange rate system without any prompt means of adjusting to major differences between countries. Countries cannot use any of the usual means for adjusting their differences – fiscal transfers, labor mobility, or nominal exchange rate adjustment – to correct for differences in productivity growth, labor laws, tax systems, regulation and much else. They must rely on price level changes to adjust real exchange rates. The policy is to maintain low inflation based on an index of prices

that heavily weights price levels in the countries currently most in need of real exchange rate adjustment. This either pushes the burden onto smaller countries that must permit more inflation than Germany and Italy, or it leaves the adjustment to the political process in Germany and Italy. The adjustment problem will become more difficult when some of the newly liberated countries in central Europe join the exchange rate system.

One of the issues Israel would face if it adopted a fixed exchange rate system is that dollar exchange rates are adjusting. Some forecasters predict a major depreciation. Everyone seems to agree that the dollar is likely to depreciate over time, but there is no agreement about when or how much. If Israel fixes to the dollar, it gains in trade from temporary depreciation of its real exchange rate against all non-dollar currencies, especially European currencies. Appreciation of the dollar would have the opposite effect, a temporary loss of competitive advantage against non-dollar currencies.

To say that the losses are temporary should not convey that the gains or losses must be small or inconsequential. Pegging to the dollar had a devastating effect on Chile's economy in the early 1980s when the dollar appreciated against all of the world's currencies. Of course, this occurred when the United States began a major disinflation combined with a large increase in defense spending.

There is a risk of inflation to a relatively small country like Israel, if its currency is fixed to the dollar and the dollar depreciates substantially. I do not think one can be certain either way. On one side, there is higher US productivity growth than that on average in Europe and Japan. This offers attractive opportunities for foreign investors. There are also the mercantilist predilections of Asian policymakers, China and Japan prominent among them. Currently, together they hold nearly one and a fourth trillion dollars. They acquired these dollars by not letting their exchange rates adjust. On the other side is the low saving rate in the United States both absolutely and relative to its investment opportunities.

Out of this has come a symbiotic relationship. The Asians produce and the US consumes. Asians save and the US invests. Both sides are locked into an arrangement that looks like it should end, but it doesn't. The euro bears much of the adjustment.

By fixing its currency to a trade-weighted basket of dollars and euros, Israel would reduce the effect of dollar depreciation on its trade. Uncertainty about the future of the dollar, however, weakens one of the main benefits of fixed exchange rates – the opportunity to obtain both price and exchange rate stability.

Recent studies of the history of fixed exchange rate systems suggest that they do not last very many years. One important reason is that fixed exchange rate systems often provide attractive one-way gambles for speculators. To counteract speculators or scare them away, a central bank can accumulate large stocks of foreign exchange. Some writers suggest that some of the Asian countries that hold hundreds of millions of dollars do it for this reason.

Being forced to devalue is costly and disruptive, but holding large stocks of reserves is also costly. A floating rate reduces these costs.

Currently, Israel has an inflation targeting regime. It has worked well during a difficult period. Some empirical research suggests that medium-sized countries

with floating rates grow faster on average but have higher inflation than countries that fix. They also have fewer crises.

Countries that float can lower their inflation rates by adopting a disciplined monetary policy. Israel seems to have done that.

Governor Klein asked me to discuss the policy that Israel should choose. I have not done that. Instead, I discussed some of the principal considerations that go into making a choice.

I close with a question for him. Inflation targeting appears to have worked satisfactorily. Why change?

Questions and Answers

Question 1. Antiono Fazzio: I was intrigued by some of the observations of Jean-Pierre Roth. Let me put to him a question that is probably a difficult one. How are you really able to maintain the level of interest rates? I think of a low level, not just in nominal terms, but also in real terms. What is behind that?

Answer.

Jean-Pierre Roth: First, behind the interest differential between Switzerland and the rest of Europe: As in the past in Germany, and now in the eurozone, we have to recognize the difference in inflation rates. You mention, correctly, where the first adjustment has to be made in real terms. We have, at the moment, about 1 percent lower inflation than the eurozone. Since 1999, the cumulative inflation differential between Switzerland and the eurozone has been 7 percent. Beyond that, there is a really interesting bonus. It's a little bit mysterious, but what we understand, first, is that the Swiss are the champions of savings. We have an excess of saving over investment so the current account surplus represents 13.5 percent of our GDP. So, indeed, we are a net capital exporter. There is a lot of capital saved and provided in Switzerland; that probably has some economic impact on the real interest rates. In absolute terms, I think that in 2002 our current account surplus was even larger than that of the eurozone. So, I think this is the major point behind that.

Question 2. Rafi Melnick: We heard two completely different views about joining a currency area. This gave a good picture of how a country near a big currency bloc can manage without joining the currency area. I would like to hear their opinion about the idea that a small open economy on the border of a large currency bloc has to maintain high interest rates to maintain financial stability and therefore, pay a kind of a tax in order to maintain their stability.

Jacob Frenkel: The implicit question here: Does it mean that joining the bloc allows you to have lower interest rates, given the same objectives?

Answers.

Leszek Balcerowicz: One of the effects of joining the eurozone in the case of Poland will be a reduced level of interest rates, which may be beneficial for investment, but will also create some risks in the form of a possible credit boom. I think the prospects strengthen the case for prior reforms, which should result in lasting fiscal consolidation, stronger prudential supervision, and more flexible markets.

Guillermo Ortiz: In our case, both the level of country risk and the level of domestic interest rates have fallen quite dramatically. As inflation has come down, a little credibility has been gained. Take, for example, the case of Canada, our neighbor to the north. Canada has been floating since the 1950s and recently, if I recall correctly, Canada has had lower interest rates than the US in long-term bonds. It is really not a question of a small country right next to a large area. It is a question of discipline and credibility. I think Canada has done a fantastic job in the past ten years in fixing its fiscal situation. It has conducted an exemplary monetary policy and it is reaping the benefits. I think we are far from being there, but also not as far as we were a few years ago. I think that if we persevere and do what we have to do, we can eventually aspire to having as low interest rates as Canada has achieved through its exemplary behavior.

Question 3. **Uzia Galil:** I want to ask a very practical question coming from my world, the industrial world. In this country we are interested in really increasing our exports, having enough work in the country. We want to see prosperity. Sometimes, I'm very confused as to whether what is happening in our currency is or is not the right way to achieve our economic targets of growth and prosperity.

Answers.

Leszek Balcerowicz: Long-term sustainable growth mostly depends on factors other than the exchange rate regime, such as the property rights regime, the level of law enforcement, and fiscal prudence. If these fundamentals are in place, then almost any exchange rate regime can work well. Of course, the type of the regime matters to some extent, but I think that in discussing long-term growth one should focus on these fundamentals.

Guillermo Ortiz: Of course, I would agree with Leszek Balcerowicz's answer. Economic growth essentially depends on productivity, competitive markets, flexibility, innovation, and, you need a series of conditions to get there. Once you put those conditions in place, whether you have a fixed or a floating rate, is a question of lesser importance; the hard part is doing the other things first.

Donald Kohn: I certainly agree with the two panelists. I think that here they are putting the fundamental policies in place and reacting to what happens to the exchange rates. And I agree with Allan Meltzer too; monetary policy must focus on price stability and fiscal policy must focus on the national savings rate. And I agree, as everyone does, that in this regard, the US has some ground to cover with

regard to medium-term fiscal discipline. But I think the key is not that monetary policy needs to support a particular exchange rate, because that will get you in trouble with price stability. Monetary policy must provide the stable environment for prosperity in the country and not concentrate on the exchange rate.

Question 4. Daniel Gottlieb: I would like to ask Professor Meltzer how he would tackle the issue of having a small country that has a very big debt –greater than 100 percent of GDP – and does not have a very good history of fiscal discipline. How would he view these situations concerning the questions he was discussing?

Answer.

Allan Meltzer: I welcome this question. It is the question that I really left out that can be reduced to one sentence. So let me just say that the sentence I boiled it down to was: Most fixed exchange rate systems don't last. Now we want to ask: is it because of fiscal discipline or lack of discipline that they don't last? And the answer is, as I think the last two answers to that question suggest, it is because of lack of fiscal discipline and that, of course, is a growing problem in the eurozone. In the US, maintaining some kind of discipline in its fiscal policy is certainly a problem. I think it is very interesting to finish by thinking about why it was that from approximately 1870 to 1913, most of the country and many of the leading countries in the world were able to maintain a disciplined fixed exchange rate system most of the time. Why can't they do it now? And the answer is, of course, that in the 1870-1913 period, they did not really use fiscal policy to stimulate what was going on in the economy. It is remarkable to find that after World War II was the time in the history of the Federal Reserve when there was much more interference in the application of monetary policy by Congress and the Administration than there ever was before. There just has been a change in the world's thinking about the role of government and the need to provide for employment and other kinds of transfer payments that has made lack of fiscal discipline a characteristic of many countries during the last fifty years.