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## Exchange Rate Regime Choice in Historical Perspective

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**Abstract**

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

In this paper, I survey the issue of exchange rate regime choice from the perspective of both the industrial and emerging economies taking an historical perspective. I first survey the theoretical issues beginning with a taxonomy of regimes. I then examine the empirical evidence on the delineation of regimes and their macroeconomic performance. The penultimate section provides a brief history of monetary regimes in industrial and emerging economies. The conclusion considers the case for a managed float regime for today's emerging economies.

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## I. INTRODUCTION

Exchange rate regime choice has evolved considerably in the past 100 years. At the beginning of the twentieth century the choice was obvious—join the gold standard, all the advanced countries have done it. Floating exchange rates and fiat money are only for profligate countries. At the beginning of the twenty-first century, the choice is also becoming more obvious—go to floating exchange rates, all the advanced countries have done it.<sup>2</sup> Moreover, in both eras, the emerging markets of the day tried to emulate the advanced countries, but in many cases had great difficulties in doing so (Bordo and Flandreau, 2003). What happened in the past century to lead to this tour de force?

Actually, of course, the choice today is much more complicated than I have just alluded to. Indeed, rather than two options, there are many more ranging from pure floats through many intermediate arrangements to hard pegs like currency boards, dollarization, and currency unions.

In this paper, I will look at the issue from the perspective of both the advanced countries, who generally have a choice, and the emergers who have less of one and who often emulate what the advanced countries have done. Section II surveys some of the theoretical issues involved beginning with a taxonomy of regimes. Section III examines the empirical evidence on the delineation of regimes and their macroeconomic performance. Section IV provides a brief history of monetary regimes. Section V concludes with some policy issues.

## II. THEORETICAL ISSUES FROM AN HISTORICAL PERSPECTIVE

The menu of exchange rate regimes has evolved over the past century *pari pasu* with developments in theory. Below I survey some of the principal developments with an historical perspective. Before we do this I present a modern day taxonomy of exchange rate arrangements in Table 1.

### A. Modern Exchange Rate Arrangements

Table 1 contains a list of nine arrangements prevalent today. They are arranged top to bottom by the degree of fixity. Modern fixed arrangements include: truly fixed arrangements like the recent CFA franc zone; currency boards in which the monetary

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<sup>2</sup> In the pre-1914 period, there were also a number of monetary unions and currency boards. Two types of monetary unions prevailed: international unions such as the Latin monetary union and the Scandinavian monetary union, which basically involved arrangements for standardizing gold and silver coins and the clearing of payments; and national monetary unions, such as the United States, Germany, and Italy, which involved the complete economic and political integration of the member states with a common currency (Bordo and Jonung 2000). Currency boards that originated in this period were run by the British and the French in a number of their colonies. (Schwartz 1992).

authority holds 100 percent reserves in foreign currency against the monetary base, the money supply expands or contracts automatically with the state of the balance of payments and there is no role for discretionary monetary policy including a lender of last resort; dollarization which goes one step forward and eliminates the national currency completely; and currency unions in which the members adopt the same currency.

Intermediate arrangements run the continuum from: an adjustable peg under which countries can periodically realign their pegs; to crawling pegs in which the peg is regularly reset in a series of devaluations; to a basket peg where the exchange rate is fixed in terms of a weighted basket of foreign currencies; to target zones or bands where the authorities intervene when the exchange rate hits pre announced margins on either side of a central parity.

Floating exchange rates are divided into: free floats where the authorities do not intervene and allow the exchange rate to be determined by market forces; and managed floats where intervention is done to lean against the wind.

The demarcating line between fixed and intermediate arrangements is if the policy to fix is an institutional commitment. The line between intermediate and floating is if there is an explicit target zone around which the authority intervenes (Frankel 2002).

Table 1. Exchange Rate Regimes

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Fixed Arrangements

- a. Currency Unions
- b. Currency Boards (dollarization)
- c. Truly fixed exchange rates

Intermediate Arrangements

- a. Adjustable pegs
- b. Crawling pegs
- c. Basket pegs
- d. Target zone or bands

Floats

- a. Managed floats
  - b. Free floats
- 

Source: Frankel (1999).

## B. Theoretical Perspectives

The traditional view on the choice of the exchange rate regime a century ago was very simple. It was between specie standards and fixed exchange rates on the one hand, and fiat money and floating on the other. The prevalent view was that adherence to a specie standard meant adherence to sound money, i.e. predictable policies that maintained stable price levels (as well as fiscal probity, i.e. balanced budgets) and avoiding the transactions costs of exchanging different currencies into each other. By 1900, most nations had switched away from silver and bimetallic standards and adhered to the gold

standard. Fiat money and floating was considered to be a radical departure from fiscal and monetary stability and was only to be tolerated in the event of temporary emergencies such as wars or financial crises. Countries which followed fiat money and permanently floated such as Austria-Hungary, and Spain were viewed with disfavor.

In the interwar period, the return to the gold standard was short-lived, ending with the Great Depression. The return to the gold standard was preceded by widespread floating as was the period following it. The contemporary perspective on the experience with floating in the interwar was that it was associated with destabilizing speculation and beggar-thy-neighbor devaluations (Nurkse 1944). This perception lay at the root of the creation of the Bretton Woods adjustable peg in 1944. The currency arrangements that many countries signed onto after Bretton Woods combined pegged exchange rates with parities fixed in terms of dollars, the dollar pegged to gold, narrow bands of 2 ½ percent around parity and the right to change parity in the event of a fundamental misalignment. It was supposed to combine the advantages of the gold standard (sound money) with those of floating (flexibility and independence).

The difficulties that member nations had in finding a parity consistent with balance of payments equilibrium and the currency crises that attended the realignments of parities in the early years of the Bretton Woods system (Bordo 1993), set the stage for the perennial debate between fixed versus flexible exchange rates. Milton Friedman (1953) in reaction to the conventional (Nurkse) view made the modern case for floating. According to Friedman, floating has the advantage of monetary independence<sup>3</sup>, insulation from real shocks and a less disruptive adjustment mechanism in the face of nominal rigidities than is the case with pegged exchange rates.

Mundell (1963) extended Friedman's analysis to a world of capital mobility. According to his analysis (and that of Fleming 1962), the choice between fixed and floating depended on the sources of the shocks, whether real or nominal, and the degree of capital mobility. In an open economy with capital mobility a floating exchange rate provides insulation against real shocks, such as a change in the demand for exports or in the terms of trade, whereas a fixed exchange rate was desirable in the case of nominal shocks such as a shift in money demand.

The Mundell-Fleming model led to two important developments in the theory of exchange rate regime choice: the impossible trinity or the trilemma; and the optimal currency area. According to the trilemma, countries can only choose two of three possible outcomes: open capital markets, monetary independence and pegged exchange rates. According to this view, the gold standard flourished with open capital markets and fixed exchange rates because monetary independence was not of great importance. It collapsed in the interwar because monetary policy geared to full employment became important. Bretton Woods encompassed pegged exchange rates and monetary independence by condoning extensive capital controls. It collapsed in the face of increasing difficulty of

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<sup>3</sup> By monetary independence, Friedman presumed that monetary authorities would follow stable monetary policies.

preventing capital mobility (Obstfeld and Taylor 1998). More recently, the trilemma has led to the bipolar view that with high capital mobility the only viable exchange rate regime choice is between super-hard pegs (currency unions, dollarization or currency boards) and floating; and indeed the advanced countries today either float or are part of the EMU.

An optimal currency area (OCA) is defined as “a region for which it is optimal to have a single currency and a single monetary policy” (Frankel 1999, p. 11). The concept has been used both as setting the criteria for establishing a monetary union with perfectly rigid exchange rates between the members with a common monetary policy, and the case for fixed versus floating. The criteria posed by Mundell (1961), Kenen (1969) and McKinnon (1963) for whether a region such as Europe was an OCA involved the symmetry of shocks in the member states, the degree of openness, the degree of labor mobility, and the ability to make fiscal transfers.

In simplest terms, based on OCA theory, the advantages of fixed exchange rates increases with the degree of integration. Recent approaches suggest that the OCA criteria also work in an ex-post sense - - that joining a currency union by promoting trade and integration increases the correlation of shocks (Frankel and Rose 2002).

### **C. Credibility and Exchange Rate Regime Choice**

A different set of criteria for exchange rate regime choice than that based on the benefits of integration versus the benefits of monetary independence, is based on the concept of a nominal anchor. In an environment of high inflation, as was the case in many countries in the 1970s and 1980s, pegging to the currency of a country with low inflation was viewed as a precommitment mechanism to anchor inflationary expectations.

This argument was based on the theory developed by Barro and Gordon (1983) who discuss the case of a central bank using discretionary monetary policy to generate surprise inflation in order to reduce unemployment. They demonstrate that, with rational expectations, the outcome will be higher inflation but unchanged employment because the inflationary consequences of the central bank's actions will be incorporated in workers' wage demands. The only way to prevent such time inconsistent behavior is by instituting a precommitment mechanism or a monetary rule.

In an open economy a pegged exchange rate may promote such a precommitment device, at least as long as the political costs of breaking the peg are sufficiently large. This argument was used extensively in the 1980s to make the case for the ERM in Europe, and in the 1990s for currency boards and other hard pegs in transition and emerging countries.

The case for floating has also been buttressed by the theoretical work on credibility and time consistency. Designing a set of domestic institutions that will produce low inflation and long-run expectations of low inflation is consistent with the monetary independence associated with floating rates. The creation of independent central banks (independent from financing fiscal deficits) and establishing low inflation

targeting in a number of advanced countries represents a domestic precommitment strategy (Svensson 2002).

#### **D. Emerging Market Perspectives**

The recent spate of emerging market crises in the 1990's has led attention to the plight of these countries who have opened up their financial markets. Most of the countries hit by crises had pegged exchange rates. According to the trilemma view, the crises were a signal that open capital markets, monetary independence and pegs were incompatible as had been the case with the advanced countries in Bretton Woods and the ERM in 1992. Consequently many observers have put forward the bipolar view—that the only options for these countries are super-hard pegs or floating.

Yet the emergers face special problems which make this simple dichotomy a bit more difficult than is posed. First, in the case of hard pegs such as currency boards (or dollarization), currency crises are ruled out (to the extent the currency board is followed) but banking crises are still possible and without a monetary authority they cannot be contained (Chang and Velasco 2001). Related to the inability to act as lender of last resort is the inability to have the monetary policy flexibility to offset external real shocks. Moreover, establishing a currency board or going the next step and dollarizing works best if the currency picked for the peg is of a country that has extensive trade with the emergent and has a history of monetary stability.

Second, is the so called problem of 'original sin' (Eichengreen and Hausmann 1999). Because many emerging countries are financially underdeveloped and they may have had a history of high inflation and fiscal laxity, they are not able to either borrow in terms of their own currencies long-term or to borrow externally except in terms of foreign currencies such as the dollar. This, according to Eichengreen and Hausmann, exposes them to the serious problems of both maturity and currency mismatches. In the face of a currency crisis a devaluation can lead to serious balance sheet problems, widespread bankruptcies, and debt defaults. This was the case in East Asia in the 1990's and also when Argentina exited from its currency board in 2001. The 'original sin' creates problems for emergers who float and even those who adopt hard pegs.

A third problem for emerging countries that float, is that devaluations may have no effect on the real economy in the face of widespread indexation or a history of high inflation. Thus there may be very high pass-through from the exchange rate to the price level or in the case of original sin, as mentioned above, devaluing may actually be contractionary.<sup>4</sup>

These problems suggest that intermediate arrangements may still have a role to play for such countries. Also it is important to distinguish between, on the one hand,

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<sup>4</sup> Although Cespedes, Chang and Velasco (2000) demonstrate that positive Mundell-Fleming aggregate demand enhancing effects may outweigh such negative balance sheet effects.



middle and large emerging countries who have the potential and are moving in the direction of the policies of the advanced countries and adopting domestic nominal anchors such as inflation targeting cum independent central banks; and on the other hand small very open emergers who may fare best with currency unions.

### III. MEASUREMENT AND PERFORMANCE

#### A. Classification

In making the correct exchange rate regime choice, it is very important to have some empirical evidence on economic performance. An extensive literature has developed to answer the question which regime performs best. Before discussing what the evidence seems to say, however, we need to consider an important methodological question. How do we classify exchange rate regimes?

Two answers are given: either *de jure* or *de facto*. The former establishes a list of regimes like Table 1 and then classifies countries by what they say they do. This is the approach that has been taken by the IMF and authors like Ghosh et al (2003). It is justified on the grounds that announcing a regime has important forward looking credibility effects.

The second approach by authors such as Calvo and Reinhart (2000) and Levy-Yeyati–Sturznegger (2001) starts with the premise that for various reasons including ‘fear of floating’ and lack of credibility, countries do not do exactly what they say they do. This approach tries to correct for this problem by using observed behavior of the exchange rate, international reserves, and other variables to infer a *de facto* classification scheme.

The most notable study using the *de jure* scheme is by Fischer (2001) who reports evidence of hollowing out: between 1991 to 1999, the fraction of IMF members that follow intermediate regimes fell from 62 percent (98 countries) to 34 percent (63 countries). The fraction with hard pegs rose from 16 percent (25 countries) to 24 percent (45 countries) while the fraction that floats increased from 23 percent (36 countries) to 42 percent (77 countries). Frankel’s (2002) most recent look at the data argues that more emerging countries in the past decade have opted for flexible rates than hard pegs. A similar conclusion is also reached by Larain and Velasco (2001): their Table 1 shows that in 1976, 86 percent of developing countries maintained pegged arrangements; by 1996 only 45 percent had some kind of peg and 52 percent had a flexible exchange rate arrangement.

The *de facto* camp doubts the meaning of these data because many peggers frequently have realignments (Obstfeld and Rogoff 1995) referred to as “soft pegs” and many floaters are reluctant to float referred to as “hard floats” because they have ‘fear of floating.’ This is because they view devaluations as contractionary because of adverse balance sheet effects (Calvo and Reinhart 2002). Levy-Yeyati and Sturznegger (2000) attempt to account for these problems by constructing a *de facto* classification scheme based on the volatility of exchange rates and international reserves. They use cluster analysis to classify countries into the three groups of pegged, intermediate and flexible.

Their evidence for the 1990's confirms the significant presence of both "soft pegs" and "hard floats." Indeed, they doubt the evidence on hollowing out - - they find about equal representation in each of the three categories.

Finally, in a very recent paper, Reinhart and Rogoff (2002) construct a new classification scheme. They use a new database on dual and parallel currencies as well as chronologies of the exchange rate history for all Fund members for the past half-century, to construct a 15 category schema. They also distinguish floating by high inflation countries (freely falling) from floating by others. Like Levy-Yeyati and Sturznegger they find extensive evidence of soft pegs and hard floats - - since the 1980s over 50 percent of de jure floats are de facto pegs and approximately half of de jure pegs were floats.

### **B. The Long-Run Evidence**

What is the evidence on the macroeconomic performance of different exchange rate arrangements? Before studying the recent experience a brief historical background might be of value. Figures 1, 2 and 3 show time series for 14 advanced countries from 1880-1995 for three key variables.<sup>5</sup> They are exchange rate volatility measured as the absolute rate of change of the log of the exchange rate, CPI inflation and per capita income growth. The figures are marked off with vertical lines which show broad exchange rate regimes: the classical gold standard (1880-1914); World War I, the interwar and World War II (1914-1945); Bretton Woods (1946-1971) in turn divided into the pre convertible period (1946-1969) and the convertible period (1969-71); and the recent managed float since 1971. Within these global exchange rate regimes, various countries followed different arrangements in different periods, but in general for our 14 countries we can state that: in the gold standard period most countries adhered to fixed exchange rates; in the interwar with the exception of the gold exchange standard (1926-1931) most countries had some form of floating;<sup>6</sup> under Bretton Woods, with the principal exception of Canada 1950-1961 which floated, most countries had adjustable pegs; and since 1971 most were managed floaters with the principal exception of the ERM.

Without getting into the details of particular countries experiences, we can make some broad generalizations.<sup>7</sup> First with respect to the exchange rate: the classical gold standard and the convertible Bretton Woods period were extremely stable; the wars and interwar interlude and the early Bretton Woods period the most unstable; with moderate volatility in the current regime.

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<sup>5</sup> The countries are: Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, United Kingdom, and United States.

<sup>6</sup> This includes episodes which Reinhart and Rogoff refer to as "freely falling" - - the high inflations of the 1920s in Europe and managed floating in the rest of the period.

<sup>7</sup> See Bordo and Jonung (2001) for further details.

Second, for inflation: it was lowest during the gold standard and the convertible Bretton Woods periods and highest during the wars. The 1970s and early 1980s were characterized by relatively high peacetime inflation. Since the mid 1980s inflation has declined to levels reminiscent of the two convertible regimes. This evidence suggests the importance of adherence to credible nominal anchors, gold pre 1914, gold and the dollar in Bretton Woods, and inflation targeting and other domestic nominal anchors since the early 1980s (Bordo and Schwartz 1999).

Finally, with the exception of exceedingly high growth after World War II which in large part reflects Europe's recovery, there does not seem to be much of a connection over the long run between the exchange rate regime and economic growth.

Figure 1. Exchange Rate Volatility: 1881-1995

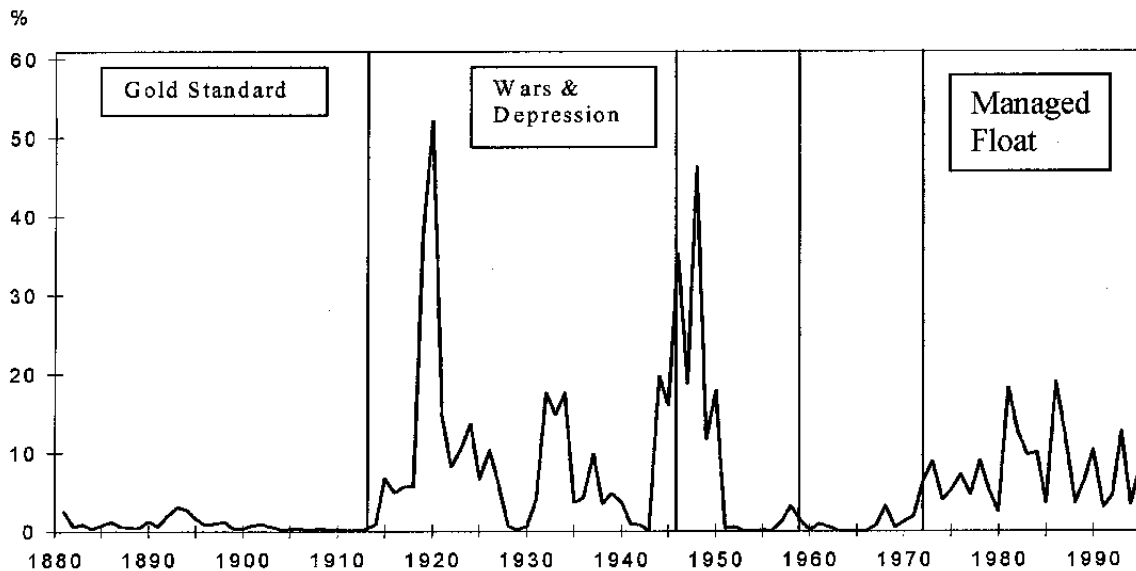


Figure 2. Inflation 1881-1995

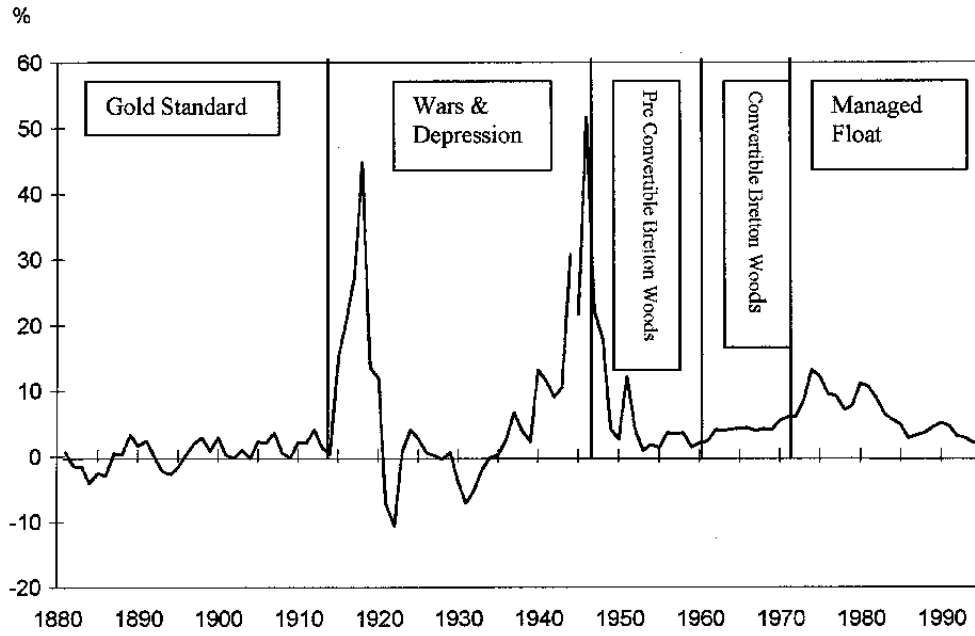
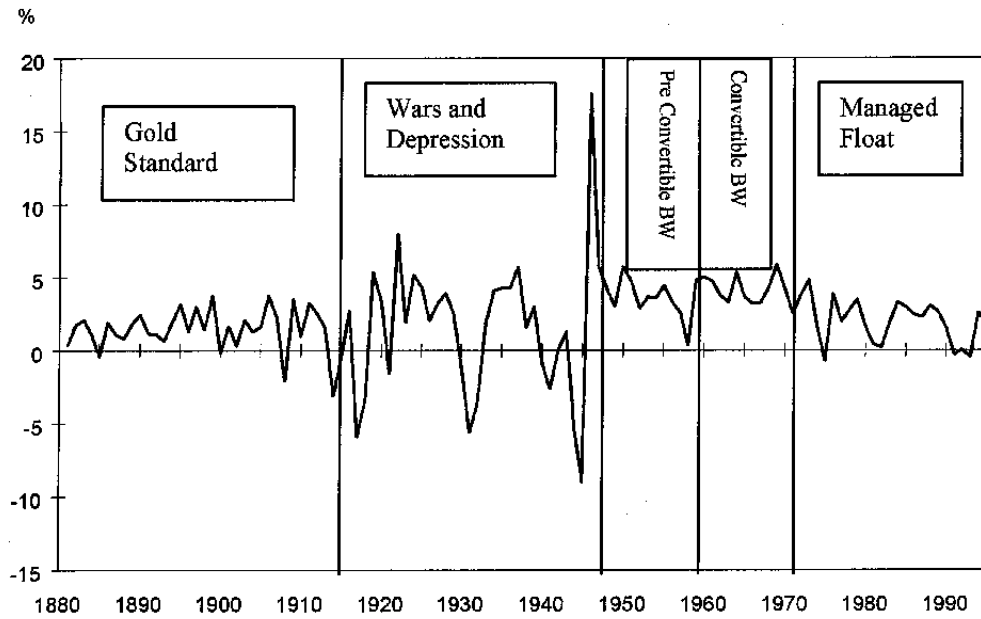


Figure 3. Real per Capita Income Growth: 1881-1995



### C. Recent Experience

Table 2 presents some evidence on macroeconomic performance on inflation and real per capita growth for all the countries covered by the IMF for the past three decades. It compares some of the principal findings of the de jure and de facto classification schemes.

Panel A compares data from the Levy-Yeyati and Sturznegger (LYS) studies with the IMF de jure classification for three broad categories: floats, intermediate, and pegged regimes. According to the de jure classification, floats had higher inflation rates and pegs the lowest. For LYS, intermediate regimes had the highest inflation, followed by floats and pegs. Both criteria support the common wisdom and the historical evidence that pegs deliver low inflation.

With respect to real per capita growth, under the IMF classification intermediate regimes deliver the highest growth and, and floats the lowest. Under LYS, floats rank the highest, followed by pegs and intermediate regimes. These results likely reflect the reclassifying by LYS of countries with fear of floating as intermediate regimes, leaving mainly advanced countries in the floating category.

Panel B compares the evidence from the Reinhart-Rogoff (RR) study with the IMF de jure classification scheme. RR shows five regimes. They demarcate floating into three: freely floating, freely falling (defined as countries with high inflation rates and depreciation rates above 40 percent) and managed floating. Pegs represent hard pegs and limited flexibility characterizes all the rest. RR's de facto results are very different from the de jure ones and from LYS. Because they strip out freely falling from floating they pick up the good inflation performance of the high-income countries seen in figure 1. Also hard pegs do not appear to be a panacea against inflation. Finally, growth performance is by far the best for the free floaters, a result similar to LYS.

Table 2. De Jure Versus De Facto Exchange Rate Classification

A. Levy-Yeyati and Sturznegger (2000,2001): 1974–1999 (Annual); 154 countries										
	Inflation			Real per Capita Growth						
	Float	Intermediate	Peg	Float	Intermediate	Peg				
IMF	22.3	20.2	16.7	1	2	1.2				
LYS	14.2	38.3	9.7	1.9	0.8	1.5				
B. Reinhart –Rogoff (2002): 1970-2001 (Annual); 153 countries										
	Inflation					Real per Capita Growth				
	Freely Float	Freely Falling	Managed float	Limited float	Peg	Freely Float	Freely Falling	Managed float	Limited float	Peg
IMF	174	n.a.	74.8	5.7	38.8	0.5	n.a.	1.9	2.2	1.4
LYS	9.4	443.3	16.5	10.1	15.9	2.3	-2.4	1.6	2.4	1.9

In sum, the *de facto* evidence on performance is markedly different from the *de jure* evidence from the IMF. The fact that both LYS and RR using very different methodologies associate floating with high growth and that floating is not associated with the high inflation seen in the *de jure* classification, suggests that how regime classification is done has important implications for the issue of regime choice.<sup>8 9</sup>

#### IV. HISTORY OF EXCHANGE RATE REGIME CHOICE

Exchange rate regime choice has evolved considerably in the past century. Table 3 shows a very rough chronology of the exchange rate regimes the world has seen since 1880. They have expanded considerably from the simple choice between the gold standard and fiat to the 15 regimes demarcated by Reinhart and Rogoff. Yet the basic choice between fixed and flexible still remains at the heart of the matter.

Table 3. Chronology of Exchange Rate Regimes: 1880–2000

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1880–1914	Specie: Gold Standard (bimetallism, silver); currency unions; currency boards; floats
1919–1945	Gold Exchange Standard; floats; managed floats; currency unions (arrangements); pure floats; managed floats.
1946–1971	Bretton Woods adjustable peg; floats (Canada); Dual/Multiple exchange rates
1973–2000	Free float; managed float, adjustable pegs, crawling pegs, basket pegs, target zones or bands; fixed exchange rates, currency unions, currency boards.

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The approach in this section is not to repeat the history of international monetary regimes which is well covered by Eichengreen (1996) and Bordo and Schwartz (1999), but to focus on a comparison of monetary regimes in the two eras of financial globalization, 1880–1914 and the present. Such a comparison highlights two key issues of relevance for today:

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<sup>8</sup> Ghosh et al (2002) using the *de jure* definitions find from regressions of inflation on exchange rate regime dummies and other variables such as money growth, openness, terms of trade shocks that the differences between pegged and floating narrows considerably. For real per capita growth, they could not detect any significant differences across regimes.

<sup>9</sup> Juhn and Mauro (2002) using both the *de jure* and LYS *de facto* classification schemes and a large panel data set from 1990 to the present, find that no robust empirical regularities can be found to explain exchange rate regime choice. Whereas Levy-Yeyati, Stuznegger and Regio (2002), using the LYS classification scheme and panel data (demarcated into industrial and emerging countries) from 1974 to the present, find that exchange rate regime choice for industrial countries is explained by OCA type variables, while for the emerging countries balance sheet effects and the capital account are important.

a) the different choices facing advanced and emerging countries; and b) the role of financial integration. In what follows I examine the experience of the advanced (core) countries and the emerging (periphery) countries in historical perspective.

The core countries of the pre 1914 era: Great Britain, France, the Netherlands, Germany and the U.S. as well as a number of smaller western European countries and the British Dominions adhered to the classical gold standard. The gold standard by 1880 had evolved from the historic specie regime based on bimetallism. An extensive historiography covering this evolution emphasizes factors such as: accidents of history - - the Franco Prussian war and massive silver discoveries in the U.S; attempts to follow the example of the leading commercial nation, Great Britain, which had been on a de facto gold standard since 1717; network externalities; and the technology of coinage.

The essence of the classical gold standard for the core countries was a credible commitment to maintain gold convertibility, i.e., following the gold standard rule. Adhering to gold convertibility can be viewed as a commitment mechanism to the pursuit of sound monetary and fiscal policies (Bordo and Kydland 1996). The commitment by these countries to gold convertibility was credible based on their past performance. Moreover, the gold standard rule was embedded in a long history of financial development. This includes the creation and successful servicing of public debt by the Dutch and the British in the 17<sup>th</sup> and 18<sup>th</sup> centuries; the founding of central banks such as the Bank of England in 1694; and the development of stock markets, banking systems, and non bank financial intermediaries in the eighteenth and nineteenth centuries (Rousseau and Sylla 2002).

The rule followed was a contingent rule: adhere to gold parity except in the event of a well understood emergency such as a financial crisis or a war. Under such circumstances, a temporary departure from parity was tolerated on the understanding that it would be restored once the emergency had passed. Because these countries demonstrated their willingness to follow such a rule (e.g., the British experience in the Napoleonic war and the U.S in the Civil war and to subsume domestic policy goals to the external constraint), they had earned the credibility to have a measure of short-term policy flexibility that enabled them to buffer transitory shocks. Indeed, temporary departures from gold parity would be offset by stabilizing short-term capital flows.

Moreover, the gold points can be viewed as a modern credible "target zone" a la Krugman (1991) which allowed the monetary authorities some flexibility (for example, to conduct expansionary monetary policy to lower short-term interest rates and thus compensate for declining output). The decline in short-term interest rates would be offset by a rise in the exchange rate on the expectation that the parity would be restored.

Today, the advanced countries (with the principal exception of the European Union) have floating exchange rates. To a certain extent, the current trend towards floating has some resemblance to the classical gold standard in which the fluctuation margins have been widened to give more flexibility. The key difference between then and now is that the nominal anchor — gold parity around which the target zone operated - - has been jettisoned and a domestic fiat nominal anchor has been substituted in its place, which allows exchange rate flexibility without the constraint of a target zone. The two systems are similar in spirit



because they are each based on credibility. They also had independent central banks, minimal regulation of the financial system, and the absence of capital controls.

In this sense, the evolution from the gold standard to today's managed floating represents a major technical improvement. Today's regime has adopted the credibility, or what Bordo and Schwartz (1999) call the "convertibility principle" of the classical gold standard, without the high resource costs and the "vagaries" of the gold market which plagued the classical gold standard. Also, the development of deep and liquid foreign exchange and other financial markets have aided the smooth operation of a floating rate system.

A consequence of this analysis is that logically, the pre-1914 core countries that had developed strong money and financial markets and institutions before World War I ought to have floated—something which they did not. The possible reasons why the logic of the target zone was not pushed further include the protection that gold gave to bond holders against inflation risk and the political constituency thus created, and the path dependency of gold as money.

#### **A. Middle Years: 1914-1972**

What happened in the middle years of financial deglobalization between 1914 and 1973? According to the trilemma view of Obstfeld and Taylor (2002), the gold standard with free capital mobility had to be jettisoned in the advanced countries in the face of growing demands by an expanding electorate and organized labor to stabilize the business cycle. More likely, it was abandoned because of the shocks and imbalances caused by World War I.

The gold standard was reinstated as a gold exchange standard in 1925. Central banks supplemented their gold reserves with foreign exchange (sterling and dollar). The gold exchange standard collapsed in 1931. Its brief life is attributed to a number of fatal flaws in its design (see Bordo 1993), and to a decline in credibility reflecting the fact that consequent upon the growth of democracy monetary authorities had the domestic goal of full employment to satisfy as well as to maintain gold convertibility (Eichengreen 1992).

The result was capital controls in the 1930's and the adjustable peg in the Bretton Woods era after World War II. In the late 1960s, the latter was blown apart, leading to the current floating regime. The demise of the Bretton Woods system was precipitated by the pursuit of financial policies inconsistent with maintaining the pegged rate system by the key countries, especially the U. S., which had used expansionary monetary and fiscal policies to finance the Vietnam war; as well as by the pressure of international financial integration in spite of the capital controls (Bordo 1993).

#### **B. Core versus Periphery: History of the Periphery**

The periphery countries faced a vastly different exchange rate experience from the core countries in the pre 1914 era of globalization as they have in the recent era. Pre-1914, in contrast to the core countries, many peripheral countries did not develop the fiscal and

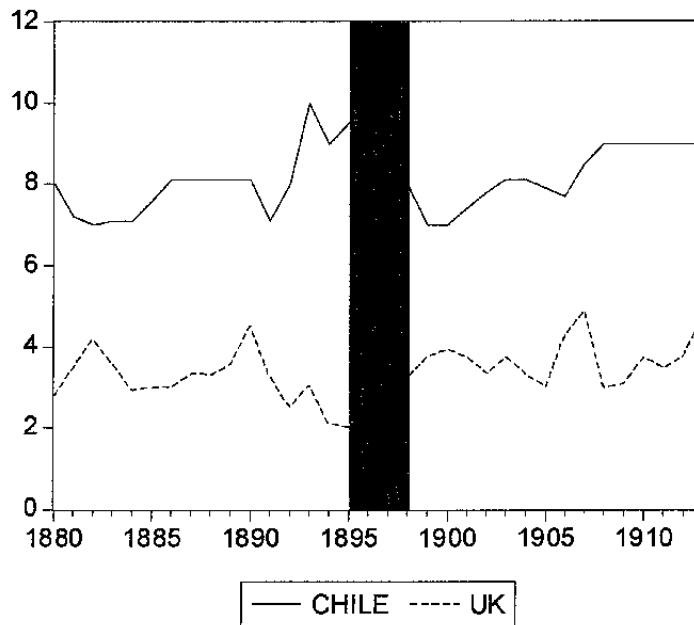
monetary institutions that allowed them to credibly follow the gold standard rule. Because they lacked credibility, they were not buffered from shocks by the "target zone."

In an advanced country, a shock leading to a depreciating exchange rate could temporarily be offset by lowering interest rates so that output may recover. For the periphery, exchange rate depreciation could trigger capital flight and financial distress. This could occur because the markets do not expect that the exchange rate will be restored by future corrective policies. It also could occur because a substantial amount of external debt is denominated in a foreign currency.

Because of this problem, floating did not create much room for the periphery countries to conduct active monetary policies compared to the experience of the core countries. But going onto gold did not buy immediate credibility for them either as illustrated by the levels of short-term interest rates in a number of typical members of the periphery.

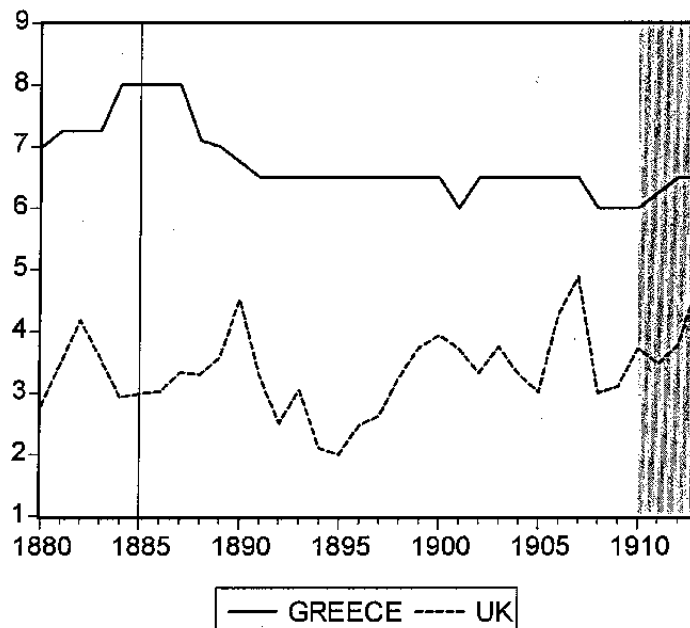
Figures 4a to 4e show that the weaker members of the gold club faced higher short-term interest rates, even when on gold, than is consistent with their actual exchange rate record. This suggests some kind of "peso" problem. The high short-term rates faced by Chile, Greece, Portugal, Italy or Russia, during their more or less extended flirt with gold suggests that problems that the modern periphery has with pegging, as evidenced in the emerging financial crises of the 1990s, have nineteenth century precedents. The fact that even when on gold, these countries could face high short-term rates, might explain why some of them ended up floating.

Figure 4a. Short-Term Interest Rates: (Bank Rates), Chile (compared to United Kingdom), 1880–1913



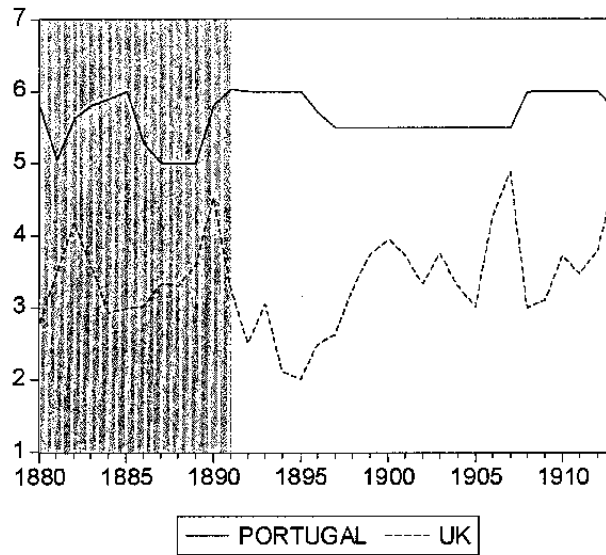
Shaded area represents the period when Chile was on the gold standard.

Figure 4b. Short-Term Interest Rates: (Bank Rates), Greece (compared to United Kingdom), 1880–1913



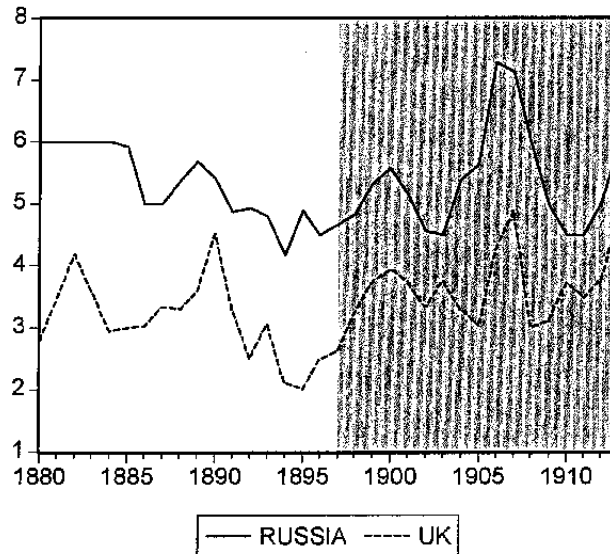
Shaded area represents the period when Greece was on the Gold Standard.

Figure 4c. Short-Term Interest Rates: (Bank Rates), Portugal (compared to United Kingdom), 1880-1913



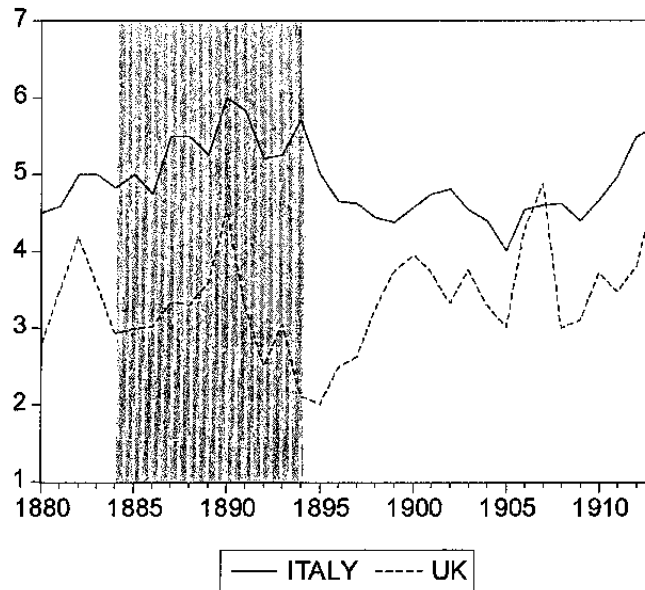
Shaded area represents the period when Portugal was on the gold standard.

Figure 4d. Short-Term Interest Rates: (Bank Rates), Russia (compared to United Kingdom), 1880-1913



Shaded area represents the period when Russia was on the gold standard.

Figure 4e. Short-Term Interest Rates: (Bank Rates), Italy (compared to United Kingdom), 1880–1913



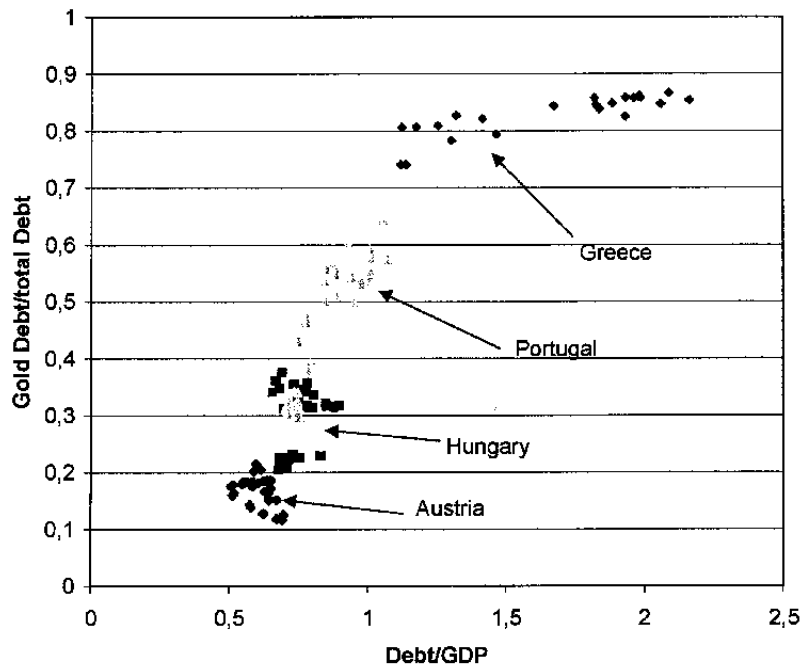
Shaded area represents the period when Italy was on the gold standard.  
Source: See Bordo and Flandreau (2003)

### C. Fear of Floating, 19th Century Style: A New View of the Gold Standard

The modern "fear of floating" problem whereby countries which say they float do not, for the reasons mentioned above discussed by Calvo and Reinhart (2002), seem to have been prevalent pre-1914. If fixing was quite painful under the gold standard for many of the peripheral countries, floating could be just as problematic for them as is the case today. This was due to pervasive problems of currency mismatch arising from the inability for underdeveloped borrowing countries to issue foreign debt in their own currencies. This is the problem that is referred to today as 'original sin.' The bonds of peripheral countries pre 1914 borrowing in London, Paris or Amsterdam would always contain clauses tying them in gold to the currency of the country where the bond was issued, "the gold clauses."

This practice may have been the solution to a commitment problem. While local issues could be easily inflated away, foreign issues with gold clauses provided safeguards, precisely because they in turn induced governments to be on their guard. (See Figure 5 which shows that the share of gold debt was an increasing function of total indebtedness for a number of peripheral countries.)

Figure 5. Total Indebtedness and Currency Mismatch: Austria, Hungary, Portugal, and Greece, 1880–1913



Source: Crédit Lyonnais Archives.

Moreover, adhering to the gold standard was not a perfect substitute for the gold clauses, since the club of countries that could issue debt abroad denominated in their own currency was much narrower than the set of countries on the gold standard. Table 3 in Bordo and Flandreau (2003) contains a list of “senior” sovereigns in London from *Burdett's Official Stock Exchange Intelligence*. The countries whose bonds were listed in terms of their own currencies were: the United Kingdom, U.S., France, Germany, Belgium, Netherlands, Switzerland and Denmark.

The inability to assume debt in their own currency meant that having a large gold debt and experiencing an exchange rate crisis could have devastating consequences when a country embarked on a spending spree and public debt increased. The share of gold denominated debt increased in turn. This created an explosive mismatch.

The crises of the 1890s very much like those of the 1990s provided evidence of the mechanism at work. The crises started with Argentina where the expansion of the gold debt, accompanied by paper money issue, pushed the level of the debt burden to unsustainable heights. Public debt crises in Portugal and Greece (1892 and 1893) both resulted from the depreciation of the exchange rate that had brought these countries public debts to unsustainable levels.

The responses to these problems induced by high debts and financial vulnerability were also surprisingly modern. Some countries such as Spain and Portugal, continued to

float, but minimized their exposure by limiting their borrowings abroad. Some others such as Russia or Greece developed de facto currency boards. They accumulated gold reserves beyond what was statutorily necessary and in effect adopted gold cover ratios that were consistently above 100 percent. Yesterday like today there seems to have been a hollowing out as a response to financial crises.

Clearly, in view of the narrow list of countries that were able to float debts in their own currency, much of the emerging world was bound to face currency mismatches. From this point of view, gold adherence became for those willing to protect themselves against international financial disturbances a second best solution. It is not that a gold standard immediately brought credibility. Rather, it served as an insurance mechanism and in this sense fostered globalization. In other words, the spread of the gold standard in the periphery may have been an endogenous response to the gold clauses: as soon as the price of this insurance decreased (as was the case during the gold inflation of 1897-1914), the gold standard expanded, as more and more countries found it less dangerous to borrow with gold clauses since the risk of being tipped-off gold declined.

The interpretation of the seemingly opposite nature of global exchange rate regimes in the two big eras of globalization (fixed exchange rates back then, floating ones today) has put at the center of the picture the role of financial vulnerability and financial crises. To some extent, the Baring crises yesterday played a role similar to the crises of the late 1990s in reminding emerging floaters about the dangers of an impervious floating exchange rate. As a result, while developed countries have always had the temptation and the ability to float (with floating restricted yesterday by path dependency and the difficulty of creating domestic institutions that could create a domestic nominal anchor), the periphery has always faced serious difficulties in floating, viewing the gold standard yesterday, and hard pegs today as a second best solution.

Bordo and Flandreau (2003) present econometric evidence for the pre-1914 and the 1973 eras linking the dominant regime followed - - the gold standard pre-1914, floating today--to financial maturity (defined as open and deep financial markets, stable money and fiscal probity) which they proxy by financial depth, measured as the ratio of broad money to GDP. Before 1914 when the gold standard was the dominant regime, they find that countries adhering to gold have greater financial depth than those that did not post 1976, when floating was the dominant regime. They found, in general, that countries that could successfully operate pure floats were more financially developed than those which could not.<sup>10</sup>

The key distinction for exchange rate regime choice between core and periphery then, advanced and emerging now; is financial maturity. It is manifested in open and deep financial markets, stable money and fiscal probity. It is evident in the ability to issue international securities denominated in domestic currency or the absence of 'original sin.'

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<sup>10</sup> With the exception of small economies with considerable openness or close trading links to a large country who chose not to float and instead adhered to hard pegs (e.g. Hong Kong).

Indeed, countries that are financially developed, in a world of open capital markets should be able to float as advanced countries do today, just as they successfully adhered to gold before 1914.

Evidence for the core countries that the classical gold standard operated as a target zone with the gold points serving as bands in which credible floating could occur and external shocks be buffered is a presage to the regime followed today. Today's floating is a product of financial maturity and the development of the technological and institutional structures and constraints that allow policy makers to follow stable money and fiscal probity, without adhering to an external nominal anchor.

Thus the dynamics of the international monetary system and evolution of the exchange rate regime is driven by financial development and international financial integration. Financial crises such as those of the 1890s and 1990s are the defining moments that reveal the regime fault lines between advanced and emerging countries. The evolution of the gold standard and the movement towards successful floating by advanced countries today required achieving financial maturity. The same will be required for the rest of the world. In the interim, intermediate arrangements including impediments to free capital movements will prevail. Financial crises as occurred in the 1890s and the 1990s will also continue to be an important part of the process of regime evolution as an ultimate structuring force.

## V. POLICY IMPLICATIONS

Which exchange rate arrangement is best? This survey agrees historically with Frankel (1999) who states that "no single currency regime is best for all countries, and that even for a given country it may be that no single currency regime is best for all time." However, the world is evolving towards a floating exchange rate regime the regime of the advanced countries which in many ways echoes the movement towards the gold standard a century ago. The principal exception to the pattern seems to be currency unions such as the EMU that the European countries have joined (for political reasons, among others), as have a number of small very open economies.

However, although the world is evolving toward floating, intermediate regimes still represent a large fraction of all arrangements. Is there still a case for them? The principal case against them of course was the disastrous experience with the adjustable peg under the Bretton Woods system, which collapsed under speculative attacks, and the recent Asian crises, which involved largely crawling peg arrangements.

In reaction to that experience, many observers have made the case for bipolarity. Moreover, the "fear of floating" view has made the case that emerging countries should likely move toward hard pegs rather than floats. Yet both currency boards and dollarization have serious flaws, the principal of which is the absence of a monetary authority to act as a lender of last resort or to offset external shocks (Larain and Velasco, 2001). Moreover, currency unions that can overcome those problems need considerable political will to survive in the face of the shocks that inevitably come along (Bordo and Jonung, 2000).



Thus in the face of these considerations the case still can be made for intermediate arrangements for emerging countries that are not yet sufficiently financially mature to float. One such arrangement that seems to be a promising path that countries could take on their journey towards floating is Morris Goldstein's (2002) "Managed Floating Plus" scheme.<sup>11</sup> It supplements the inflation targeting cum independent central bank approach that several advanced countries (United Kingdom, Sweden, New Zealand, and Canada) follow, with exchange market intervention to offset temporary shocks, a comprehensive reporting system to maintain the level and foreign currency exposures of external debt, and perhaps a sequential strategy to the opening up of domestic financial markets to external capital flows. Finally, there is still a case for monetary unions for countries that are closely politically and economically integrated or are small very open economies.

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<sup>11</sup> For an interesting discussion of this and other options, see Baillu and Murray (2002).

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