

The Evolution of the International Monetary System: A Long-Run Perspective on Exchange Rate Regime Choice

February 7, 2006

Christopher M. Meissner*

University of Cambridge and NBER

ABSTRACT

I analyze the past 150 years of the international monetary system. Recent research suggests nations choose their regimes based on optimal currency area criteria. This gives rise to strategic complementarities in regime choice and multiple equilibria. The evolution of the international monetary system may involve abrupt and quick changes but may also display path dependency as coordination failures prevent change. Domestic factors also matter. Integration with capital markets and the desire to import credibility exercise influence over the way countries peg. The long run picture suggests that the trend towards greater flexibility will continue in many countries but that smaller countries will be likely to choose pegs and to be involved in currency unions. In the medium run, as integration and growth proceed, even more currency areas will become viable.

I. Introduction

The last 150 years of global financial history offer an impressive laboratory in which to test various theories about the determinants and effects of various exchange rate regimes. Although the global economy is vastly more complicated and multi-layered than it was in the late nineteenth century or even the period between the two

*. Part of this work was carried out while Meissner was visiting the Bank of England as a Houblon Norman George Fellow. The Bank's hospitality is greatly appreciated. Any errors are solely the responsibility of the author. © Christopher M. Meissner. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source

world wars, many similarities remain. The factors affecting exchange rate regime choice and the consequences of such regime choices can be studied over the long-run to validate contemporary theories, to pose new questions and to speculate on the future evolution of the international monetary system.

In this paper I examine the key factors affecting countries' exchange rate regime choices based on a number of recent research projects spanning the last century and a half. This will lead to a discussion of how individual country choices interact to add up to what we often call the international monetary system. Finally, I will turn to other issues of current interest including the future of currency unions, floating exchange rate regimes and intermediate arrangements.

The long-run of history shows us that strategic factors matter for regime choice. Interactions and spillovers in goods and capital markets make for strategic complementarities in regime choice. These network externalities are important and can lead to the possibility of multiple equilibria that are characterized by rapid regime switches and also path dependence. Optimal currency area criteria seem to be empirically very important in determining regime choice. Of course domestic concerns such as the social value of stabilization, the need to import credibility and the links with international capital markets also seem to be important determinants. Factors that do not seem to be robust determinants over the long run are the size and composition of reserve holdings, short run relative price level considerations and political considerations.

The paper then moves on to analyze the implications for the future evolution of the distribution of hard pegs, intermediate pegs and floats. A key observation is that relatively advanced countries were more likely than poorer countries to peg prior to 1945 while today we see the reverse—less developed economies are more likely than advanced countries to peg. Long-run factors including financial development and institutional reforms matter for this reversal, but these variables also interact with the international capital markets. Also, due to the advent of inflation targeting regimes, some emerging market countries have displayed the ability able to move towards more flexibility. This trend should continue. But we will not see the end of pegs in

less advanced and smaller nations; and could see more pegs in the form of currency unions. In the medium to long-run, if globalization and integration proceed apace, more monetary unions will become a distinct possibility amongst blocs of countries much in the same way that Europe has moved towards a monetary union.

II. A Long View of the International Monetary System

A starting point for analysis is the time series plot of the percentage of countries, for which we have information, that have some sort of fixed exchange rate system. Figure 1 reveals ups and downs. But for the last 130 years a vast majority of countries have opted for some sort of pegged exchange rate system.¹

Between 1850 and 1873 any country with a commodity based monetary system had a fixed exchange rate with all other countries having a commodity based system. It is unlikely that the world has ever seen a higher share of countries with such solidly fixed exchange rates since the beginning of the 1870s. So the prevalence of floats has been secularly increasing over time. Some of the factors behind this are discussed more below.

It is curious that what we now call the first epoch of globalization had its roots in the 1860s and 1870s. Recent research on the period suggests that there were large decreases in the barriers to trade driven by falling transportation costs, declining tariffs, and political stability up to 1870. Huge increases in capital market integration also occurred in the run up to 1870 (see Jacks 2004 on trade costs and Obstfeld and Taylor 2004 on capital market integration).

The key to exchange rate stability in this period had its proximate roots in the French system of bimetallism. France guaranteed to buy and sell silver for gold at the mint ratio of 15.5 units to one. As Marc Flandreau (2005) has shown, markets used this credible guarantee to arbitrage price differences on international specie markets. The French market was large enough to absorb most excess demand arising from market-based deviations from the mint parity price. Thereby, any country defining its

¹ Peg is defined here slightly differently for each period. In the pre-1913 period any country that had a commodity money system is deemed to have a peg. In the interwar period a peg requires having a gold standard. In the post 1950 period data come from the IMF de jure classification.

currency in terms of a fixed amount of gold (say) and honoring such a commitment automatically had a fixed exchange rate not only to other countries with such a specie standard but even to others with a silver or bimetallic standard. Figure 2 shows that between 1840 and 1870 a stable international monetary equilibrium existed.

III. The Sudden Collapse of Silver and the Rush to Gold

In 1870 only Great Britain, Australia, Canada and Portugal had a gold standard. However, by 1910, most nations had come to adopt the gold standard. Between 1850 and 1872, when Germany embarked on national monetary reform and changed its standard from silver to gold, few countries moved to make their currencies convertible exclusively into gold. For that matter few significant changes in monetary regimes occurred.

The seeds of the radical shift in direction that eventually led to global regime transformation were sown during the 1860s. A change in national monetary strategies was evident at the International Monetary Conference of 1867 in Paris. Delegates, representing 20 nations from Europe along with the United States, were invited to Paris to discuss the possibility of an international monetary union. At the conclusion of the conference, most delegates supported a worldwide monetary union based on gold.

Einaudi (2001) discusses at length why a gold system was favored. Gold's increasing attraction on the continent was partially attributable to forceful arguments by France. French delegates cited gold's increasing use as an *international currency* and argued it was a regime that would strengthen ties with Britain and Germany (Einaudi 2001 pp. 50-52). Other contributing factors included the alleged instability and inflationary bias of bimetallism, and an ideology holding that gold was the monetary regime of economically advanced nations. Many smaller nations wanted to link up to system of their main trade partners so as to maximize the transaction cost savings.

The most economically important nation, Britain, provided a focal point and attempted to swing other countries towards gold. Britain remained an observer at the Paris conference and stubbornly argued for keeping its gold-based system much as today it resists joining the European Monetary Union. The English representative to

the monetary conference declared, "Indeed, the English nation is in a position much more independent upon this question than most continental nations" (Russell, 1898 pp., 73-74). Britain's recalcitrance was not only due to diplomatic pride. There were doubts about the economic benefits of linking up to a hypothetical non-gold European system. Britain had extensive trade connections with its gold-based empire (Einaudi, 2001).

The conference voted overwhelmingly for a coordinated move to a gold-based system with comparable weights and measures in coinage. Britain's trade motivations highlight what would become one of the crucial drivers of regime choice in the next 130 years: strategic complementarities.

IV. Network Externalities in Action

A nation's exchange rate regime choice does not depend solely on domestic characteristics and concerns. In an integrated global economy, it depends strongly on the choices of other nations. These network effects arise because credibly fixed exchange rate regimes are believed to confer transaction cost savings on each and every international exchange due to lower hedging and information costs. Interest groups involved in the tradable sector view this as a boon and push governments to choose these pegs.

In a formal theoretical model, Alesina and Barro (2002) show how these factors matter. The setup could involve a number of small countries each maximizing a social welfare that depends for simplicity only upon the transaction cost savings from joining up to any particular bloc of countries. The model can be adopted to include the costs of the loss of monetary sovereignty and the country-specific need to establish inflation credibility. But to illustrate the dynamics of the model we need only focus on the action of a small country in large world. Assume at least one potential anchor bloc pertaining to a currency other than its own. Also assume a small transition cost to adopting a peg to that bloc or joining a monetary union. Since each country is small it takes the strategies of all other nations in the current period as given. One can easily think of regime choice being made period by period and that each year's outcome is the Nash equilibrium outcome based on expectations of given fundamentals and the given strategies of other nations. In this fashion, multiple

equilibria can arise and shifts between equilibria can happen from period to period. The strategic way of thinking about bloc formation seems to be a very relevant way of making sense of currency bloc formation over the past 130 years.²

To bolster the validity of such a model, a number of different research papers have illustrated the strength of these trade network externalities. Work of mine with J. Ernesto López Córdova (2003) showed that all else equal any two nations that both had a gold standard could increase their trade by roughly 30 percent more with each other. This is sizeable and could on average be equivalent to between five and ten percentage points of annual output. In the recent period, work by Andrew Rose and Eric van Wincoop (2001) has shown that the trade effect of a joining a currency union is heterogeneous but bounded below by roughly +30 percent for relevant hypothetical adoptions (i.e., Canada dollarizes, UK joins the EMU). Michael Klein and Jay C. Shambaugh (forthcoming) have also recently upped the ante. Their paper studies the impact of a pegged exchange rate and exchange volatility on bilateral trade. The authors use a theoretically appealing gravity model approach. They use by far the most comprehensive data set to date, and they define the pegged exchange rate regime indicators very carefully using Shambaugh's new data set on de facto pegs. Strikingly they find direct pegs increase trade by between 20 and 30 percent.³ Moreover they show that increased exchange rate volatility, all else equal, decreases trade. There is also evidence that all three of these studies are robust to problems of endogeneity and other econometric pitfalls. All of this suggests that the trade benefits motivation for adoption of pegged exchange rates is a real and significant factor. The logical extension of this evidence is that there is a virtuous circle going from trade links to pegs and then back onto increased integration.

Evidence from the mouth of politicians and policy makers is also abundant. The stronger integration is with a particular bloc, the stronger the political will is to join the bandwagon. A U.S. Treasury official testified in 1876 to Congress, on

² Yehoue (2005) allows for stochastic formation which leads to more complicated equilibrium analysis. He allows for there to be equilibrium sequential diffusion of the use of a particular anchor.

³ This is from a large sample of countries between 1950 and 2000.

whether the US should adopt a gold standard, thereby pegging its nominal exchange rate to Britain and all other gold countries as follows:

Q. Do you not think that the use of a common standard of value has a tendency to promote a free commercial interchange between the various countries using it?

A. . . . and if two countries, be they ever so distant from each other should have the same standard of money . . . there would be no greater harmonizer than such an exchange. If our silver dollar were to pass current in Mexico and South America, or if we had a union dollar, we should have much more of their trade . . .

This type of dynamic is illustrated in Table 1. Here we see the quick adoption of the gold standard by countries in the European core in the wake of German adoption in 1872. Soon thereafter, more peripheral nations linked up, and by 1910 nearly the entire world was based on gold. Inspection of the data reveals that the order in which countries adopted or the time until adoption of the gold standard after 1872 depended positively on trade integration with other gold countries. As the bloc expanded, other countries viewed the benefits of linking up as greater. Recent research of mine published in Meissner (2005) has shown that a one standard deviation increase in trade with the gold standard decreased the expected waiting time until adoption by 92 percent.

The Interwar period and the post-1972 periods also display similar dynamics. In the 1920s countries wanted to restore the classical gold standard after having gone to floats in the midst of World War I. But by 1925 few countries had returned. Once Britain went back on gold, other nations quickly followed suit, and once Britain devalued in 1931 many other nations did likewise (see Figure 1). Of course common economic and financial shocks and other factors mattered in the 1930s. But recent econometric analysis by Kirsten Wandschneider (2005) has illustrated that the length of time a country held onto its gold peg after 1931 depended in part on trade connections with the rest of the gold bloc.

Coming forward to the modern period, Figures 4 and 5 also display these dynamics. The demise of the gold-backed dollar in 1971 led many countries to abandon their dollar pegs in the immediate aftermath. Many of them eventually

moved to share pegs to the German mark. Sterling, long a favorite of members of the British Commonwealth, fell out of favor with astonishing celerity given previous experience. Moreover, the emergence of the European Monetary Union has led to the emergence of a two bloc world in terms of anchors as those countries previously pegging to the mark and franc now peg to the euro.

Recent research of mine with Nienke Oomes of the International Monetary Fund has also tested for the possibility of network effects as an explanation of anchor currency choice in the post World War II period. We use the data on de facto pegs from Carmen Reinhart and Kenneth Rogoff (2004) as our dependent variable. Their data set provides information on the currency to which countries are anchored and we use that information to explain anchor choice between 1980 and 1997. The results below are based on multinomial logit estimation. The choices are pegging versus floating or freely falling. We subdivide the peg choice into various choices of an anchor currency given a peg is chosen. One can think of this as a nested logit model where the top level choices are float, peg or fall and the peg has a bottom level where the choices are peg to the dollar, German mark, French franc, or in some specifications the pound sterling

We find evidence that nations with greater trade flows as a percentage of GDP with a particular anchor bloc have a greater likelihood of adopting an anchor to that particular bloc.⁴ The strength of these network externalities is shown in Figures 6 and 7 where we used our panel multinomial logit models to predict the number of anchors under certain counterfactual changes in trade patterns. We use our baseline estimated model to predict anchor choice after adjusting the amount of each country's trade with the dollar bloc by 0, -50, -75 and -100 percent. At the same time, we increase trade with the mark bloc by the same percentage. Figures 6 and 7 show the aggregate implications are clear. The dollar bloc shrinks by a half, and the mark group doubles in size. Network externalities based on the global trading system seem to be an important part of the geography of the contours of the international financial system.

V. Other Factors

⁴ The choices are float (base category), dollar anchor, mark anchor, franc anchor or freely fall (hyperinflation/currency crash).

The emphasis so far on trade-based network externalities does not mean to imply that other factors, domestic and external do not matter for regime choice. In fact there is quite a lot of evidence that other traditional Optimal Currency Area (OCA) criteria enter into the decentralized decisions of regime choice. The nature and symmetry of shocks, the level of financial development which determines the ability to deal with such shocks, global capital market constraints and credibility issues all seem to be important empirically important explanatory factors in regime choice since 1870.

V.1 International Capital Markets

A vast amount of recent research on in the late nineteenth century has reached a consensus that capital market integration was nearly as high then as it is today (see Obstfeld and Taylor, 2004 for a general survey and evidence). Moreover, the era was one of bond-based development finance, no or few capital controls and several major financial crises. In short, the period is one a lot like the last decade and a half. It can be argued that there are many lessons for today in that bygone era.

One highlight of the literature on exchange rate regimes and capital markets has been the “Good Housekeeping Seal of Approval” hypothesis. Michael Bordo and Hugh Rockoff (1996) have argued that countries that adopted a gold standard sent a signal to investors that credible fiscal policies would be pursued and debt contracts would be honored. In this case, by *credibly adopting the gold standard*, nations could lower their borrowing costs. Later work by Maurice Obstfeld and Alan Taylor also found similar evidence for the period prior to 1913. Yield spreads fell on average 40 basis points when countries went onto the gold standard.

In my examination of the timing of adoption of the gold standard, I find that a higher spread on long-term borrowing rates led countries to adopt the gold standard sooner. I interpret this as saying that countries were chasing after this “good housekeeping” benefit. There is now good reason to believe that capital markets placed lower risk premiums on the hard currency debt that nations were accumulating when nations pledged to stabilize their exchange rates.

In the recent period, Oomes and I find that the greater the value of gross liabilities outstanding in US dollars is the more likely a country is to adopt the dollar

as an anchor. The same is true for marks and franc pegs. For the last 130 years it has been the case that borrowing in international capital markets has happened in a few key currencies. By adopting a peg based on these currencies, countries have been able to ensure lower borrowing costs by adopting a peg. This could be due to the perception that the exchange rate would be less likely to depreciate which in turn would make repayment more difficult.

V.2 Credibility

There is also other evidence for the idea that nations try to establish credibility by adopting a less flexible regime. In the current period, nations that have had hyperinflations in the past have tended to have a higher likelihood of choosing a dollar or a mark peg than countries that have been more successful at managing monetary policy. In the interwar period, Wandschneider has shown that the countries which experienced hyperinflations in the 1920s had a lower probability of dropping the gold standard in the after 1931 despite the poor economic environment.

V.3 Shocks and Flexibility

Nations value independent monetary policy of course. This is a valuable way to absorb macroeconomic shocks. Contemporary textbook theory holds that if nominal shocks dominate real pegs a peg is viable. But if real shocks dominate, a float is preferable. Oomes and I find little evidence that these factors determine exchange rate regime choice.

Oomes and I also find some weak evidence that increased co-movement of nominal output with the issuer of the reference/anchor currency leads to a higher propensity to adopt that currency as an anchor. So countries do seem to factor in the costs of adopting an anchor.

We also observe that more developed countries are much more likely to float (our sample begins in 1980 and ends in 1997). I interpret this finding as showing that countries with more developed financial systems that are more capable of dealing with shocks opt to float.

Curiously, historical research shows the opposite phenomenon. Prior to 1913, more developed countries chose to adopt and maintain the gold standard. Countries

having trouble coping with international volatility and large shocks opted for fiat currencies in the late nineteenth century. These experiences were somewhere between free falls and pure floats. Similarly, where government finance and deficit spending was not easily controlled due to poor institutions, fiat currency reigned. Argentina, Austria-Hungary, Chile, Greece, Italy, and even Japan had bouts of inflation induced by over-expansion and underlying financial malfeasance.

V.4 Other factors that Seem to Be Less Robust

There are many other potential determinants that authors have argued matter. The above restricts itself to analysis of the factors that seem to be the most robust over time. I will discuss two other classes of factors and speculate as to why they do not seem to matter.

Today policy makers fret that if sizeable sales of US assets begin abruptly (say because of Chinese diversification of its reserve base) it will cascade and lead others in the market to sell in a panic. One outcome could be dollar depreciation and US inflation. One might conjecture that an inflationary outcome would decrease the attractiveness of a dollar peg and hence increase the relative attractiveness of other anchors. The question then is who goes first. One might conjecture that those with the largest dollar holding would have the greatest incentive to be first movers. If history is any guidance, the actual quantity of reserves held will not make a large difference. Events will unfold much too quickly. In the 1870s as silver's value declined quickly it was said there was a "scramble for gold". Indeed, there might have been a scramble for gold, but I find no evidence that the absolute *size of reserve holdings* matters for the timing of the adoption of the gold standard (or the abandonment of silver or bimetallism). Rather, once a run for the exits occurs, nearly all go eventually and in proportion to the benefits derived from trade networks and other factors. Nevertheless, a run on the dollar is just as likely to precipitate defensive action sooner or later by the Federal Reserve and a long-run increase in inflation in the US is a likely event.

The political economy of pegged exchange rates regimes has burgeoned in the last decade and a half. Authors in this vein argue that political institutions and political outcomes help determine the direction of exchange rate policy. A recent article by Brock Blomberg, Jeffrey Frieden and Ernesto Stein (2005) argues that

nations trade off export competitiveness (less likely to peg) with anti-inflationary credibility. Their empirical evidence seems to suggest for example that nations with a greater percentage of manufacturing in terms of output are more likely to let go of a given peg at any moment in time. Analyses by Leblang (2003) and Simmons (1994) also point to the possibility that political factors matter. The weight of evidence from the research on regime choice in the three periods under analysis suggests that interests rather than institutions matter for regime choice. Prior to 1913 there is little evidence of a correlation between the level of democracy and regime choice. In the interwar period, Wandschneider has found that leftist representation in parliaments led to dropping the gold standard earlier and that democracies also left earlier. However she finds little evidence that partisan veto players matter. In our study of anchor choice and peg choice, we found that cultural, colonial and historical ties matter for franc pegs but little for dollar or mark anchors. Moreover the choice between floating and pegging did not seem to rely on measures of the length of tenure of governments or the relative strength of the governing power. It seems clear that interest groups matter, but it is hard to see if other political economy factors are primary determinants of regime choice.

VI. Exchange Rate Regime Choice: Some Conclusions from a Long Run Perspective

130 years of evidence show that there are a wide range of variables that historically determine whether a fixed exchange rate is a beneficial policy. These external and domestic determinants feed into creating an exchange rate ecosystem that ultimately has a non-negligible impact on the development of the global economy.

Network externalities operating through trade channels seem to be a robust determinant of the choice and the longevity of regimes. Such a factor can give rise to multiple equilibria in the international monetary system. Our simulations show that this is as true today as it was prior to World War II. The leading countries' currencies have been chosen as the key anchor currencies over the long-run. We argue that the coincidence between the two phenomena is not due to some inherent stability of the leading country but due to the network externalities that tie countries together and

which are associated with economic activity. As proof consider the choice of anchors today. What distinguishes the Swiss franc, US dollar, German mark or Dutch guilder in terms of long-run inflation history? We would argue virtually nothing. Nevertheless the dollar and the mark (now the Euro) are the key anchors while the franc and the guilder are not.

The idea that network externalities are in operation implies that the transition between any two equilibria can also be extremely rapid.⁵ Once a particular bloc begins to unravel, and especially when large, economically important nations in particular blocs begin to switch regimes, change can come in a rapid cascade. The fate of silver-based systems in the nineteenth century was sealed in effectively only seven years from the date that Germany began its silver sales and transferred to the gold standard. The rather rapid reappearance of the gold standard and also the quick decline in the popularity of sterling in the late 1960s and even the dollar later in the 1970s also remind us of this facet of the international monetary system.⁶

Today, the international monetary system is a two bloc world. Many advanced nations float but a larger number of emerging and less developed countries have opted for de jure and/or de facto pegs. The vast majority of these pegs are based on dollar or euro anchors. An interesting question is how the blocs will evolve over time.

A given equilibrium can be hard to break. In fact we see some signs of relative stability in Figures 4 and 5. In Central and Eastern Europe we see many dollar pegs. Since their trade with each other and European nations is quite large a coordinated move to the Euro could enhance all countries as a group. Nevertheless, for any one

⁵ Yehoue (2004) discusses the possibility that bloc formation can be sequential. This is also a possibility if the trade patterns and shocks occur in the right fashion. Empirically many transitions seem to have been quite fast initially with major countries making quick moves with the bloc accreting slowly and sequentially thereafter.

⁶ Reinhart and Rogoff's data reveal the following information about certain transitions from the pound to the dollar. Australia and New Zealand simultaneously adopted a dollar anchor in 1972. The East Caribbean Central Bank States (Antigua and Barbuda, Anguilla, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines) all went to the dollar at once in 1976. Iraq, Kuwait, and Jordan also adopted their dollar anchors almost simultaneously in 1972. Finally, Myanmar (1975), Sri Lanka (1976), Hong Kong (1972), Malaysia (1976), Pakistan (1972), and Singapore (1972) all moved to the dollar at nearly the same time.

country to break out of the equilibrium could be difficult if trade ties intra group are high enough.

But when a group of major trading partners change regime and decrease the network externalities arising from a particular configuration, there can be a dramatic change beyond their borders. This happened in the 1870s for example when France single handedly declined to peg the gold-silver exchange rate. A simultaneous move associated with coordinated rational policy making can also be a possibility. As examples take the potential or actual currency unions in The African Union, West African countries, East Asian nations and Europe as examples. In these situations, the length of time until negotiations succeed and lead to a transition have been and will be quite long. As we have seen, coordinated diplomatic efforts to establish a standardized gold-based system began in Europe in 1867. And despite heavy diplomatic approval of the project, action did not occur immediately or even because of such coordination.

The history of attempts to coordinate internationally and resuscitate bimetallism leave even more dismal hopes for the future of planned coordination. International monetary conferences were held in 1878, 1881 and 1892. The express purpose of these conferences was to re-establish bimetallism in the US, the Latin Monetary Union and beyond. Untold amounts of lobbying and intellectual energy went into the project at each of these meetings, and yet *none* of the proposals succeeded in bringing back bimetallism. The gold standard, a product of decentralized international competition and choice dominated.

Likewise, Bretton Woods took vast intellectual talent and bureaucratic effort to establish and operationalize. Its long-run viability was shattered as capital markets outwitted policymakers breaking the equilibrium that sustained the dollar-based standard. The launch of the West African currency union has been delayed and prospects for an East Asian currency union remain low despite many years of high level discussion on the issues.

A significant common shock can also be another way to crack the viability of a particular status quo and lead to the emergence of a new pattern. The decline of participation in the sterling bloc gives us some evidence of this. British macroeconomic policy in the 1950s and 1960s led to expectations that sterling would

continue to secularly depreciate against other major currencies. Countries pegging to sterling also had significant sterling reserves. To avoid capital losses in terms of international currencies on these reserve holdings, nations wanted to flee and had to be encouraged to continue with guarantees in the Basle Facility of 1968. But by the 1970s, sterling's popularity in terms of being an anchor currency declined precipitously. Financial market speculation in 1992 caused currency crashes in the UK and Sweden (amongst others) ejecting them from the Exchange Rate Mechanism, the precursor to the EMU. This episode contributed to deepening suspicion about EMU in both nations. So in addition to the more deterministic factors and fundamentals that explain the international monetary system, the shape of the international monetary system depends on both systemic and idiosyncratic shocks.

VII. A Long-Run Role Reversal: Floating versus Pegging

A curious reversal is evident in exchange rate regime choice. Here we see that the more developed core countries were more likely than poorer periphery countries to have a pegged exchange rate regime or commodity standard in the nineteenth century. On the other hand, pegs and fixes are much less preponderant today in richer more developed countries than they are in developing countries and emerging markets. Bordo and Flandreau (2002) discuss this evolution and argue that financial development matters.⁷ To the best of my knowledge no other study has looked into a systematic explanation for this fact. I venture to guess that there is a multi-causal explanation here, and factors besides financial development matter. Significant determinants include changes in the international environment, changes in the local politics of monetary arrangements and even a learning-by-doing/reputational story.

The learning and reputational argument are closely related. The most developed countries in the nineteenth century adhered to the gold standard in a way that is reminiscent of what today we would call constrained discretion. Bordo and Kydland (1997) first argued that in normal times commodity standards allowed for clear expectations about the evolution of prices and nominal exchange rates. Even when major shocks like wars occurred, markets anticipated an eventual return to the

⁷ Other factors they mention are political and international strategic interaction making for path dependency.

old pre-shock parity. Capital markets were not yet quite ready to allow advanced nations to throw away the chains of a commodity money system.

The countries that did not credibly redress their problems of perennial inconvertibility in the nineteenth century were punished with high risk premia or rationing on their bond issues. They suffered defaults due to exorbitant debt costs and an inability to attract capital in times of severe market stress. Argentina, Brazil, Chile, Greece, Japan, and Spain all had a number of debt defaults (excepting Japan), currency crises and problems attracting sufficient capital (perhaps with the exception of Argentina here) to jump start the development process.

Japan was one of the few countries in the period to set matters right with a host of reforms culminating in the 1890s, the adoption of the gold standard in 1897, and a remarkable drop in its sovereign bond spreads (Sussman and Yafeh, 2000). Japan's institutional transformation helped convince markets that it would be an adherent to the gold standard in much the same way as the US, France or Great Britain had been. This country developed a strong reputation by making credible its commitment to adhere to such a policy.

The Austro-Hungarian experience detailed in Flandreau and Komlos (2005) is another interesting case. It illustrates the development of learning and reputation. Flandreau and Komlos call this episode the first target zone the world has seen. Austria-Hungary had a miserable financial track record up to the 1870s defaulting a number of times and moving to currency inconvertibility with high regularity. Austria had a paper currency with no explicit nominal anchor up to 1897, and even then it only ended up shadowing the gold standard never fully establishing currency convertibility. Nevertheless financial markets in Austria deepened over time and credibility was established. Stabilizing capital flows began to dominate the destabilizing flows that racked other countries attempts to access international capital such as Brazil and Argentina.

Douglass North and Barry Weingast (1989) in an oft-cited paper explored the political antecedents to financial development. They argued that Great Britain was able to borrow at low cost in the seventeenth century because the sovereign ceded fiscal and monetary control to a parliament that had a direct stake in maintaining the

value of the debt because many members were bond holders. It now appears that there is more general support for this interest group theory, and most importantly that the idea can be exported to other countries. The nineteenth century experience of imperial Brazil speaks volumes to the political bases of sound finances and the ability to float. Brazil's domestic debt markets were the largest in Latin America prior to 1890. Brazil, in contrast to nearly all other Latin American countries, never defaulted on its internal or external debt prior to 1896. Like in Britain, we also find political control of fiscal policy was run by an enfranchised, bond-holding elite. This kept Brazil from having the fiscal problems nearly all of its Latin American neighbors had. Since the elites who held significant amounts of national debt and who governed the national parliament were able to exercise veto power over the ruling monarch there was a tendency to keep debt levels sustainable. The lesson for today is that once the political interests are in line with stable fiscal and monetary policy nations can afford to float. Without this prerequisite, nations appear to substitute credibility with exchange rate pegs to convince capital markets they will have sound policies.

But, these same countries are faced with increasingly integrated international capital markets today, and hence the liquidity problems associated with these markets. LDCs, more often than not, choose to peg their exchange rates. As the recent de facto peg data from Reinhart and Rogoff amongst others has shown, even when they say they do not have a peg it turns out monetary policy is conducted so as to closely mimic that in an anchor country. This "fear of floating" comes because countries fear large depreciation of their currencies could lead to financial crisis due to their currency mismatches. To keep matters from unwinding too fast, they must work harder to establish credibility in the eyes of capital markets. Thus they have to work in a procyclical fashion raising interest rates in the face of adverse shocks rather than lowering them.

And so we are back to where we started. LDC's today find it hard to float while the most economically advanced nations and regions have garnered the privilege of allowing their exchange rates to roughly follow a float. Nevertheless some countries like Brazil, Chile, Mexico and South Korea are graduating towards more flexibility and away from putting the exchange rate at the core of economic policy. These countries have adopted some form of inflation targeting which moves

away from weighting the nominal exchange rate too heavily in policy decisions. This trend could continue in the future as credible inflation targeting and transparency in the monetary policy process diffuses.

The impact on the evolution of the international monetary system is unclear. As nations generate better monetary policies, financial development should advance and economic development could follow (see for example Levine, 1997). This economic growth itself will substitute for the lost gains from trade due to slightly increased exchange rate instability. There may be a boomerang effect here in the medium term. Best practice monetary and fiscal technologies combined with increased integration will decrease the costs from adopting a hard peg or a currency union especially in the smaller open economies. This may even spark the continued amalgamation of bloc type currency union arrangements in a number of regions and areas.

The number of blocs and the co-movements will strongly depend on the way economic integration proceeds. Nothing prevents there from being multiple exchange rate blocs. The medium term could see increased East Asian exchange rate stability as integration progresses and economies converge. If so this could lead to some sort of Asian bloc (based on a leading currency in the region perhaps) alongside a euro and dollar bloc. Though monetary union is probably not a viable project in the near term both because of conjunctural, political and historical issues (as argued in Bayoumi and Eichengreen, 1999 for example), de facto exchange rate stability may be a real possibility and could be the historical precursor to future establishment of some sort of Asian currency union.

VIII. Conclusions

The ongoing evolution of the international monetary system is of interest because it is intimately related to the economic outcomes of almost each and every nation. Exchange rate regimes are more than political tools or a curious afterthought. They influence the flow of capital and the direction of trade. These proximate factors then feed into development outcomes and possibly even other geo-political phenomena.

Based on a long-run observation of roughly comparable global economic environments there seem to be some stylized facts that emerge about how the international monetary systems evolves. Interdependence matters and can give rise to rather persistent bloc formation around various anchors and regimes. These equilibria can be broken, and rapidly fall apart when key players defect. But they seem to be robust to the idiosyncratic shocks that hit smaller nations.

Of course domestic considerations have not disappeared, and capital market integration, credibility problems, political factors and the structural bases of economies still matter a great deal. Future developments include the possibility in the short run of increasing flexibility in the larger and more developed emerging markets that find the political and will to establish sound monetary policy. The success of inflation targeting will of course depend either on low aggregate volatility of shocks or on the presence of political capital deep enough to withstand such shocks. If the process proceeds far enough we could see some doubling back and the increased use of currency unions. In smaller, less advanced countries, local currency unions pegged to larger blocs are almost surely the wave of the future if political factors can be overcome in their negotiations.

References

- Alesina, Alberto and Robert Barro (2002) "Currency Unions," *Quarterly Journal of Economics*, May, 117: 409-30
- Bayoumi, Tamim, and Barry Eichengreen, 1999, "Is Asia an Optimum Currency Area? Can It Become One? Regional, global and historical perspectives on Asian monetary relations," in: Stefan Collignon, Jean Pisani-Ferry and Yung Chul Park (eds.), *Exchange Rate Policies in Emerging Asian Countries* (London: Routledge).
- Blomberg, S. Brock, Jeffrey Frieden and Ernesto Stein (2005) "Sustaining Fixed Rates: The Political Economy of Fixed Rates in Latin America" *Journal of Applied Economics* vol VIII (2): 203-225.
- Bordo, Michael D. and Finn Kydland (1997) "The Gold Standard as a Rule" in *The Gold Standard in Theory and History*, Barry Eichengreen and Marc Flandreau eds. New York: Routledge.
- Bordo, Michael D. and Marc Flandreau (2002) "Core, Periphery, Exchange Rate Regimes and Globalization" in *Globalization in Historical Perspective*. Michael D. Bordo, Alan M. Taylor and Jeffrey G. Williamson eds. Chicago: University of Chicago Press.
- Bordo, Michael D. and Hugh Rockoff (1996) "The Gold Standard as a Good Housekeeping Seal of Approval" *Journal of Economic History* 56 (2) 389-428.
- Einaudi, Luca (2001) *Money and Politics: European Monetary Unification and the International Gold Standard 1865-1873*. Oxford: Oxford University Press.
- Flandreau, Marc (2005) *The Glitter of Gold: France, Bimetallism, and the Emergence of the International Gold Standard*. Oxford: Oxford University Press.
- Flandreau, Marc and John Komlos (forthcoming) "Target Zones in History and Theory: efficiency, credibility and policy autonomy." *Journal of Monetary Economics*.
- Jacks, D.S., (2005) Intra- and international commodity market integration in the Atlantic economy, 1800– 1913. *Explorations in Economic History* 42 (3), 381–413.
- Klein, Michael W. and Jay C. Shambaugh (forthcoming) "Fixed Exchange Rates and Trade," *Journal of International Economics*.
- Leblang, David (2003), "To devalue or to defend? The political economy of exchange rate policy", *International Studies Quarterly* 47: 533-560.
- Ross Levine, (1997) "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature*, vol. 35(2): 688-726

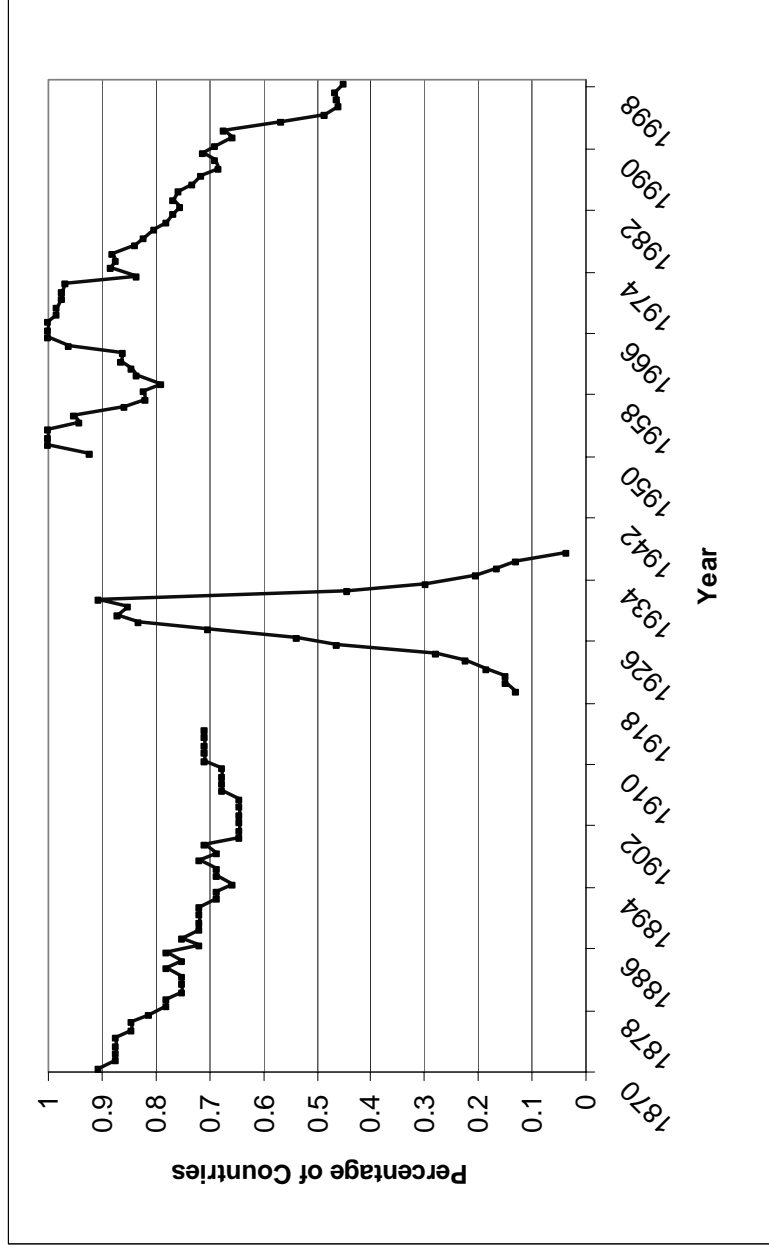
- López Córdova, J. Ernesto and Christopher M. Meissner. "Exchange Rate Regimes and International Trade: Evidence from the Classical Gold Standard Era, 1870-1913" *American Economic Review* vol. 93 (1) March 2003 pp.344-353.
- Meissner, Christopher M. (2005). "New World Order: Explaining the International Diffusion of the Gold Standard, 1870-1913." *Journal of International Economics* 66 (2) pp. 385-406.
- Meissner, Christopher M. and Nienke Oomes (2005) Why do Countries Peg the Way they Peg? Mimeo. University of Cambridge.
- North, Douglass C., and Barry R. Weingast. (1989) "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England." *Journal of Economic History* 49, (4): 803-32.
- Obstfeld, Maurice and Alan M. Taylor (2004) *Global Capital Markets: Integration, Crisis and Growth*. Cambridge: Cambridge University Press.
- Palyi, Melchior (1972) *The Twilight of Gold 1914-1936*. Chicago: Henry Regnery.
- Reinhart, Carmen and Kenneth Rogoff (2004 "The Modern History of Exchange Rate Arrangements: A Reinterpretation" *Quarterly Journal of Economics*, vol. 119 (1): 1-48.
- Rose, Andrew K. and Eric van Wincoop. (2001) "National Money as a Barrier to International Trade: The Real Case for Currency Union" *American Economic Review, Papers and Proceedings*, 91:2, 2001, 386-390.
- Russell, H.B. (1898). *International Monetary Conferences*. New York: Harper and Brothers.
- Simmons, Beth (1994), *Who Adjusts?*, Princeton, Princeton University Press.
- Sussman, Nathan and Yishay Yafeh (2000) "Institutions, Reforms and Country Risk: Lessons from Japanese Government Debt in the Meiji Era," *Journal of Economic History* 60, 2, 442-467.
- Wandschneider, Kirsten (2005) "The Stability of the Inter-war Gold Exchange Standard - Did Politics Matter?" Mimeo. Middlebury College.
- Yehoue, Etienne B. (2005) "Currency Bloc Formation as a Dynamic Process Based on Trade Network Externalities" IMF Working paper 04/222.

Table 1 Dates of Adoption of the Gold Standard, 1870-1913

<i>Country</i>	<i>Year of adoption of gold convertibility & previous regime</i>	<i>Country</i>	<i>Year of adoption of gold convertibility & previous regime</i>
Australia	1852	Japan	1897 (silver)
Canada	1853	India	1899 (silver)
Portugal	1854	Costa Rica	1900 (silver)
Argentina	1863, 1883, 1903	Ecuador	1900
Uruguay	1863, 1885	Philippines	1903 (silver)
Colombia	1871	Straits Settlements	1903 (silver)
Germany	1872 (silver)	Siam	1903
Sweden	1873 (silver)	Mexico	1905 (silver)
Denmark	1873 (silver)	Brazil	1906 (fiat)
Norway	1873 (silver)	Bolivia	1908
Netherlands	1875 (silver)	Greece	1910 (fiat)
Finland	1877 (silver)	Nicaragua	1912
Indonesia	1877 (silver)	Austria-Hungary	--- (fiat)
Belgium	1878 (bimetallism)	Santo Domingo	---
France	1878 (bimetallism)	Haiti	---
Switzerland	1878 (bimetallism)	Bulgaria	---
United States	1879 (fiat)	China	--- (silver)
Turkey	1880	Guatemala	---
Italy	1884 (fiat)	Honduras	---
Egypt	1885	Paraguay	---
Chile	1887 (fiat) & 1895 (fiat)	Persia	---
Romania	1890	Peru	---
Salvador	1892	Spain	--- (fiat)
Russia	1897 (fiat)	Venezuela	---

Note: This table uses the date of adoption of the free convertibility of a currency exclusively into gold. Data are based on Meissner (2005). The entry "---" means that the country did not adopt gold convertibility before 1913. The de facto regime in the year or years prior to adoption of the gold standard is in parentheses for some countries for illustrative purposes only and not as a systematic catalog of prior regimes.

Figure 1 The Percentage of Countries with a Fixed Exchange Rate, 1870-1998



Notes: Source for 1870-1913 Meissner (2005); Source for 1918-1938 Palyi (1972); Source for 1950- IMF

Figure 2 Silver-Gold Market Ratio, 1840-1896

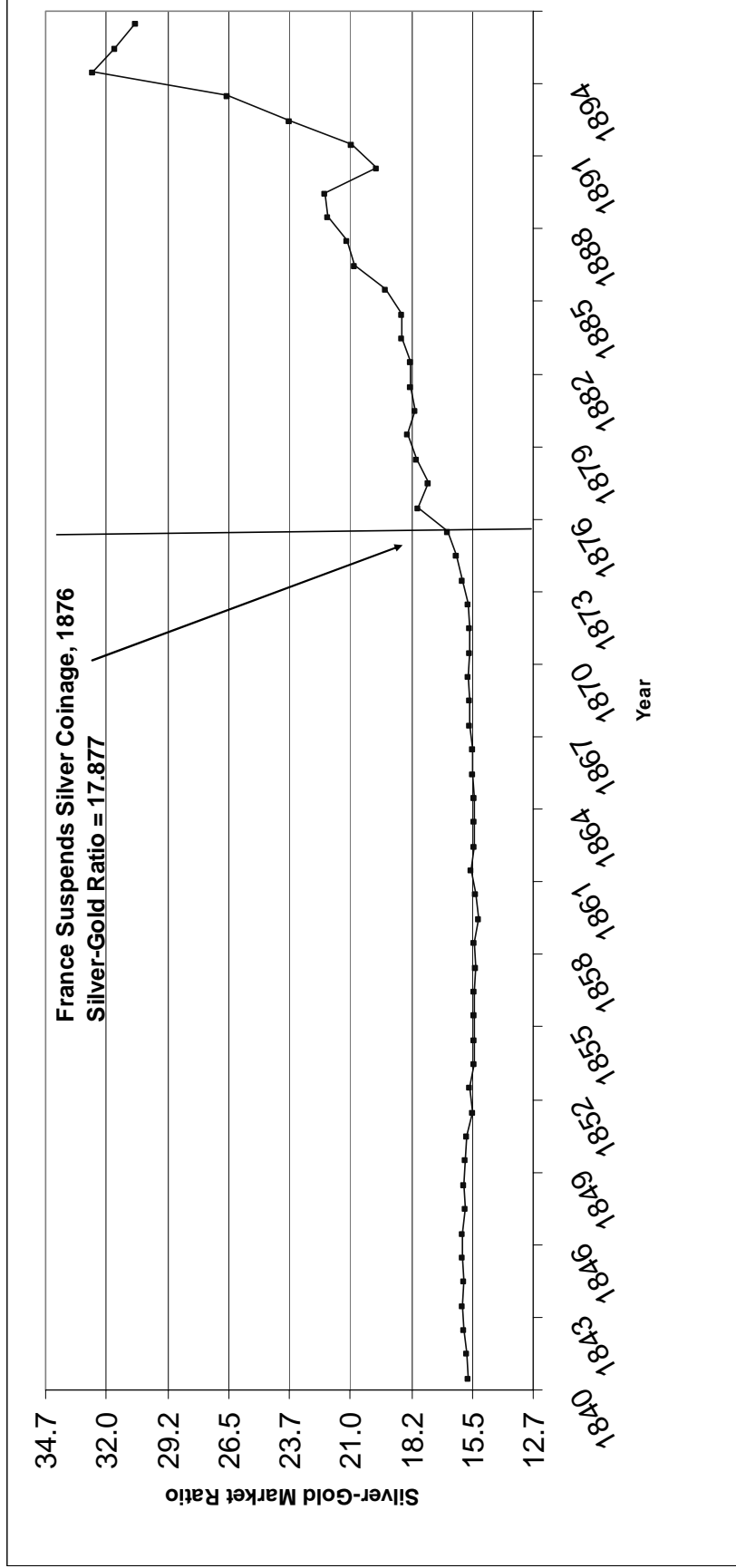
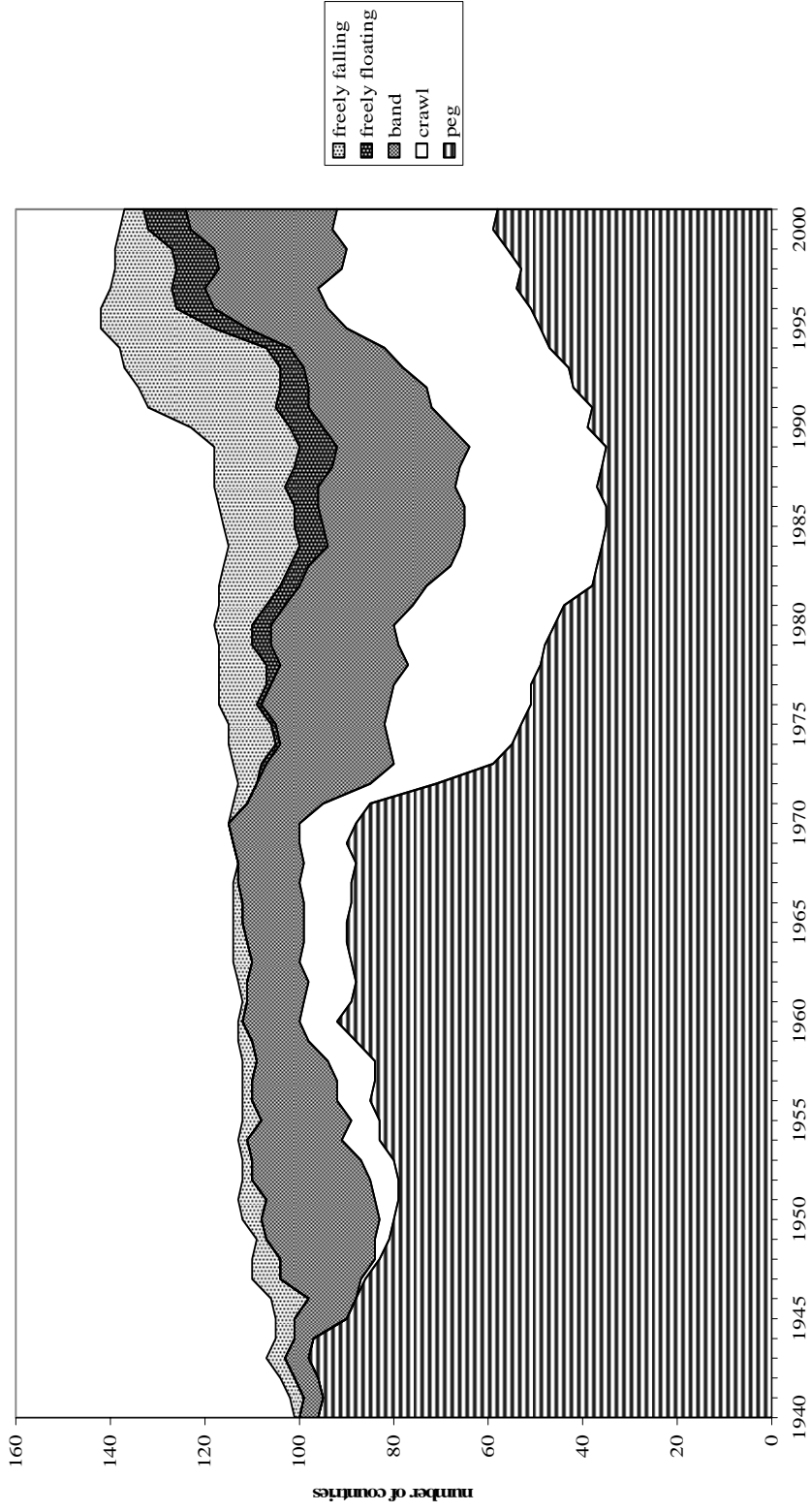
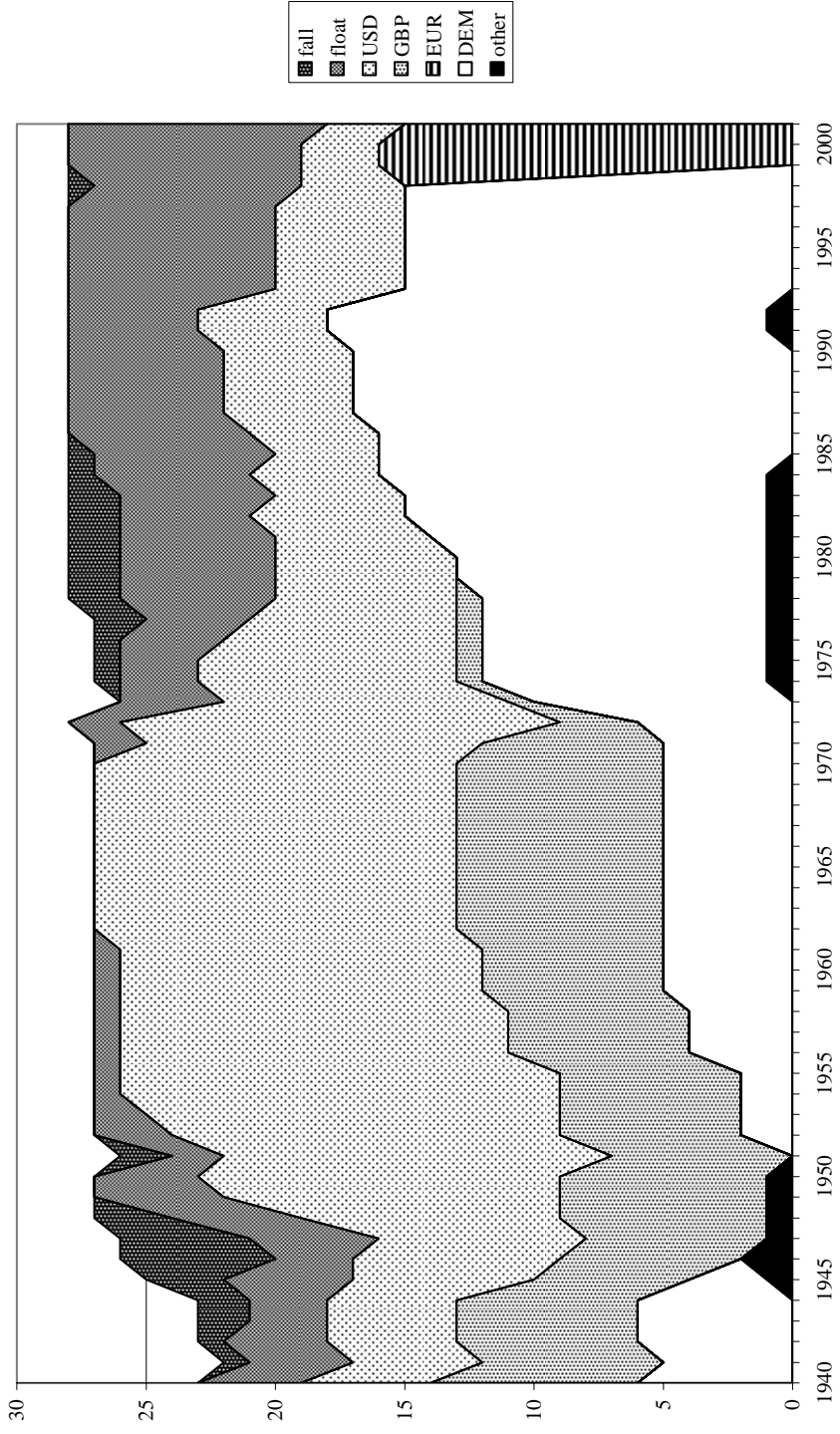


Figure 3 De Facto Exchange Rate Regimes, 1940-2001



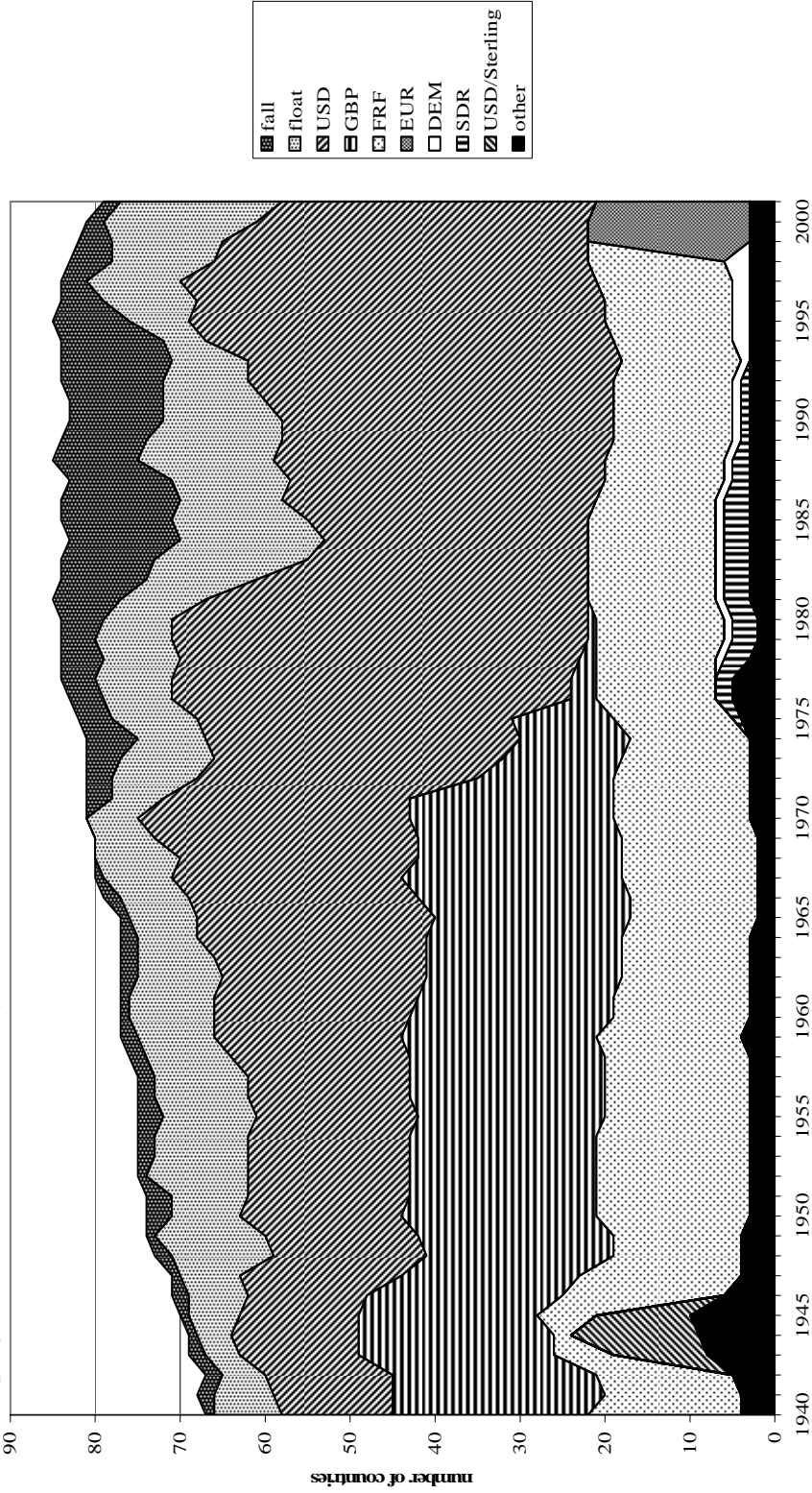
Notes: Source for data is Reinhart and Rogoff (2004)

Figure 4 Advanced Countries: Anchor Currency Choice, 1940-2001



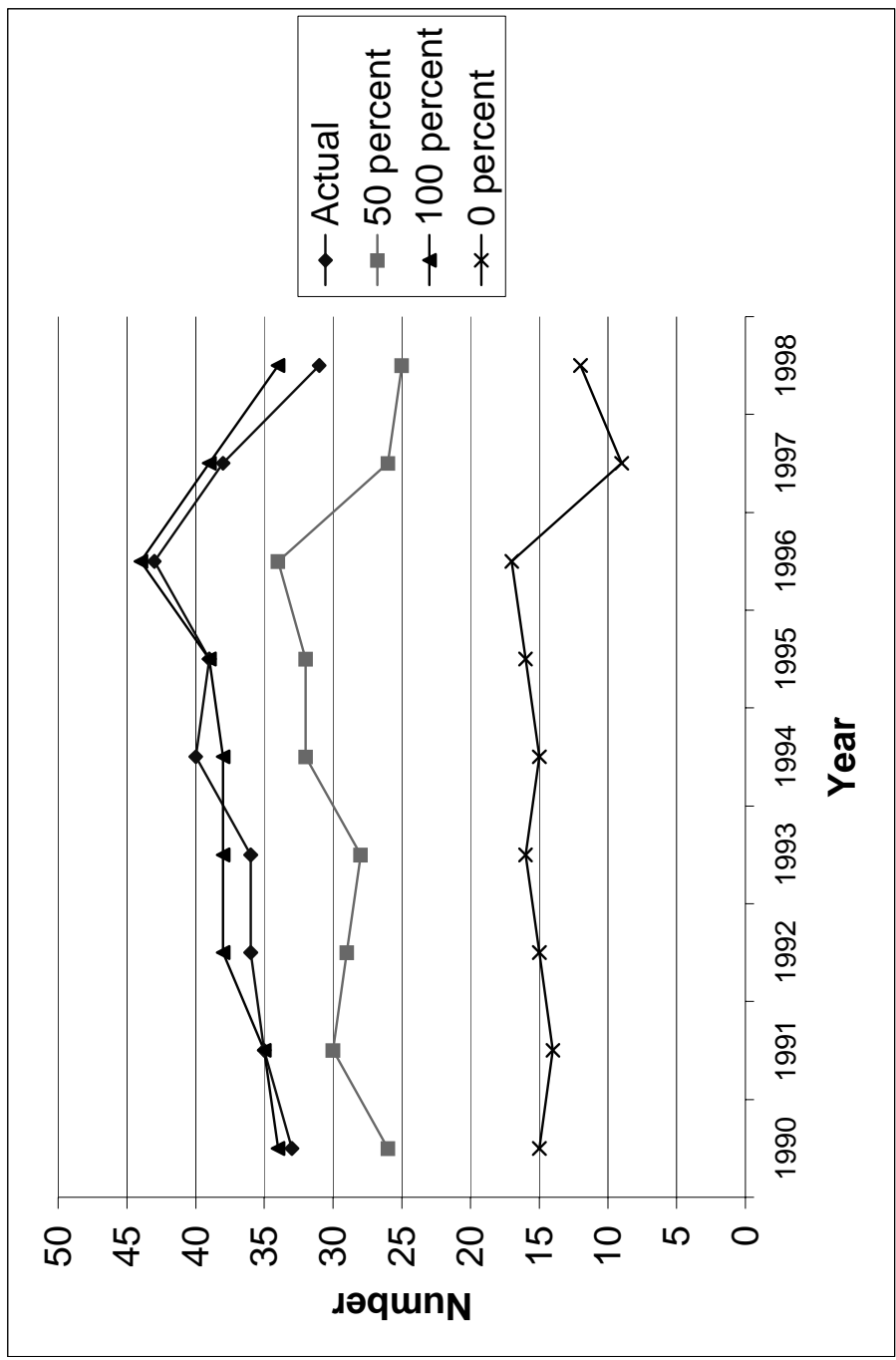
Notes: Source for data is Reinhart and Rogoff (2004)

Figure 5 Developing Countries: Anchor Currency Choice, 1940-2001



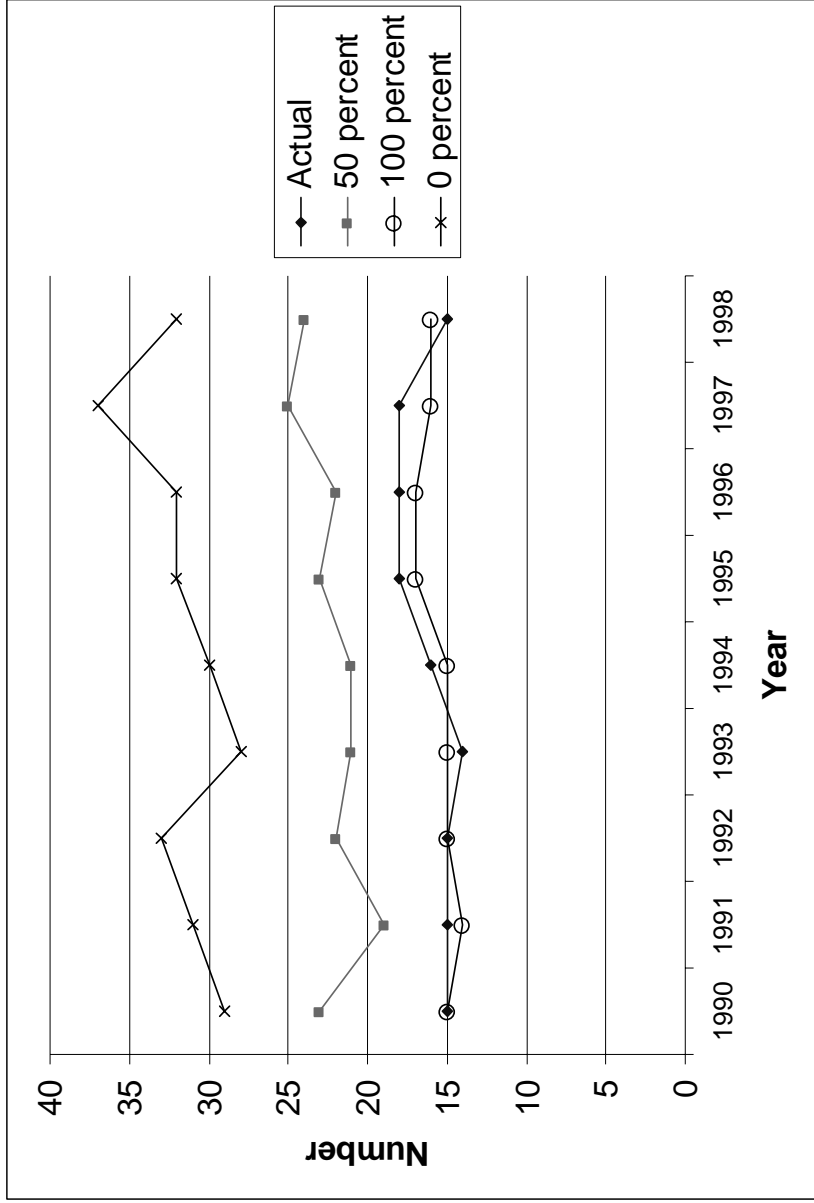
Notes: Source for data is Reinhart and Rogoff (2004)

Figure 6 Counterfactual and Actual Dollar Pegs, 1990-1997



Notes: Figures are based on Meissner and Oomes (2005)

Figure 7 Counterfactual and Actual Regime German Mark Fixes, 1980-1995



Notes: Figures are based on Meissner and Oomes (2005)