October 2001

Sectoral interests and European monetary integration: An empirical assessment

Jeffry A. Frieden
Department of Government
Harvard University
Cambridge, MA 02138

For over thirty years, until the completion of Economic and Monetary Union (EMU), the member states of the European Union pursued the monetary integration of the region. Most political economy explanations for this pursuit, and its eventual success, are of two types. Some draw on the long-standing theory of Optimal Currency Areas, which focuses on conditions in which it is economically desirable for countries to have a common monetary policy. Others emphasize how these exchange rate arrangements have provided EU member governments with anti-inflationary monetary credibility.[1] Both explanations of European monetary integration (MI) emphasize, reasonably enough, its monetary policy goals.

This paper, however, argues that an important motivation for European exchange rate arrangements was their expected effects on European trade and investment. While this is not inconsistent with explanations based on currency arrangements' impact on EU members' monetary policies, it leads to a different emphasis: in this perspective, the principal benefit of European MI was its expected easing of cross-border trade and investment within the EU, while its principal cost was the loss of national governments' ability to use currency policy to improve the competitive position of their producers. This emphasis on trade and investment rather than purely monetary motivations for EMI also leads to different expectations about its interest-group supporters and opponents. While optimal currency area and credibility-based arguments tend to emphasize economic optimality, or very broad constituencies (those more or less inflation averse), the argument here implicates much more specific distributional factors. In particular, it emphasizes support for MI from cross-border investors and exporters of specialized manufactures concerned about currency volatility; and opposition to fixed rates from those, especially import competers, concerned about the loss of the ability to engage in currency depreciations to gain (or regain) international competitiveness.

The argument made here does not deny *any* role to monetary credibility, but it does relegate credibility concerns to second plane, insisting on the primacy of the *real* effects of currency policies. Exchange rates regulate the relationship between foreign and domestic prices, and thus the predictability and profitability of cross-border trade and investment. Rather than restrict ourselves to monetary credibility-based reasons for exchange rate policies, the paper suggests, we should look for motivations that come from the country's trade, financial, and investment ties. And the principal motivations are the desire to stabilize currency values to facilitate cross-border trade and payments, and the desire to manipulate currency values to change the relative prices of foreign and home products.

The European experience provides a useful laboratory to investigate these claims. Over the course of three decades, the goal of European currency stability was reached with varying degrees of success. The snake and early European Monetary System (EMS) were of limited scope, while the later EMS went through a cycle of optimism, crisis, and renewed optimism in the runup to EMU. And while some European countries were generally able to persist in pegging their exchange rates to the DM, others were quite unsuccessful. This allows us to assess both why the fortunes of monetary integration varied over time, and why its attainment varied so much among European countries. I suggest that the answers to these questions require prominent consideration of sectoral concerns, especially how fixing the exchange rate was expected to affect those with strong interests in expanding inter-regional trade, finance, and investment; and those with strong interests in limiting the impact on them of foreign competition.

The paper looks at the statistical record of exchange rate movements in Europe from 1973 until 1995. Although it is extremely difficult to find good proxies for sectoral or interest-group pressures, especially in a cross-national context, I use two measures as indicators of private-sector concerns about currency policy. The first such measure

is the level of manufactured exports to Germany, to pick up the interests of internationally engaged producers and investors who want to stabilize exchange rates; the second is changes in the trade balance (controlling for the state of the current account), to pick up the interests of those concerned about import and export competition. These measures turn out to have important and statistically significant effects on both the rate of devaluation of national currencies against the Deutsche mark and on their volatility (two closely related policy outcomes). More manufactured-trade integration (which in turn is highly correlated with foreign direct investment) is associated with a more fixed rate, consistent with the argument that exporters of complex manufactures and cross-border investors are interested in currency stability. A deterioration in the trade balance is associated with more floating and depreciation, consistent with the argument that import-competing (and export-competing) tradables producers support depreciation and a floating rate to affect their competitive position.

Other factors also affected exchange rates. Positive macroeconomic trends – economic growth, a payments surplus, improvements in the terms of trade– reduced the propensity to devalue and currency volatility. So too did several other institutional and partisan features of national politics matter. But no support is found for optimal currency area factors, the most important of which is the similarity of industrial structure among countries and thus their propensity to face conditions that would call for similar monetary responses. Nor did unemployment matter, implying that concern for the monetary-policy effects of the exchange rate regime played little role in European monetary integration. No support is found for credibility-based factors, although these are hard to measure. The principal finding on this dimension is that there is no evidence that fixing the exchange rate served as a credibility-enhancing substitute for an independent central bank. Indeed, there is weak support for an independent central bank as a *complement* to a fixed-rate regime. None of this is to say that anti-inflationary credibility is never a reason why governments fix their exchange rates, only

that it was not a major reason for currency pegs in Europe in the process of monetary integration.

These results provide evidence for the importance of trade and investment factors, and their impact on particularistic private interests, in the determination of European currency policy. They provide no support for – but, of course, cannot conclusively reject – an interpretation of European monetary integration based on the monetary policy credibility-enhancing features of a fixed exchange rate. The paper begins with a summary of different possible explanations of European monetary integration, and how they relate to broader political economy arguments. Then I argue for the role of real factors, and their distributional impact, in the evolution of European currency policies, and go on to present statistical evidence that supports the argument.

European monetary integration: variation and explanation

The ultimate success of European monetary integration has tended to obscure the variegated history of its progress. In fact, currency policy in the EU has gone through many stages, and the policies of EU member governments have varied widely. The first formal attempt to create a European zone of monetary stability came as the Bretton Woods system collapsed, with the 1973 formation of the "snake in the tunnel," soon simply the snake.[2] Within a few months only Germany and Benelux were full and reliable participants, with Denmark sometimes cooperating, and this remained the case until 1979. In that year, a new European Monetary System and its exchange rate mechanism (ERM) came into operation. The EMS appeared to have added little to the snake for its first five years: only Germany and the Benelux countries, and now more reliably Denmark, were able to keep their currencies more or less aligned. But between 1983 and 1985 France, Italy, and Ireland began to lock their currencies to the Deutsche mark.

From 1985 until 1992 the monetary unification process gained momentum, eventually attracting such improbable candidates as the United Kingdom (long unwilling) and Spain and Portugal (long unable). The Nordic countries and Austria, not EU members but considering joining, also tied their currencies to the EMS. In this setting, member states began to plan for a common European currency within a broader Economic and Monetary Union (EMU). Progress toward this goal was interrupted in 1993-1994, as tight German monetary policy in the aftermath of German unification drove many EMS members to let their exchange rates move – with at least a widening of the acceptable target zone, at most a substantial depreciation. Momentum for EMU was rebuilt after the currency crises faded. Eleven EU members started the final steps toward a single currency in 1999, Greece joined in 2000, and these twelve finalized full currency union in 2002.

We can use these dimensions of variation to evaluate proposed explanations of European monetary integration specifically, and of currency policy more generally. Attempts to hold to fixed exchange rates[3] were much more successful at some times than at others within Europe as a whole. In addition, EU member states had highly varied experiences within the snake and EMS. This means that there is meaningful variation both over time and among countries.

The dependent variables. The policy choice most in need of explanation can be expressed simply: the degree of fixity of the nominal exchange rate against the Deutsche mark. This definition of the thing to be explained, which might be questionable in other historical and regional contexts, is justifiable in post-1973 Europe. First, exchange rate stability was a publicly stated goal of all European Union members. Second, it was clear early on that such stability implied fixing against the Deutsche mark. Third, despite reservations about a focus on nominal as opposed to real variables, the attention of all relevant actors – policymakers, observers, economic agents – was on nominal exchange rates.[4]

The statistical analyses use two simple measures of the trends of national currency values against the Deutsche mark. The first is the annual rate of nominal depreciation, the second the annual coefficient of variation of monthly exchange rates. The former directly measures the general trend of the currency against the DM anchor (all European currencies decline relative to the DM over the period, so there are no appreciating currencies). The latter looks at shorter-term volatility within each year, rather than at the trend of the currency's value.

Table 1 shows these two measures of the stability of European currencies against the Deutsche mark. The table includes the thirteen (pre-EMU) EU currencies other than the DM (Luxembourg shared a currency with Belgium), plus that of Norway.[5] The table is divided among four groups: hard-currency countries are those that were always members of both the snake and the ERM, soft-currency countries are those which were continual members of neither, and intermediate countries are those which were members of the ERM but not the snake. The four countries that were not in the EU before 1995 (one of which, Norway, remains a non-member) are shown separately.

The simplest way to measure the relationship between exchange rates is the rate of change in their nominal values, in this case the average annual rate of depreciation against the DM, as presented in panel A of Table 1 and graphically in Figure 1. This has the advantage of transparency of interpretation; however, it does not indicate potential currency *volatility.* For this purpose, the coefficient of variation of national currencies against the DM is presented in panel B of Table 1.[6] The two measures produce very similar classifications of countries and country-years, and when they are used in statistical analysis they give rise to virtually identical results. However, the differences are also interesting, as they pick up (inasmuch as they differ) differences between determinants of broad currency policy and of shorter-term policy toward volatility.

Explaining European currency policies. The varied progress and nature of European currency arrangements has brought forth many attempts at scholarly analysis. Three popular explanations of European MI are relevant; they can be considered in the rough order in which they gained academic currency.[7] The first set of explanations emphasized criteria associated with the theory of optimal currency areas or OCAs (Mundell 1961, McKinnon 1963, and Kenen 1969 are early classics; Masson and Taylor 1993 and Tavlas 1994 are more recent surveys). OCA theory specifies circumstances under which it is optimal for a nation to give up its exchange rate autonomy.[8] This is the case where exchange rate policy would otherwise be superfluous, either because it would be ineffective or because it could better be carried out by a bloc of national monetary authorities than alone. High levels of factor mobility among countries make individual national currency policies by any one of them ineffective, while a production structure that leads to correlated exogenous shocks makes such policies unnecessary. In other words, the more mobile factors are across countries and the more similar their susceptibility to external shocks, the more desirable is a monetary union.

Scholars quickly concluded that this could only be at best a partial explanation of European policy choice. There was too little labor mobility among European countries, and too little correlation among exogenous shocks, to explain the level of interest in currency unification. The general conclusion was that Europe is not an optimal currency area, and even the “hard core” of the EMS may not have been one at the time it was established.[9] Of course, on both dimensions there is variation among EU member states, so that some might be more appropriate members of a currency union than others. While the course of monetary integration in Europe cannot be explained on the basis of optimal currency area criteria alone, they may have had differential effects on different countries and are worth considering. The measure I use here to assess the degree to which OCA criteria affected currency policy is the extent to which

each nation's industrial structure was similar to that of Germany (full details on this, and all other measures used in this study, are in the Appendix). This is the measure least likely to be endogenous to currency policy: such things as factor movements to and from Germany, another popular OCA proxy, are much more likely to be affected by real or anticipated currency policy than national industrial structure.

A second set of arguments, motivated in part by the generally recognized failure of the optimal currency area approach to explain European MI, claimed that European countries pegged to the Deutsche mark in order to "import" German anti-inflationary credibility (Giavazzi and Pagano 1989, Weber 1991). There are various explanations proposed as to why a currency peg might itself have been more credible than simply committing to lower inflation.[10] It is hard to assess empirically how successful the peg may have been, as we cannot determine what portion of the observed inflation reduction was due to the DM link itself.[11] Nonetheless, it is commonly argued that the European exchange rate arrangements were used first and foremost as a nominal anchor for credibility-enhancing purposes.[12] There are no good proxies for government desire for anti-inflationary credibility (past inflation is hardly a meaningful measure). However, the literature suggests that governments with independent central banks have less need for the credibility enhancements a fixed exchange rate might bring.[13] One possible evaluation of the credibility argument is thus to see if fixed rates are associated with the absence of central bank independence, which is the strategy I use here.

In recent years, some scholars have come to emphasize the potential effects of currency stability and currency union on cross-border trade and investment. The early OCA literature tended to assume a substantial positive effect, but many economists were skeptical. The prevailing wisdom was that deep forward and futures markets made currency volatility a relatively trivial matter, so that reducing it could not have much real impact. But more recent research has found that reducing currency

fluctuations, and especially sharing currencies, has a very substantial impact on cross-border trade. One widely cited, and controversial, study finds that currency unification triples trade among union members (Rose 2000). This has refocused attention on the ways in which currency policies can affect the environment for international trade and investment. By extension, it should reinforce the plausibility of explanations of currency *policy* that focus on its impact on a country's trade and financial ties.

The argument made here is a variant of this third position. Exchange rate policy has real effects on trade and investment, of two sorts. First, just as currency volatility increases the riskiness of cross-border transactions, exchange rate *stability* reduces uncertainty about a price of great importance to those involved in cross-border economic activity. Second, currency movements affect the relative prices of home and foreign goods and services, and currency *flexibility* allows policymakers to vary the exchange rate, especially to devalue and make domestic products cheaper relative to foreign goods.[14] Policymakers thus face a tradeoff between exchange rate flexibility and exchange rate stability, and political economy factors – especially the relative importance of groups in society who stand to gain from one or the other side of the tradeoff – have a powerful impact on their ultimate choice.[15]

The tradeoff between exchange rate stability and the freedom to vary the currency's value tends to pit two broad groups against one another, based on how highly they value the two conflicting goals. Both import-competing and exporting firms are helped by depreciation. This was especially relevant in Europe, as most attempts to fix DM exchange rates involved countries with inflation higher than Germany's so that some inertial real appreciation was very common. In this context, reducing the flexibility to change the currency's value put competitive pressure on import-competing and exporting firms. For this reason, I expect opposition to fixing exchange rates to have come especially from import-competing and exporting sectors.

On the other hand, exchange rate volatility principally affects those with substantial cross-border contractual interests. Foreign investors, lenders and borrowers dislike the unpredictability associated with substantial fluctuations in currency values, which are often not amenable to hedging at longer time horizons. In addition, exporters of goods with limited pass-through – that is, goods whose prices to consumers do not fully reflect exchange rate movements, typically due to substantial product differentiation or long-term contracts – are also typically harmed by volatility.[16] I expect those with cross-border economic interests to have been more oriented toward fixing the value of the national currency.[17]

There is one category of firms that can be torn in confusing ways by this tradeoff, manufactured exporters. In general, exporters favor maintaining the exchange rate as an active policy instrument. The exporters and import competers most sensitive to nominal exchange rate levels are those whose product prices are more or less fully passed through, typically standardized products – commodities, clothing, footwear, steel. But the impact of the level of the exchange rate is mitigated in the case of industries with little pass-through; an appreciation does not cause an analogous rise in the (foreign-currency) price of exports, nor does a depreciation significantly increase (domestic-currency) export prices. In these instances, the exchange risk is carried by the export-producer, so that currency volatility can be quite costly. A common example is that of automobiles, which are priced to local market conditions. If the yen appreciates against the DM, studies find, Japanese car exporters hold their German prices steady, out of fear that price increases would lose them market share. For this reason, exporters of specialized, product-differentiated manufactured goods – which are typically the most dynamic European exporters – are less likely to want a weak exchange rate and more likely to value currency stability.

To summarize, then, I expect division between economic actors who support and oppose fixed rates. In favor will be cross-border investors and financial actors, as well

as export-competing producers of specialized manufactured goods. Against fixed rates – in favor of maintaining the national ability to depreciate the currency – will be producers of standardized import-competing and export goods. This reflects the tradeoff mentioned before, between stability and a predictable currency value, on the one hand, and the flexibility to alter currency values to facilitate standardized tradable producers' competition with foreigners ("competitiveness"), on the other.

This masks much nuance and complexity, of course. There are firms for which the trade-off between reduced currency volatility and the loss of exchange rate autonomy is not clear, either because both are important or because neither is important. And I have (largely for the sake of brevity) ignored the interests of nontradable producers, such as public sector employees and small businesses, which typically favor maintaining monetary policy autonomy rather than sacrificing it to stabilize currency values which have little direct impact on them.

The principal argument of this study, then, is that the choice of the desired flexibility of the exchange rate, and the associated choice of its real level, has prominent enough distributional effects to matter politically. Specifically, an important feature of European currency politics has been that its principal supporters are firms and industries with major cross-border investments, markets, or other business interests; while its principal opponents are producers of standardized import-competing and export products. In national political debates, this has sometimes taken the form of allegations that MI is a tool of big business, or that opposition to MI comes from more backward and uncompetitive sectors. I expect the support of the former for fixing exchange rates to be relatively constant, while the opposition of the latter should increase at times of a real appreciation and associated competitive difficulties for national producers.[18] This distributional aspect of European currency politics has been absent in most analyses of European monetary integration.[19]

My focus on special-interest considerations is not meant to deny the potential importance of other factors, but to redress an imbalance in the scholarly literature. While special interests are a natural starting point for most analyses of economic policy, this has not been the case for exchange rate policy. In fact, much of the received wisdom in macroeconomics and political economy is skeptical of the view that there are constituencies for and against fixed currencies. Many macroeconomists believe that the distributional effects of currency regimes (fixed or floating) are unclear, small, or both (see Giovannini 1993 for an example). Many political scientists, for their part, believe that substantial collective action problems preclude serious politicking over currency values (Gowa 1988 is a classic statement). Both positions are open to challenge. Economically, almost every attempt to fix exchange rates in the last 25 years has involved substantial real appreciations, with equally substantial distributional implications. Even in the steady state, it is not obvious that volatility is distributionally neutral, both in general and with regard to exchange rates; at the very least, this is a hypothesis for which clear evidence has not yet been presented.[20] Politically, the extraordinary political prominence of exchange rates in history and today seems to call the assertion into question. From the 1860s until the 1930s, the gold standard was a major, and mass, political issue in most countries; and since 1980 exchange rates have been domestic "high politics" in many developed and developing countries as well.[21]

Attempts to evaluate an argument on the distributional effects of exchange rate politics are hampered by the general unavailability of data on special interests. This is especially the case inasmuch as linking interest-group factors to outcomes implies the ability of the groups to exert influence, and this exertion is typically difficult or impossible to observe – such as, for example, with the argument that currency policy is determined in large part by its expected effect on the political and economic behavior of big business. More generally, where lobbying and other forms of political pressure are

unnecessary because policymakers anticipate the socio-political and economic preferences of powerful actors, empirical tests are difficult.

The principal explanatory variables. In this paper, I use two variables that can be interpreted as affecting policy by way of their differentiated and distributionally relevant effects on particularistic groups. The first picks up the interests of manufacturers with significant intra-European export interests; the second picks up the interests of those facing significant import and export competition. The two variables are as follows:

1. *Exports to the German currency bloc*. As discussed above, I anticipate that producers of specialized manufactured products will be generally concerned to keep exchange rates stable. Of course, this is countered by concern for the level of the real exchange rate. Keeping this in mind, manufacturers where pricing to market is common tend to oppose currency volatility. This should be of special importance in European monetary politics to the extent that manufactured exports to Germany (and to Benelux, whose currency tie to Germany goes back to 1973) are significant. The higher the share of manufactured exports to Germany and Benelux (which I call the DM zone) as a share of GDP, the more support I expect for stabilizing the currency with the DM. (The use of the DM bloc as the relevant region is unimportant: overall manufactured exports to Germany alone, or to the broad EU, as a share of GDP are highly correlated with this, and their use yields nearly identical results.) Variable name: *manufactured exports to DM zone as percent of GDP (-)*. Expected sign: negative. (A negative sign implies that a higher value of the variable is associated with less devaluation and less volatility. All variables and their construction, along with other details of the data, are described in detail in the Appendix.)

2. *Import competition*. On the other hand, some of the most significant pressures to depreciate (or not to join the snake or ERM) came from producers who felt that the inability to vary the nominal exchange rate would unduly hamper the

government's ability to depreciate to restore "competitiveness." Support for depreciation, in this context, should be linked to deterioration in the trade balance. It is important to note that in using this measure, I also control for the state of the current account. It would not be surprising if large current account deficits were to be associated with depreciations, for they put direct currency-market pressure on the exchange rate. However, what I use here is the impact of changes in the trade balance *controlling for the state of the current account*. This measure can only plausibly be picking up particular sensitivity to trade relations, the state of imports and exports. In other words, this variable is *not* simply the economic impact of a trade deficit – a trade deficit that does not lead to a current account deficit does *not* put pressure on the currency in foreign exchange markets. It thus seems valid to regard it as an indicator of the position of national import-competers and export-competers.[22] The greater the deterioration in the trade balance (again, controlling in this model for the current account balance), the greater the pressures to depreciate. Here I use the change from the previous year in the trade balance as a share of GDP, so that a positive (negative) number is an improvement (deterioration). Variable name: *Change in trade balance as percent of GDP (-).* Expected sign: negative.

The two proxies for private interests I use here are not sufficiently close to the lobbying behavior of private interests to be definitive; nor do they cover all the private interests I argue should matter. Better proxies, however, simply do not exist. And data on other potentially relevant economic relations are also unavailable. One that would be useful is foreign direct investment (FDI) among European countries. Unfortunately, this measure is only available for a few countries before the early 1980s, and even then with much error. When the statistical analysis is performed with FDI data, over half of the observations have to be omitted, and the omitted countries are biased toward Southern Europe. It is thus not clear that these results (which are not reported here but which tend to be similar to those for manufactured exports) are valid. The FDI

measures are in any case correlated (correlation coefficient of .54) with the manufactured export figures. These two measures are plausible, if imperfect, indicators of important private sector interests in currency policy. In the absence of other indicators that might be used, they constitute a reasonable first cut.

Alternative explanatory variables. As mentioned above, the two principal alternative perspectives are those associated with Optimal Currency Area theory, and with an emphasis on currency pegs as commitment mechanisms. The variables I use to evaluate these arguments are as follows.

1. *Similarity of economic structure.* In the OCA framework the more similar are national economies, the less they need independent monetary policies. Here I use the correlation of a nation's industrial structure with that of Germany, which should indicate how different the exogenous shocks affecting the two countries are likely to be. Other related measures might be used. The correlation of a nation's trade structure with that of Germany has attractions (as it is more directly related to pressures on the exchange rate), but it risks endogeneity, as trade structure is much more likely to be affected by exchange rate policy than overall industrial structure. In any case, the two measures are highly correlated and give nearly identical results. Other measures of optimal currency area criteria (see, for example, Gros 1996) tend to give rise to very similar categorizations of countries. In the case of the measure of industrial structure, the greater the correlation with Germany the more likely the country is, by optimal currency area criteria, to maintain a fixed exchange rate with the Deutsche mark. Variable name: *industrial correlation with Germany (-)*. Expected sign: negative.

2. *Credibility concerns.* It is hard to imagine any clean measure of the demand for credibility. Of course, poor macroeconomic performance implies a greater need for credibility; but it also implies a higher cost of achieving it. Here I use a series of measures all of which are plausibly associated with government desires for credibility

enhancements. None is a direct measure of the demand for credibility, but all are potentially related to it.

A. Central bank independence. Inasmuch as the independence of the central bank is associated with lower inflation, this should reduce the government's need for the anti-inflationary credibility that a peg to the DM is purported to provide, and thus the likelihood of such a currency link. A more dependent central bank, on the other hand, should increase the demand for credibility and thus the likelihood of a currency peg. The measure used is that created by Cukierman, Webb, and Neyapti (1992) in their influential study. Variable name: *central bank independence (+).* Expected sign: positive.

B. Partisan effects. To the extent that the Left is more inflation prone than the Right, we expect the Left to have a greater need for the sort of commitment technology that a currency link is expected to provide. So the further Left is a government, the more likely is it to choose the DM currency peg. The variable used here measures the partisan (Left-Right) nature of the cabinet in power; parties are coded on a widely accepted scale and weighted according to their importance in the cabinet. In this scale, lower numbers are more to the Left. (Alternate measures of the legislative center of gravity, or the government's ideology, which use similar scales, yield nearly identical results.) Variable name: *cabinet center of gravity (+)*. Expected sign: positive.

C. Government instability. It is a commonplace of macroeconomic political economy that less stable and/or more fragmented governments are particularly in need of macroeconomic policy credibility. So the more unstable and fragmented are governments, the more likely they should be to choose the DM link. I use two measures, which are not closely related in institutional terms. The first is the share of all legislative seats held by the governing coalition, which indicates roughly the security of the government in office. (A measure that uses share of all votes gives the same results.) The bigger this seat share, the more stable the government, the less likely it

is to need the currency as a commitment mechanism, and the less likely is a peg. The second measure is the number of parties in government, which gives a rough sense of the government's stability; more parties in government should increase the need for credibility, and thus the propensity to link to the DM.[23] Variable names: *Percent of seats held by government parties, number of government parties (+, -)*. Expected signs: positive, negative.

None of these variables is, as noted, a direct measure of the demand for credibility. But all have been used in credibility-based arguments, and they seem plausible proxies for a government's desire to use exchange rate policy for anti-inflationary credibility purposes.

Control variables. It is important to control for other factors that could be expected to affect exchange rate movements. Foremost among these are macroeconomic conditions; these, and a couple of other common explanations of currency movements, are included as controls.

Macroeconomic conditions. It is important to take into account developments in national macroeconomic performance that can reliably be expected to affect the propensity of a currency to depreciate. While the arguments for depreciation in each of these instances are not unproblematic, they are common enough that it seems wise to try to control for such macroeconomic trends. This is especially the case when looking at annual data: particularly difficult years can be expected to be associated with a weaker currency.

A. Growth rates. Recessions may increase the propensity of monetary authorities to use a depreciation to stimulate the economy. This of course depends on the tradeoff between the income and substitution effects of a depreciation, but the consensus is that depreciations can be stimulative in the short run. Variable name: *lagged growth rate of GDP (-)*. Expected sign: negative (i.e. the stronger GDP growth, the less depreciation).

B. Unemployment. This can be expected to be of significance for the same reason as the overall rate of economic growth. Variable name: *lagged unemployment (+)*. Expected sign: positive.

C. The current account. The weaker a country's current account, the more difficulty it is likely to face in defending its currency and the likelier a depreciation. Note that this is the more or less purely economic effect mentioned above, which is controlled for to allow us to assess the independent impact of trends in imports and exports. Variable name: *lagged current account balance as percent of GDP (-)*. Expected sign: negative.

D. The terms of trade. In this case, it is the difference between movements in the country's terms of trade and those of Germany that are expected to affect the currency. The more the country's terms of trade deteriorate relative to Germany, the harder it should be to sustain a fixed exchange rate. As measured, a positive number here means that the terms of trade improved in the year relative to Germany's, while a negative number means they deteriorated. This implies that increases in the measure should make it easier to sustain the currency peg, and vice versa. Variable name: *difference in terms of trade relative to Germany (-)*. Expected sign: negative.

As can be seen from the variable names, all these are lagged one year except for the terms of trade figure. This is because policy can be expected to respond to such macroeconomic trends only with something of a delay, except for the terms of trade which is a price-based measure and thus should have nearly immediate effect. In any case, using simultaneous (lagged, in the case of the terms of trade) data makes no difference to the results. The current account is expressed as a percentage of GDP, unemployment is share of the labor force, GDP growth is a rate of (real) change, and the terms of trade are also a rate of change; all are expressed in percentage points.

Other controls. Three other control variables are included, as they are commonly mentioned in the literature.

A. Membership in the snake or EMS. Of course this is endogenous, but many believe that the snake and EMS as international (regional) institutions may have had a substantial independent impact on government behavior. This is a dummy variable that takes the value 1 if the country was a member of one of the two exchange rate mechanisms, 0 otherwise. Variable name: *member of snake or ERM (-)*. Expected sign: negative.

B. Election timing. In the spirit of the political business cycle, governments may be expected to manipulate the currency in the runup to an election. What in fact they do depends on the relative desirability of the stimulative effect of depreciation, and the income effect of an appreciation. However, the traditional view of inflation and depreciation as similar in source and effect would lead us to expect elections to be associated with depreciations. The measure here is simply whether an election occurred in the year in question, which has its problems but is probably adequate for present purposes. Variable name: *Election (+)*. Expected sign: positive.

C. Capital controls. Controls on capital movements should facilitate the maintenance of a fixed exchange rate. Of course, countries whose exchange rates face market skepticism for other reasons – such as macroeconomic fundamentals or political instability – are more likely to impose capital controls in the first place, so it may not be clear what to expect. However, in general it seems consistent with the literature to expect countries with capital controls to be less likely to depreciate, all else equal. The measure used is a composite created by Dennis Quinn and drawn from the IMF's categorization of restrictions on capital movements. Variable name: *capital controls (-)*. Expected sign: negative.

Tables 2-4 present simple descriptive statistics. Table 2 shows the evolution of the means of all dependent and explanatory variables over the course of the period,

divided into four sub-periods (snake, early EMS, late EMS, EMU). Table 3 shows mean values of all explanatory variables by country for the entire period. Table 4 shows the simple bivariate correlation between annual values of the explanatory variables by country and the average country depreciation rates.

The explanatory variables are of two types: structural and annual. The former vary relatively slowly, so that they involve comparisons among countries and among longer-term trends in countries. The share of Ireland's GDP accounted for by manufactured exports to the DM bloc, for example, changed slowly over the twenty-odd years in our sample; this variable picks up both differences between Ireland and other countries, and longer-term change within Ireland (that is, the continual increase in Irish exports to the DM bloc). The effect of a structural factor such as this is over the longer run. The latter sort of variable, on the other hand, changes from year to year. The current account as a share of GDP varies greatly both among countries and over years, and its effect is largely a shorter-term one as policymakers and other respond to changing conditions.

Figures 2 and 3 illustrate the impact of each sort of variable. Of course, neither figure controls for other variables, an exercise left for later. The first shows the relationship between manufactured exports to the DM zone as a share of GDP for all 14 countries in the sample, averaged over the entire period. This of course does not take into account change over time, which was substantial in some cases. However, the figure is informative of broad patterns. It illustrates the fact (demonstrated more carefully below) that countries for which such exports were more important tended to have a more fixed exchange rate against the DM, that is had a lower rate of deprecation. The relationship seems quite strong, and not to be driven by outliers.

Figure 3 shows the relationship between the annual current account deficit as a share of GDP and the annual rate of depreciation against the DM. This is a number that varies very substantially over time, both within countries and across countries. All

country-years in the sample are graphed, 14 countries for 23 years or 322 observations. Again, it can be seen that there is a strong relationship between the two variables: a weaker (more negative) current account was associated with more depreciation.

The statistical evaluation below simultaneously assesses both structural and annual factors. The former tells us about the implications of a country's relatively enduring characteristic, such as having an industrial structure similar to that of Germany, or an independent central bank. The latter tells us about the implications of a short-term development, such as a rise in unemployment or a deterioration in the trade balance. Both are of interest, and both are important.

Analyzing European monetary politics: A statistical assessment

The statistical analysis uses the two measures in Table 1 as dependent variables. The annual depreciation rate is a better indicator of broad trends of currency policy; the volatility measure picks up both overall depreciations and intra-year currency fluctuations. In any case the two are strongly correlated and they yield similar results; where results differ this in itself is analytically interesting, as I discuss below. I look at all current EU members except Germany, the anchor country, and Luxembourg, which shared a currency with Belgium. I also include Norway, as it often attempted to stabilize its currency against the DM and there would have been little *ex ante* justification for excluding it at the outset of the sample. The time period runs from the beginning of 1973 to the end of 1994, with annual observations. I stop the examination in 1995 because at that point the EU was clearly in the run-up to EMU, whose dynamic was quite different from that of the attempts to fix exchange rates that had come before. The explanatory variables are as described above, and in more detail in the Appendix. The regressions using these panel data are all corrected for serial autocorrelation and heteroskedasticity, and panel corrected standard errors are presented.[24]

The results can be seen in Tables 5 and 6. The first column of each table presents the full model, all the variables discussed above. The second model reanalyzes the data, dropping the explanatory variables that do not come close to statistical significance. In the third model, variables from the second model that now fail to reach statistical significance are dropped.

It can readily be seen that the results are quite stable across specifications, as are the coefficients. Starting with Table 5, in which the left hand side variable is the annual depreciation rate, six explanatory variables are significant in all three models; only two other variables even come close to reaching significance in one or two specifications.

The three principal macroeconomic control variables are clearly important. The state of the current account, GDP growth, and the terms of trade (relative to Germany's) all have the expected signs and clearly had a powerful impact on exchange rates. In a sense, this can be seen as confirmation of the importance of macroeconomic fundamentals for currency values, despite recent questioning.[25] The unemployment rate is not significant, implying that the exchange rate was not commonly used for counter-cyclical demand management purposes.

Both of the proxies for private interests are statistically significant and in the expected direction. The larger the country's manufactured exports to the DM zone as a share of GDP, the less likely it was to depreciate. This is consistent with the idea that export-oriented manufacturers, and multinational firms whose interests tend to track those of manufactured exporters, value currency stability. Deteriorations in the trade balance (controlling for the current account balance), such as would be caused by an import surge, are strongly associated with depreciations, consistent with the idea the import and export competers faced with increased competition press for a depreciation.[26]

Indicators of optimal currency area or credibility motivations for currency pegs were not significant in any specification. The correlation of national industrial structures with Germany's, the proxy for OCA status, is not significant. Nor are any of the measures associated with credibility concerns: neither the partisan composition of government, the two measures of general government strength or stability (the government's share of all seats and the number of parties in government), nor central bank independence had any impact on the propensity to hold to a currency peg.

The other factors considered yielded mixed results at best. There is some evidence that membership in the snake or ERM is associated with more stability against the DM, as expected, but this variable does not reach statistical significance.[27] There is only very weak support for the notion that governments are more prone to depreciate in election years, as the results are not statistically significant. One variable is clearly significant but in the opposite direction to that usually expected. Capital controls, far from helping sustain the exchange rate against the DM, are associated with more depreciation. Of course, there is a clear problem of simultaneity here as countries facing attacks on their currencies are more likely to impose capital controls.

Table 6 presents results of the same sort of regression analysis using the coefficient of variation of the nominal exchange rate as the dependent variable.[28] Results for the private-interest variables and macroeconomic controls are essentially as before: more manufactured exports to the DM zone, improvements in the trade balance, faster GDP growth, and a stronger current account, are all associated with reduced volatility. Evolution in the terms of trade is significant in only one specification. Most of the other variables are as before: elections and government strength and stability are insignificant; capital controls is significant in a direction opposite to that expected. So far the results are essentially the same as in the previous specification.

There are three differences between these results and those having to do with the depreciation rate; these differences have at best mixed implications for credibility-

related perspectives. The partisan composition of government matters in the way generally anticipated by credibility-based arguments: the more left-wing the government, the less volatile the currency. But central bank independence does not: it is associated with less short-term volatility. In addition, snake/EMS membership is also associated with less volatility. The results imply that these three factors are not strong enough to affect longer-term trends in currency values – the depreciation rate – but they do reduce currency volatility. Left-wing governments do use a currency peg more than right-wing governments for short-term purposes; an independent central bank can stabilize the exchange rate in the short run more effectively than a dependent one, and membership in the snake or EMS increased national ability to stabilize currencies. Again, it should be noted that these variables reduce short-term *volatility* but not the propensity to depreciate itself; and that they do not unambiguously support OCA or credibility-based arguments.

The substantive interpretation of most of the coefficients in the regressions is relatively straightforward. Those having to do with the average annual depreciation rate are easier to interpret than the coefficient of variation. Looking at Table 5, column 3, the variables expressed as percentage points (of GDP or as rates of change) are easily understood. One percentage point improvements in the current account as a share of GDP, in the GDP growth rate, and in the terms of trade relative to Germany are associated with .394, .672, and .378 percentage point reductions in the currency's annual depreciation rate against the DM. Similarly, a one percentage point increase in manufactured exports to the DM zone as a share of GDP and a one percentage point improvement in the trade balance is associated with respective .255 and .547 percentage point reductions in the rate of depreciation. These are all quite appreciable numbers.

Increasing capital controls by one point on the 15-point scale leads to an increase in the depreciation rate of 1.084 percent. This means little in and of itself; one

way of seeing it is that a three-point difference, roughly equivalent to that between Norway and Greece, increases the depreciation rate by 3.252 percent a year.

The impact of explanatory variables on the coefficient of variation cannot be assessed so directly. A sense of their importance can be gotten by seeing how a one standard deviation change in explanatory variables (holding all others at their means) affects the volatility measure. By this measure, for example, a one standard deviation increase in the lagged GDP growth rate or the lagged current account is associated with a reduction in the coefficient of variation of 11.7 and 16.3 percent, respectively. An increase of one standard deviation in manufactured exports to the DM zone or the trade balance leads to 17.1 and 14.1 percent reductions in volatility, while such an increase in snake/ERM membership and central bank independence are associated with 22.1 and 15.1 percent declines in the coefficient of variation. On the other hand, one standard deviation's move to the right of the cabinet center of gravity, or increase in capital controls, are associated with 13.6 and 14.8 percent increases in volatility.[29]

These results are almost entirely unrewarding for the traditional OCA or credibility-oriented explanations of European currency politics. The only glimmer of hope is that Left governments have less volatile exchange rates in the short run, which might be consistent with a credibility-based explanation of currency policy. But this applies only to volatility within years, and not to the overall longer-term stance of currency policy. It is extremely weak evidence, especially as the central bank independence variable is just as strongly significant, but in the opposite direction. It might also be noted that the data used here are not well suited to the assessment of the impact of elections on policy, as each observation is a calendar year; analyses of the data using a hazard model yields generally ambiguous results, although there is some mild evidence of an electoral exchange rate cycle, in which politicians delay devaluations until after elections. This evidence is tentative at best, however.

The results can be summarized as follows:

1. Proxies for private-sector interests were significant and important, and consistent with the argument that regionally-oriented producers prefer currency stability while import- and export-competers prefer flexibility. Specifically, the more important manufactured exports to the DM zone (Germany and Benelux), the slower the depreciation rate and the less volatile the currency; and a deterioration in the trade balance, controlling for the current account, increased the depreciation rate and volatility significantly.

2. Macroeconomic control variables all had the expected effect. Such fundamentals as the current account balance, GDP growth, and the terms of trade relative to the anchor country all reduced the depreciation rate and currency volatility substantially.

3. The OCA-related variable was never significant, and credibility-related ones were almost never so. The only exception was that left-wing parties were more likely to hold the currency stable in the short run, but there was no partisan difference in depreciation rates.

The results are in line with my expectations about the role of private interests. The level of commercial integration with Germany dampens depreciation, just as increases in net import competition spur it. These last two results serve as a rough approximation of evaluating the impact of private distributional interests – in the event, of exporters of complex manufactures and of import-competers – on exchange rate policy.

Conclusions

This study tends to confirm the importance of sectoral interests in the course of European monetary integration. This is my interpretation of the finding that higher levels of manufactured exports to Germany and Benelux and improvements in the trade balance are both associated with lower rates of depreciation against the DM. The empirical analysis also tends to confirm the importance of macroeconomic conditions.

Neither arguments based on Optimal Currency Area criteria, nor those based on the alleged credibility-enhancing properties of currency pegs, find any appreciable support.

The results are evidence for the relevance to the making of exchange rate policy of distributionally motivated private interests, such as those of exporters of sophisticated manufactures and cross-border investors for stable exchange rates and those of import-competers for depreciation. They provide little or no evidence for the importance of the use of the exchange rate as a commitment mechanism for governments lacking in credibility, or of the relevance of Optimal Currency Area considerations to exchange rate policy choice. Those attempting to explain currency arrangements in Europe and elsewhere – dollarization in Latin America and Euroization in Central and Eastern Europe, perhaps most notably – would be wise to at least consider the potential importance of such distributional consderations for the future of national exchange rate policies.

References

Alesina, Alberto (1989). Politics and business cycles in industrial democracies. *Economic Policy* 8, pp. 57-98.

Alesina, Alberto and Lawrence H. Summers (1993). Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence. *Journal of Money, Credit, and Banking* 25, No. 2 (May).

Alesina, Alberto and Nouriel Roubini with Gerald D. Cohen (1997). *Political Cycles and the Macroeconomy*. Cambridge, Massachusetts: The MIT Press.

Bayoumi, Tamim and Barry Eichengreen (1993). Shocking Aspects of European Monetary Unification. In Francisco Torres and Francesco Giavazzi, Eds. *Adjustment and Growth in the European Monetary Union.* Cambridge: Cambridge University Press.

Bernhard, William, Lawrence Broz, and William Clark (2001). The Political Economy of Monetary Institutions: An Introduction. Unpublished paper.

Bernhard, William and David Leblang (1999). Democratic Institutions and Exchange Rate Commitments. *International Organization* 53, pages 71-97.

Blackburn, Keith and Michael Christensen (1989). Macroeconomic Policy and Policy Credibility: Theories and Evidence. *Journal of Economic Literature* 27, no. 1 (March), pp. 1-45.

Broz, J. Lawrence (2001). Political system transparency and monetary commitment regimes. Unpublished paper.

Canzoneri, Matthew and Carol Ann Rogers (1990). Is the European Community an Optimal Currency Area? Optimal Taxation Versus the Cost of Multiple Currencies. *American Economic Review* 80, No. 3 (June), pp. 419-433.

Cukierman, Alex, Steven Webb and Bilin Neyapti (1992). Measuring the Independence of Central Banks and its Effect on Policy Outcomes. *World Bank Economic Review* 4, pp. 353-398.

De Grauwe, Paul and Wim Vanhaverbeke (1993). Is Europe an Optimum Currency Area? Evidence from Regional Data. In Paul Masson and Mark Taylor, Eds. *Policy issues in the operation of currency areas.* Cambridge: Cambridge University Press.

Eichengreen, Barry and Jeffry Frieden (2001). The Political Economy of European Monetary Unification: An Analytical Overview. In Barry Eichengreen and Jeffry Frieden, Eds. *The Political Economy of European Monetary Unification* Second edition. Boulder: Westview Press.

Frankel, Jeffrey A. and Andrew Rose (1995). Empirical research on nominal exchange rates. In Gene Grossman and Kenneth Rogoff, editors. *Handbook of International Economics* volume 3. Amsterdam: North-Holland.

Frankel, Jeffrey A. and Shang-Jin Wei (1995). European Integration and the Regionalization of World Trade and Currencies: The Economics and the Politics. In Barry Eichengreen, Jeffry Frieden, and Jürgen von Hagen, editors. *Monetary and Fiscal Policy in an Integrated Europe*. New York: Springer.

Frankel, Jeffrey A. and Andrew Rose (1998). The Endogeneity of the Optimum Currency Area Criteria. *Economic Journal*.

Fratianni, Michele and Jürgen von Hagen (1991). *The European Monetary System and European Monetary Union*. Boulder: Westview Press.

Frieden, Jeffry (1994b). Exchange rate politics: Contemporary lessons from American history. *Review of International Political Economy* 1, No. 1 (Spring).

Frieden, Jeffry (1997a). Economic liberalization and the politics of European monetary integration. In Miles Kahler, Ed. *Liberalization and Foreign Policy.* New York: Columbia University Press.

Frieden, Jeffry (1997b). Monetary Populism in Nineteenth-Century America:

An Open Economy Interpretation. *Journal of Economic History* 57, no.2 (June).

Frieden, Jeffry (2001). Making commitments: France and Italy in the European Monetary System, 1979-1985. In Barry Eichengreen and Jeffry Frieden, Eds. *The Political Economy of European Monetary Unification* Second edition. Boulder: Westview Press.

Garrett, Geoffrey (2001). The Politics of Maastricht. In Barry Eichengreen and Jeffry Frieden, Eds. *The Political Economy of European Monetary Unification* Second edition. Boulder: Westview Press.

Giavazzi, Francesco and Marco Pagano (1989). The Advantage of Tying One's Hands: EMS Discipline and Central Bank Credibility. *European Economic Review* 32, No. 5.

Goldberg, Penelopi Koujianou and Michael M. Knetter (1997). Goods Prices and Exchange Rates: What Have We Learned? *Journal of Economic Literature* 35 (September), pp. 1243-1272.

Gowa, Joanne. (1988). Public goods and political institutions: Trade and monetary policy processes in the United States. *International Organization* 42, 15-32.

Grilli, Vittorio, Donato Masciandaro, and Guido Tabellini (1991). Political and monetary institutions and public policies in the industrial countries. *Economic Policy* (October), pp. 342-392.

Gros, Daniel (1996). *Towards Economic and Monetary Union: Problems and Prospects.* CEPS Paper No. 65. Brussels: Centre for European Policy Studies.

Gros, Daniel and Niels Thygesen (1992). *European Monetary Integration.* London: Longman.

Hefeker, Carsten (1997). *Interest Groups and Monetary Integration: The Political Economy of Exchange Regime Choice*. Boulder: Westview Press.

Inter-American Development Bank (1995). *Overcoming Volatility* Economic and Social Progress in Latin America Special Report. Washington: Inter-American Development Bank.

Jones, Erik, Jeffry Frieden, and Francisco Torres (1998). *EMU and the Smaller Countries: Joining Europe's Monetary Club.* New York: St. Martin's Press.

Martin, Lisa (2001). International and Domestic Institutions in the EMU Process and Beyond. In Barry Eichengreen and Jeffry Frieden, Eds. *The Political Economy of European Monetary Unification* Second Edition. Boulder: Westview Press.

Masson, Paul and Mark Taylor (1993). Currency unions: a survey of the issues. In Paul Masson and Mark Taylor, Eds. *Policy issues in the operation of currency areas.* Cambridge: Cambridge University Press.

McKinnon, Ronald (1963). Optimum Currency Areas. *American Economic Review* 53 , pp.717-725.

Milesi-Ferretti, Gian Maria (1995). The Disadvantage of Tying Their Hands: On the Political Economy of Policy Commitments. *Economic Journal* 105 (November), pp. 1381-1402.

Moravcsik, Andrew. (1998). *The Choice for Europe.* Ithaca: Cornell University Press.

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

Neumeyer, P. A. (1995). Currencies and the Allocation of Risk: The Welfare Effects of a Monetary Union. Working Paper 95-27, DELTA (Paris).

Pisani-Ferry, Jean, Carsten Hefeker, and Andrew Hughes Hallett (1997). *The Political Economy of EMU: France, Germany, and the UK*. CEPS Paper Number 69. Brussels: Centre for European Policy Studies.

Price, Simon (1997). Political business cycles and macroeconomic stability: A survey. *Public Choice* 92, pp. 407-427.

Rogoff, Kenneth (1996). The purchasing power parity puzzle. *Journal of Economic Literature* 34 (June), pp. 647-688.

Rose, Andrew (2000). One money, one market: estimating the effect of common currencies on trade. *Economic Policy* 30, pages 7-46.

Tavlas, George (1994). The Theory of Monetary Integration. *Open economies review* 5.

van der Ploeg, Frederick (1989). The Political Economy of Overvaluation. *Economic Journal* 99 (September), pp. 850-855.

Weber, Axel (1991). Reputation and Credibility in the European Monetary System. *Economic Policy* 12 (April), pp. 507-102.

TABLE 1

European currencies during the snake and the EMS

A. Average annual percentage depreciation of nominal exchange rates against the Deutsche Mark, select periods

	1973-78	1979-83	1984-89	1990-94
Hard Currencies				
Netherlands	1.14	0.77	0.01	-0.13
Belgium	2.36	4.24	1.01	-0.48
Denmark	4.59	4.37	1.71	0.16
Intermediate Currencies				
France	6.53	5.02	2.31	0.01
Ireland	12.90	3.02	3.49	1.96
Soft Currencies				
United Kingdom	12.90	0.89	6.68	2.57
Italy	17.28	5.26	4.08	6.21
Spain	12.35	6.54	3.51	5.16
Greece	13.24	13.02	18.75	10.23
Portugal	20.83	14.16	10.64	2.88
Non-EU Members				
Austria	0.12	-0.71	-0.12	0.19
Norway	4.92	1.08	6.61	2.29
Finland	8.83	-0.32	3.06	6.83
Sweden	8.41	3.83	5.35	6.18
AVERAGE	9.03	4.37	4.79	3.15

B. Coefficients of variation of nominal exchange rates against the Deutsche Mark

	1973-78	1979-83	1984-89	1990-94
Hard Currencies				
Netherlands	2.15	1.18	0.31	0.43
Belgium	2.80	9.84	1.55	1.17
Denmark	7.20	7.99	2.85	1.57
Intermediate Currencies				
France	11.00	10.74	4.59	1.00
Ireland	20.47	6.75	7.02	4.83
Soft Currencies				
U.K.	20.47	7.43	10.91	8.11
Italy	24.02	10.64	6.63	12.56
Spain	23.14	16.31	7.38	11.65
Greece	18.43	18.98	26.54	14.66
Portugal	35.65	21.75	17.57	7.31
Non-EU Members				
Austria	1.63	1.48	0.23	0.23
Norway	8.28	4.89	11.40	5.00
Finland	14.24	5.63	6.06	16.08
Sweden	12.54	12.20	8.23	13.00
AVERAGE	14.43	9.70	7.95	6.97

TABLE 2

Average of all countries across periods

	1973-1978	1979-1983	1984-1989	1990-1994
Average Depreciation vs. DM	9.034	4.963	4.227	3.147
Coefficient of Variation vs. DM	.033	.027	.019	.019
Industrial Correlation	.723	.745	.750	.685
Lagged GDP Growth	3.671	2.240	2.731	1.651
Lagged Unemployment (as % of labor force)	3.969	6.681	9.170	8.810
Lagged Current Account as a % of GDP	-1.917	-2.446	-.762	-.196
Difference in Terms of Trade	.198	1.833	-.820	.078
Membership of Snake or ERM	.356	.420	.435	.536
Central Bank Independence (0-1, 1 most independent)	.340	.344	.345	.345
Capital Controls (0-15, 15 most controls)	6.030	5.150	4.244	2.207
Cabinet Center of Gravity (1-5, 5 most right wing)	2.788	2.934	3.017	2.873
Election	.286	.357	.298	.271
Number of Government Parties	2.035	1.832	2.100	2.255
Percent of Seats Held by Government Parties	47.628	48.546	49.578	53.252
Manufacturing Exports to DM Zone as a % of GDP	3.479	3.801	4.504	5.063
Manufacturing Exports to EC as a % of GDP	9.155	9.771	11.649	12.042
Trade Balance Change as a Share of GDP (lagged)	.039	.153	.142	.548

TABLE 3

Average Over All Periods

Country Currency Type	Average Depreciation vs. DM	Coefficient of Variation vs. DM	Elections per year	Snake or ERM Membership	Capital Controls
HARD-CURRENCY					
Netherlands	0.521	0.007	0.304	1.000	1.783
Belgium	1.859	0.010	0.304	1.000	4.130
Denmark	2.698	0.014	0.435	0.965	3.826
INTERMEDIATE-CURRENCY					
France	3.610	0.018	0.261	0.809	3.717
Ireland	5.815	0.023	0.304	0.696	4.370
SOFT-CURRENCY					
United Kingdom	6.084	0.041	0.217	0.100	2.609
Italy	8.121	0.026	0.304	0.635	3.761
Spain	6.737	0.035	0.261	0.239	6.435
Greece	13.242	0.039	0.304	0.000	8.348
Portugal	12.068	0.039	0.348	0.122	7.674
NON EU-MEMBERS					
Austria	-0.131	0.004	0.261	0.000	3.565
Norway	3.546	0.022	0.261	0.291	5.391
Finland	4.495	0.027	0.261	0.000	4.370
Sweden	5.677	0.030	0.348	0.196	3.913

Country Currency Type	Central Bank Independence	Mfg Exports to DM Zone as a % of GDP	Mfg Exports to EC as a % of GDP	Cabinet Center of Gravity	Industrial Correlation
HARD-CURRENCY					
Netherlands	0.420	7.090	13.451	2.970	.830
Belgium	0.170	13.091	27.830	3.079	.889
Denmark	0.500	2.835	8.731	3.075	.719
INTERMEDIATE-CURRENCY					
France	0.240	3.193	6.185	3.109	.855
Ireland	0.440	4.833	17.764	3.331	.735
SOFT-CURRENCY					
United Kingdom	0.270	2.594	6.160	3.581	.862
Italy	0.250	3.440	7.832	2.770	.786
Spain	0.181	1.242	4.197	2.804	.727
Greece	0.550	1.684	3.318	3.277	.489
Portugal	0.434	2.952	9.811	2.920	.567
NON EU-MEMBERS					
Austria	0.610	6.787	11.195	2.238	.779
Norway	0.170	2.211	7.860	2.396	.543
Finland	0.280	2.557	10.464	2.645	.633
Sweden	0.290	3.619	12.658	2.459	.756

Country Currency Type	Lagged Current Account	Lagged GDP Growth	Number of Government Parties	Percent of Seats of Government Parties	Lagged Unemployment
HARD-CURRENCY					
Netherlands	2.183	2.343	3.701	58.898	6.896
Belgium	.778	2.378	3.196	61.425	8.135
Denmark	-1.965	2.078	2.535	39.424	7.570
INTERMEDIATE-CURRENCY					
France	-.213	2.626	1.247	32.664	7.209
Ireland	-4.152	4.113	1.491	46.283	12.926
SOFT-CURRENCY					
United Kingdom	-.657	2.009	1.063	43.125	7.678
Italy	-.639	2.404	3.679	52.883	8.387
Spain	-1.117	3.013	1.188	42.229	12.491
Greece	-3.978	2.930	1.670	60.612	5.104
Portugal	-2.426	3.543	N/A	N/A	5.965
NON EU-MEMBERS					
Austria	-.713	2.748	1.375	56.402	3.439
Norway	-1.491	3.504	1.490	35.271	2.843
Finland	-2.483	2.409	4.450	60.637	5.378
Sweden	-1.213	1.513	1.135	34.220	2.893

Country Currency Type	Trade Balance Change	Terms of Trade Difference
HARD-CURRENCY		
Netherlands	0.273	0.043
Belgium	0.100	0.005
Denmark	0.395	0.243
INTERMEDIATE-CURRENCY		
France	0.003	0.474
Ireland	1.203	-0.122
SOFT-CURRENCY		
United Kingdom	-0.085	0.183
Italy	0.131	0.026
Spain	0.029	0.187
Greece	-0.151	-0.714
Portugal	-0.336	0.920
NON EU-MEMBERS		
Austria	0.050	-0.545
Norway	0.751	1.448
Finland	0.434	0.283
Sweden	0.105	0.517

TABLE 4
Simple Correlation of Explanatory Variables with Average Depreciation Against the Deutsche Mark

Elections per Year	0.0577
	p = 0.302
Member of Snake or ERM	-0.2466
	p = 0.000
Capital Controls	0.3926
	p = 0.000
Central Bank Independence	0.0375
	p = 0.502
Manufactured Exports to the EC as a % of GDP	-0.2447
	p = 0.000
Manufactured Exports to the DM Zone as a % of GDP	-0.2669
	p = 0.000
Cabinet Center of Gravity	0.0543
	p = 0.339
Number of Parties in Government	-0.1077
	p = 0.071
% of Seats Held by Government Parties	-0.0046
	p = 0.939
Lagged Unemployment	-0.0394
	p = 0.481
Industrial Correlation with Germany	-0.2441
	p = 0.000
Lagged Current Account	-0.2878
	p = 0.000
Lagged Growth Rate of GDP	-0.0951
	p = 0.088
Change in the Trade Balance as a % of GDP	-0.0366
	p = 0.513
Terms of Trade Difference with Germany	-0.2444
	p = 0.000

TABLE 5

Results

Dependent Variable = Average Depreciation Rate

	(1)	(2)	(3)
Constant	3.660	3.305**	3.633**
	(3.703)	(1.409)	(1.372)
Lagged Growth Rate of GDP	-0.742**	-0.647**	-0.672**
	(0.208)	(0.203)	(0.203)
Lagged Unemployment	0.029	--------	--------
	(0.111)		
Lagged Current Account	-0.258	-0.393**	-0.394**
Balance as Percent of GDP	(0.177)	(0.180)	(0.179)
Difference in the Terms of	-0.424**	-0.391**	-0.378**
Trade Relative to Germany	(0.092)	(0.093)	(0.093)
Industrial Correlation	- 2.823	--------	--------
with Germany	(4.172)		
Member of Snake or ERM	-0.986	-1.549	-1.486
	(1.115)	(0.957)	(0.950)
Cabinet Center of Gravity	0.660	--------	--------
	(0.675)		
Election	1.258	1.233	--------
	(0.897)	(0.911)	
Percent of Seats Held by	0.042	--------	--------
Government Parties	(0.040)		
Number of Government Parties	-0.379	--------	--------
	(0.374)		
Central Bank Independence	-3.184	--------	--------
	(2.602)		
Capital Controls	0.951**	1.066**	1.084**
	(0.260)	(0.240)	(0.239)
Manufacturing Exports to the DM	-0.289**	-0.257**	-0.255**
Zone as a Percent of GDP	(0.147)	(0.126)	(0.125)
Change in the Trade Balance	-0.740**	-0.541**	-0.547**
as a Percent of GDP	(0.248)	(0.247)	(0.247)
N	278	313	313

TABLE 6

Results

Dependent Variable = Coefficient of Variation

	(1)	(2)	(3)
Constant	2.628**	2.334**	2.304**
	(1.052)	(0.755)	(0.767)
Lagged Growth Rate of GDP	-0.121**	-0.107**	-0.112**
	(0.055)	(0.054)	(0.052)
Lagged Unemployment	-0.011	--------	--------
	(0.031)		
Lagged Current Account	-0.077	-0.110**	-0.118**
as a Percent of GDP	(0.052)	(0.051)	(0.051)
Difference in the Terms of	-0.044*	-0.027	--------
Trade Relative to Germany	(0.025)	(0.025)	
Industrial Correlation	0.278	--------	--------
with Germany	(1.189)		
Member of Snake or ERM	-1.060**	-1.103**	-1.077**
	(0.306)	(0.260)	(0.266)
Cabinet Center of Gravity	0.473**	0.498**	0.516**
	(0.186)	(0.182)	(0.183)
Election	0.269	--------	--------
	0.225)		
Percent of Seats Held by	0.002	--------	--------
Government Parties	(0.012)		
Number of Government Parties	-0.081	--------	--------
	(0.102)		
Central Bank Independence	-2.730**	-2.427**	-2.567**
	(0.765)	(0.784)	(0.777)
Capital Controls	0.100	0.144**	0.139**
	(0.073)	(0.068)	(0.069)
Manufacturing Exports to the	-0.145**	-0.136**	-0.130**
DM Zone as a Percent of GDP	(0.040)	(0.032)	(0.033)
Change in the Trade Balance	-0.188**	-0.144**	-0.149**
as a Percent of GDP	(0.067)	(0.065)	(0.064)
N	278	305	312

NOTES TO TABLES 5 AND 6

1. Standard errors appear in parentheses under the coefficients.

2. * draws attention to coefficients significant at or above the 10% level.
   ** draws attention to coefficients significant at or above the 5% level.

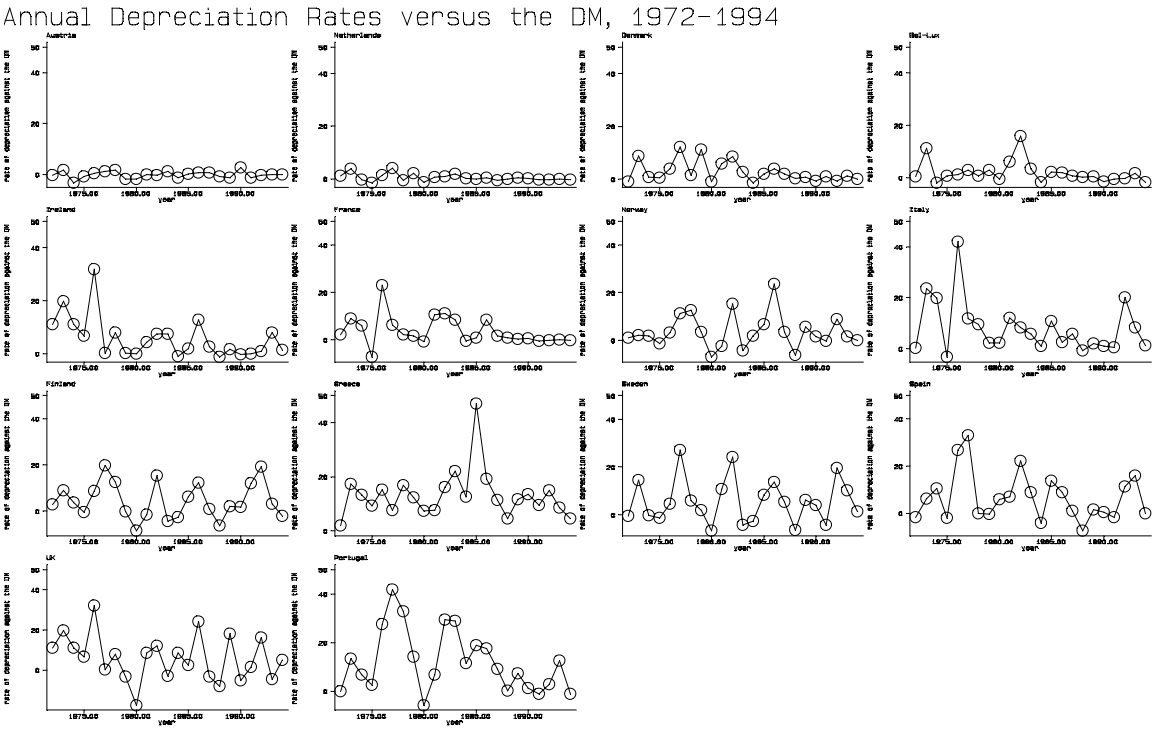
Annual Depreciation Rates versus the DM, 1972-1994
Austria
Netherlands
Denmark
Ireland
France
Norway
Italy
Finland
Greece
Sweden
Spain
UK
Portugal

Figure 1

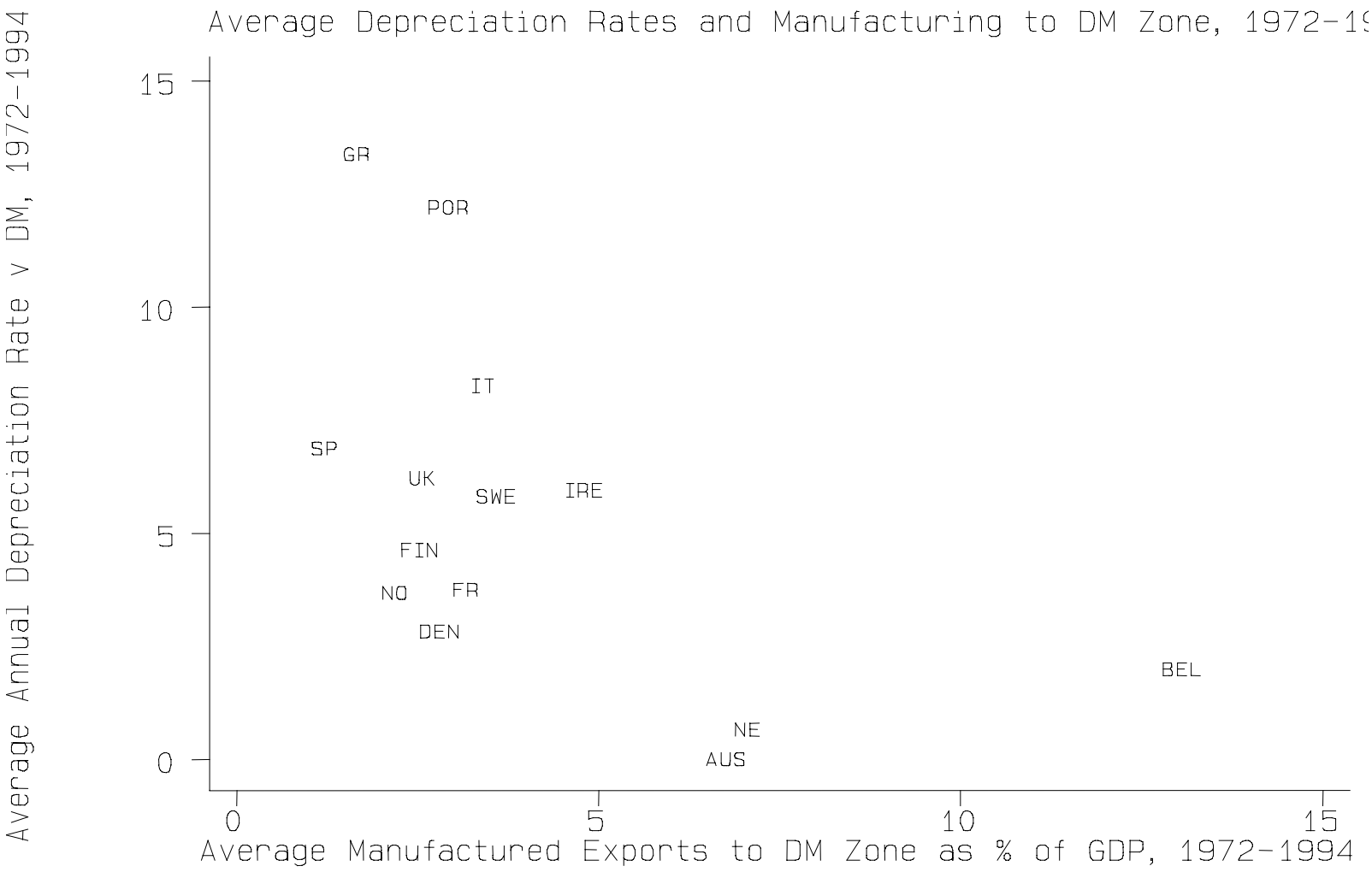
Average Depreciation Rates and Manufacturing to DM Zone, 1972-19
Average Annual Depreciation Rate v DM, 1972-1994
15
10
5
0
GR
POR
IT
SP
UK
SWE
IRE
FIN
NO
FR
DEN
BEL
NE
AUS
0
5
10
15
Average Manufactured Exports to DM Zone as % of GDP, 1972-1994

Figure 2

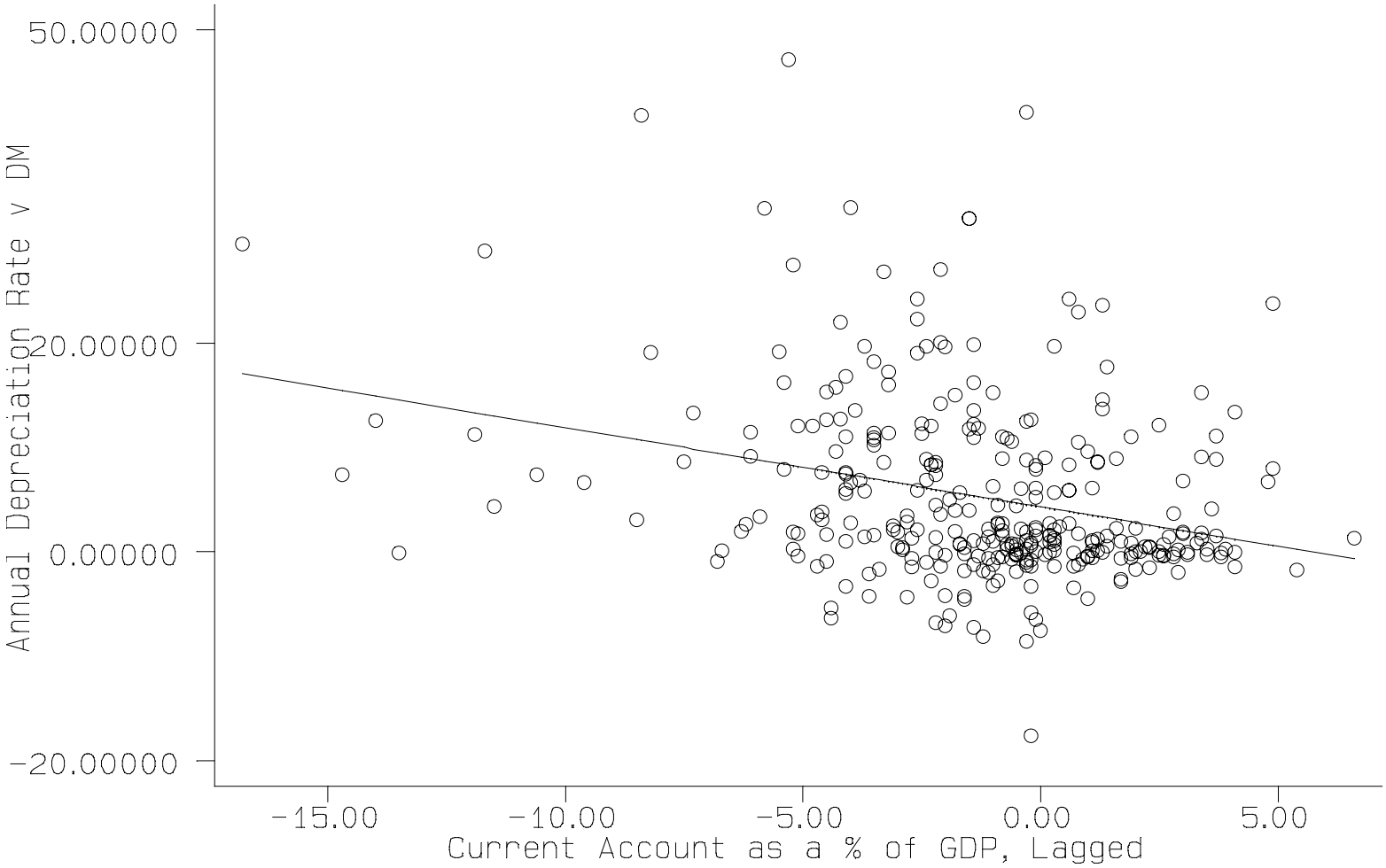
50.00000
20.00000
0.00000
-20.00000
Annual Depreciation Rate v DM
-15.00
-10.00
-5.00
0.00
5.00
Current Account as a % of GDP, Lagged

Figure 3

APPENDIX
DEFINITION AND SOURCES OF EXPLANATORY VARIABLES

Lagged Growth Rate of GDP
Growth rate of GDP, lagged one year.
Data for 1971-1979 figures from *Economic Survey of Europe, 1984-1985;* for 1980-1993 from *OECD Historical Studies: 1960-1993*.

Lagged Unemployment
Percentage of the labor force unemployed, lagged one year.
Data taken from OECD *Main Economic Indicators, Historical Studies:Prices, Labor and Wages 1962-1991*, OECD *Economic Outlook* 1995 (volume 58), OECD *Main Economic Indicators, Historical Studies: 1960-1979*, and *Economic Survey of Europe, 1984-1985*.

Lagged Current Account as a % of GDP
Current account balance as a percentage of GDP, lagged one year.
Data from OECD *Economic Outlook*, various years.

Difference in the Terms of Trade Relative to Germany
Percentage point change in the terms of trade over the previous year, relative to Germany's. An increase in this figure signifies an improvement in Germany's terms of trade relative to the country in question.
Data from IMF *International Financial Statistics Yearbook*, 1996.

Industrial Correlation with Germany
Correlation coefficient comparing the percent contribution to GDP of each ISIC 1-digit category and 2-digit categories for manufacturing (ISIC code 3). Because industrial structure changes slowly, the correlation coefficient is calculated for 1970, 1980, and 1990 only.
Data from the OECD's *Industrial Structure Statistics*, various years. Where data were missing from the OECD statistics, data were taken from the UN *Yearbook of Industrial Statistics*, various years.

Member of Snake or ERM
Dichotomous variable = 1 if country is a member of either Snake or ERM, 0 if not.
Data obtained from the *BIS Annual Reports*, various years.

Cabinet
Party composition of the cabinet, weighted by ideological scores using

Center of Gravity a scale constructed by Geoffrey Garrett.
Data through 1991 provided by Geoff Garrett; updated using *European Journal of Political Research* (EJPR 28:277-289, 1995; EJPR 26:241-246, 1994; EJPR 24:419-423, 1993; and miscellaneous from EJPR 1991 and 1992).

Election Number of elections per year (usually 1 or 0).
Data obtained from Mackie, Thomas T. and Richard Rose *International Almanac of Electoral History* (Washington D.C.: Congressional Quarterly, 1991), *National Elections* (various years), and the *European Journal of Political Research* (EJPR 28:277-289, 1995; EJPR 26:241-246, 1994; EJPR 24:419-423, 1993; and miscellaneous from EJPR 1974-1988).

% of Seats Held by Government Parties Percentage of legislative seats won by the government parties in the election at time t, where t denotes the current observation.
Constructed in G. Bingham Powell, Jr. and Guy D. Whitten, "A Cross-National Analysis of Economic Voting," *American Journal of Political Science* 37(2): 391-414, 1993; updated using *European Journal of Political Research*, various years.

Number of Government Parties Number of parties in government.
Constructed in G. Bingham Powell, , Jr. and Guy D. Whitten, "A Cross-National Analysis of Economic Voting," *American Journal of Political Science* 37(2): 391-414, 1993; updated using *European Journal of Political Research*, various years.

Central Bank Independence An index of central bank independence, running from 0 (least independent to 1 (most independent).
Data from Cukierman, Webb and Neyapti (1992)

Capital Controls A measure of capital controls constructed by Dennis Quinn, described in Dennis Quinn, "The Correlates of Change in International Financial Regulation" in *American Political Science Review* 91(3): 531-552, 1997. His 15 point-scale measures "openness;" it is inverted here so that a higher number means more capital controls.
Data obtained from the author.

Manufactured Exports to Value of manufactured (SITC codes 6-8) exports to the Germany, Belgium, Luxembourg and the Netherlands as a percentage of

DM Zone as a % of GDP	GDP. Data supplied by the UN from various years of their *Yearbook of International Trade Statistics*.
Change in the Trade Balance as a % of GDP	Change in the trade balance from the previous year, in percentage terms. Constructed from data for trade balance and GDP in IMF, *International Financial Statistics Yearbook*, various years.

Notes

The author acknowledges the invaluable research assistance of Kathleen O'Neill. He also acknowledges the comments and suggestions of Alberto Alesina, S. Brock Blomberg, Michele Fratianni, Geoffrey Garrett, Carsten Hefeker, David Leblang, Lisa Martin, J. David Richardson, Andrew Rose, and of participants in seminars at Harvard University, Princeton University, Syracuse University, the University of California Los Angeles, and Washington University.

[1] Another, broader, perspective looks at how EMU was linked to the general drive for European integration. Accurate as this may be – and for an argument in its favor see Frieden (2001) – it still relies on some implicit assertions about the ultimate costs and benefits of monetary integration itself. Most such assertions focus, as the two mentioned here, on the monetary (anti-inflationary) aspects of the process.

[2] Indeed such expressions of intent go back to before the Treaty of Rome, although their relevance was limited before the Bretton Woods system began to collapse. For the purposes of this paper, I call the organization in question the European Union, despite its several names in the period under review. For a somewhat less telegraphic survey of these developments, see Frieden (1997a). For a more detailed analysis, which is roughly consistent with the argument here, see Moravcsik (1998), pages 238-313.

[3] For simplicity, I consider the target zones of the snake and ERM equivalent to a fixed rate system. This raises two problems. First, target zones imply fixing within a much broader range than is usually associated with fixed rates. However, the general policy problem is roughly similar, especially when – as has been the case – currencies have often reached the limits of their bands. Second, the acceptable bands were substantially widened in the aftermath of the 1992-1993 crises, so that this first point may be less valid recently. However, with the exception of the Irish pound most currencies that stayed within the wider-band ERM kept roughly inside to their previous narrow band, and the Irish pound *appreciated* (as sterling rose), which represents a less troubling policy problem than the more common pressure to depreciate.

[4] I put it this way to avoid the stronger claim that nominal and real exchange rates were tightly linked in the period, even though there is substantial evidence for this in almost all European countries.

[5] There might be an argument for including Iceland and Switzerland, except that neither has expressed real commitment to *European* currency stability. Iceland has had relatively high and variable inflation, and Switzerland's international financial role makes purely European considerations somewhat less relevant.

[6] The coefficient of variation is the standard deviation divided by the mean; in the case of Table 1 currency values are taken at monthly intervals so that the volatility being measured is monthly over the time periods in question, which are of five or six years. For the statistical analyses the value is the volatility of monthly exchange rates over each country-year. This picks up both overall declines against the DM and general volatility, so that differences between the two dependent

variables are presumably ascribable to different determinants of volatility itself (as opposed to depreciation).

[7] The European literature discussed here parallels that described in Bernhard, Broz, and Clark (2001).

[8] Although the theory is about currency unions, it applies – albeit perhaps less stringently – to fixed-rate systems. Canzoneri and Rogers (1990) discuss optimal-taxation (seignorage) based evaluations of currency union, but these seem unlikely to have been empirically particularly important.

[9] Capital is more mobile than labor, but its relevance to adjustment is not so clear; and capital controls were very common until the late 1980s. Two representative and influential studies are De Grauwe and Vanhaverbeke (1993) and Bayoumi and Eichengreen (1993). Frankel and Rose (1998) present the intriguing possibility that if "unsuitable " countries form a currency union they might evolve to be more suited over time, as their factor markets become more integrated and their production structures more similar.

[10] Most plausible are that the exchange rate is much more visible to market operators than is monetary policy, and the possibility that deviating from a peg imposes more costs on policymakers because of its impact on both inflation and on cross-border relative prices. Broz (2000) presents one version of the argument, and some evidence about its applicability. It must be said that the logic of the argument is not fully worked out: it is hard to see why a stated commitment to a currency target is more credible than a state commitment to a domestic monetary target.

[11] Fratianni and von Hagen (1991) argue against any substantial independent effect, but again the evidence is hard to evaluate.

[12] Milesi-Ferretti (1995), however, discusses how policymakers may have partisan electoral incentives not to tie their hands, inasmuch as precommitment strategies might reduce the electoral disadvantages of potential opponents. If, for example, Left parties have a bad inflationary reputation, anything that reduces a government's ability to inflate reduces the electoral disadvantage of the Left.

[13] Broz (2001) is a good example.

[14] Governments cannot affect the real (inflation-adjusted) exchange rate at will, of course, but available evidence is strong that policy can have a powerful impact over the medium run, usually estimated as four to seven years. For surveys, see Frankel and Rose (1995) and Rogoff (1996).

[15] This is not inconsistent with the long-term neutrality of money and the efficiency of forward markets: short- and medium-term factors are politically relevant, and forward markets are limited in their ability to protect economic agents far into the future.

[16] Pass-through refers to the extent to which movements in exchange rates are reflected in product prices. Some goods, especially highly standardized ones sold in highly competitive markets (wheat, textiles), reflect exchange rate changes immediately. Producers of other sorts of goods, especially more specialized and differentiated products in which quality, service, customer loyalty – things related to market share – matter, are more reluctant to vary prices. This has been observed in such goods as transport equipment (think of the non-responsiveness of the prices of Japanese cars in the US to the dollar-yen exchange rate), commercial aircraft, machine tools, and the like. An excellent survey is Goldberg and Knetter (1997).

[17] I recognize that there are somewhat heroic assumptions underlying these assertions, and do not defend them here. Certainly currency volatility is less costly when it is mean-reverting, and forward contracts are valuable, uncertainty is simply a part of doing business, some firms make money on currency fluctuations, and limited pass-through cuts both ways (to mention a few of the most common objections). However, relatively simple models with some price stickiness can easily provide the results I assert. In any case, whether these effects are present, and are politically relevant, is an empirical question – one which I attempt to assess here.

[18] Again, all this ignores much detail. One of the more interesting features of the past few years is that in the runup to EMU import competers in the likely core have increasingly come to insist on including the periphery – especially Italy and Spain – in order to eliminate the possibility of such "competitive depreciations" as those of 1992-1993. Perhaps most striking in this regard is the position of import-competing French industries, which went from opponents of the EMS in the

early 1980s to strong suppporters of a broad EMU today. In the former period, EMS membership ruled out a French devaluation and led to a real appreciation; in the latter period, Italian and Spanish non-membership in EMU would have allowed them to depreciate against the Franc, again causing a real appreciation of the French currency. The result was that potentially affected firms switched from opposition to French membership in the EMS to strong support for the inclusion of the entire EU in EMU.

[19] For some exceptions, see the essays in Jones et al., editors (1998), Pisani-Ferry et al. (1997), and Hefeker (1997).

[20] An interesting perspective on the potential costs – including distributional effects – of volatility is Inter-American Development Bank(1995). For arguments that currency volatility does in fact matter see Hefeker (1997) and Neumeyer (1995).

[21] Frieden (1994 and 1997b) discuss the issue in historical and contemporary perspective.

[22] Of course, the trade balance picks up exports as well, and this is also a measure of pressures from exporters for a "competitive depreciation." In a sense, the inclusion of overall levels of exports in the previous measure, and consideration of changes in next imports in this measure, provide a contrast between a structural or secular trend in manufactured exports, on the one hand; and year-to-year surges in net imports. It seems legitimate to presume, at least as a first cut, that these are reasonable proxies for specialized exporting and import/export-competing interests, respectively.

[23] As any political scientist knows, this last measure has major problems. The number of parties in government is the direct result of the electoral system and will generally increase with proportionality or district magnitude. And inasmuch as we know that small open economies are generally much more likely to have the "purest" proportional representation schemes, this measure may well be closely related to openness. In fact the correlation between the number of parties in government and manufactured exports to the EU as a share of GDP is .18 so that the relationship is present but not particularly strong.

[24] Data analysis was carried out on Stata 5.0 using the (Beck and Katz-based) corrections for serial autocorrelation and panel heteroskedasticity included in the Stata package.

[25] Inclusion of the fiscal deficit (lagged or simultaneous) only serves to make other variables more significant and their coefficients larger. It does, however and not surprisingly, make the current account insignificant; it also makes central bank independence significant. The fiscal deficit is itself significant and associated with more depreciation. Because of the likelihood that fiscal and monetary policy are jointly determined, the variable is excluded from this analysis and discussion.

[26] Another potentially important variable was assessed, union density (union membership as share of the labor force). This is often associated, either on its own or with Left governments, with better macroeconomic outcomes (Calmfors and Drifill 1988). It is however always unavailable for Ireland, Spain, and Portugal, and everywhere else unavailable after 1989 or 1990. In any event, when it is included (with almost half the observations lost) it is not significant. The inclusion of union density leaves almost all other variables virtually unchanged that the impact of central bank independence becomes stronger and more significant and the lagged unemployment rate becomes significant. This is undoubtedly due to the biased nature of the change in the sample to exclude Ireland, Spain, and Portugal and 1989-1994.

[27] However, the snake/ERM variable is mildly correlated (.39) with manufactured exports so that there may be some problems of collinearity.

[28] In the regression, unlike in Table 1, the relevant time period is a year; so this is the standard deviation of a currency's value (measured monthly) over its annual mean value.

[29] The statistical analyses were checked for robustness in a wide variety of ways. Inclusion or exclusion of different variables does not substantially change results, nor does the exclusion of outliers. Adding year fixed effects only strengthens the results, while a few years are signficant (1973, 1976, 1977, 1982, and 1992 are all associated with more depreciation). Adding country fixed effects does affect some variable coefficients (notably the current account and exports to the DM zone), which is not surprising as much of the most striking variation is across countries. Still, no country dummies are themselves significant, although Austria come close, with less depreciation than otherwise predicted.