

Fixed Exchange Rates with Escape Clauses: The Political Determinants of the European Monetary System Realignments

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Accepted April 2015: *European Journal of Political Economy*

Abstract

This paper studies the political economy of realignments to fixed exchange rates and suggests that the use of realignments is less likely when there are political benefits from stable exchange rates and when linkages across other issue areas increase the costs of realignment. More specifically for the case of the European Monetary System (EMS), the expectation is that realignments are related to partisanship, support for the broader European integration, trade integration, resource transfers from the European Community, as well as countries reacting to the political and economic costs of realignment in other EMS members. Hypotheses are tested using binomial logit models on monthly data on exchange rate realignments for all EMS countries from 1979 to 1993. I find lower realignment risk for left wing policy-makers and countries with more trade links to Germany, whereas more intra-European Community resource transfers appear to go to countries facing higher realignment risk. Also, realignments are less likely when the rest of EMS member countries have stable international reserves and their governments are pro-European.

1. Introduction

A large literature explores the reasons behind countries' choice of fixed exchange rates.¹ Yet such fixed rates are subject to being devalued or abandoned altogether. Early research on currency crises points to lax monetary and fiscal policies and a steady loss of international reserves as key determinants of fixed exchange rate adjustment (Krugman 1979). More recent work views exchange rate choices as a continuous cost-benefit analysis (Obstfeld 1996, Ozkan and Sutherland 1998, Eichengreen et al. 1995, Klein and Marion 1997, Ozkan 2003). Predominantly in this more recent research, however, the optimizing calculus of governments is focused on the effect of macroeconomic variables. My paper analyzes the political determinants of exchange rate realignments with specific application to the European Monetary System.

The argument is that the costs of using exchange rate realignments are higher for those policy makers that derive political advantages from stable exchange rates and are able to link exchange rate policy to a broader set of issues.² Specific hypotheses are derived and tested for the use of exchange rate realignments in the European Monetary System (EMS). Extensive research has studied the EMS, yet there is little systematic evidence about the political use of realignments.³

Applied to the context of European fixed exchange rates in the 1980s the argument yields several testable hypotheses. The previous theoretical literature has conflicting expectations about the relationship between partisanship and exchange rate practices (Broz and Frieden 2001). However, I argue that fixed exchange rates in the context of the EMS offered the European left both a way to purchase credibility in an economic environment favoring neo-liberal solutions and the ability to placate its political constituency. This leads to the expectation that greater left wing representation is associated with relatively infrequent exchange rate realignments. In addition, I derive multiple plausible mechanisms linking exchange rate policy to parallel areas of policy in Europe. A first mechanism is that domestic actors favorable to European integration more broadly may be willing to bear the costs of fixed exchange rates in the EMS and realign their exchange rate less. Similarly, more trade integration in Europe likely increases the benefits of exchange rate stability, thus reducing incentives to use realignments. Another policy linkage may operate through the European Community budget, and I consider whether intra-community resource transfers are linked in a quid pro quo manner to less

¹ The literature on the choice of exchange rates is extensive (Klein and Schambaugh 2010).

² Politician cost-benefit calculations are used to explain decisions like maintaining fixed exchange rate regimes (Simmons 1994, Berdiev et al. 2012), responses to speculative attacks (Leblang 2003), currency depreciation (Simmons 1994, Frieden 2002) or currency union membership (Stasavage and Guillaume 2002).

³ Eichengreen et al. (1996) and Ozkan (2003) relate the probability of EMS realignments to a set of macroeconomic fundamentals. Other work investigates the determinants of realignment expectations (Rose and Svensson 1994, Chen and Giovannini 1997, Siklos and Tarajos 1996).

realignment or whether such resources go to the countries with high adjustment costs to monetary cooperation. Finally, if realignments damage the credibility of the EMS and European integration more broadly, members can be expected to attempt to reassure markets by showing a united front that projects confidence in the newly negotiated exchange rate parities. This should lead countries to respond to each other's cost/benefit assessment of such realignments.

Logit models and monthly data for all EMS countries (1979-1993) are used to estimate the likelihood that member currencies are realigned against the German currency. The empirical estimations support the political economy hypotheses above. Most robust, realignments are less likely when the left is in power; for countries with more manufactured exports to Germany; for countries with few resource transfers from the European Community; when other EMS countries do not experience international reserve losses and their governments are more pro-European. Some evidence also exists, but is less robust, that realignment risk is reduced by a country's own more positive position on European integration or more left wing representation in rest of EMS member countries.

These results speak to the literature on the politics of exchange rates. In extant work partisanship has not been linked in a consistent manner with exchange rate politics (Klein and Schambaugh 2010)⁴, very likely because the relationship is context driven (Broz and Frieden 2001). The evidence here is robust in showing that country membership in the EMS changed the interests of the European left making it more adverse to exchange rate realignments. Moreover, while there is evidence for the role of linkage politics in other areas of European integration (Aspinwall 2007, Carrubba 1997), for exchange rate cooperation the evidence has been anecdotal.⁵ The empirical findings here suggest strongly that exchange rate realignments in the EMS were also the result to the nested nature of the monetary game into the greater European integration. Finally, realignments in particular countries are shown to react to the political and economic costs of other member countries' governments, supporting Gros and Thygesen's (1998) descriptive analysis of EMS realignments as negotiated events.

The paper proceeds as follows: Section 2 describes the working of the EMS. Section 3 lays out the analysis of costs and benefits of realignments and derives testable hypotheses about the actual use of realignments in the EMS. Section 4 describes the data, methods and variables used in the analysis. Section 5 describes the baseline results of the econometric analysis. Section 6 performs robustness checks for the baseline estimates. Section 7 concludes.

2. The European Monetary System

⁴ See also Simmons 1994, Frieden 2002, Berdiev 2012.

⁵ Dyson (1994), Frieden (2001), Martin (2001), Cohen (2001).

The European Monetary System became operational in 1979 by Resolution of the Brussels European Council and its core feature was the Exchange Rate Mechanism (ERM), which worked as fixed but adjustable exchange rates among the participating countries.⁶ To defend exchange rate stability, countries were required to use foreign exchange intervention, domestic monetary policy and economic policy adjustment. While on face value counter to exchange rate stability, adjustment of parities (realignments) were allowed in the EMS, subject to agreement of member countries and the European Commission. In these realignments weak currencies were devalued and strong ones revalued, resulting in a loss of value against the de facto anchor currency - the German Deutsche Mark (DM). The size of realignments varied from the smallest (1% - Belgian franc, 1987/1) to the largest (10.6% - French franc, 1982/6), but their overall size is non-trivial: Over their ERM membership, the Italian lira lost 63 percent against the DM, the French franc lost 45.2 percent and the Irish pound 41.4 percent. Also non-trivial is the frequency of realignments shown in Table 1: For example, Italy realigned ten times, Ireland eight and France six times.

[Table 1 about here]

The origins and the management of the EMS are largely viewed as political rather than economic, yet a systematic examination of the politics of realignment is missing. Frieden (2002) explains that, broadly, Europeans pursued monetary integration despite low labor mobility and asymmetric reaction to shocks. Specifically for EMS' inception, others emphasize the political circumstances of the leaders of Germany and France, the inclusion in the governing coalition in Italy of the Communist Party, a desire to escape the volatility of the US dollar or Chancellor Schmidt's attempt to circumvent the Bundesbank's independence (Gros and Thygesen 1998, McNamara 1998). EMS currency realignments continued to be a political enterprise. The Brussels Resolution required that realignments be treated as a common concern, in that "adjustments of central rates will be subject to mutual agreement by a common procedure which will comprise all countries participating in the exchange rate mechanism and the Commission" (Art. 3.2). As Gros and Thygesen (1998: 73-79) point out, realignments, especially when comprehensive, were decided through negotiation rather than unilaterally. Examples involve the successive realignments initiated by France in 1981-1983 in which intense Franco-German negotiations were followed by discussions with the wider EMS membership. The joint decision is also clear in the February 1982 realignment: Belgium asked for a 12% devaluation and Denmark for a 7%, and received upon negotiations an 8.5% and, respectively, a 3%.

3. Who realigns?

⁶ Each currency had a bilateral central rate vis-à-vis all other ERM currencies, with a fluctuation band around them of +/-2.25% (6% for Italy, the UK, Spain and Portugal).

The second generation models of currency crises imply that policy makers make continuous marginal cost-benefit calculations regarding their exchange rate choices (Obstfeld 1996, Ozkan and Sutherland 1998). The most important benefit of exchange rate realignment is real depreciation of the exchange rate and a temporary increase in competitiveness. Also, while realignments do not necessarily occur because of a currency sell-off, a realignment that follows foreign exchange market pressure can have the benefit of stopping the outflow of foreign reserves and the need to maintain high interest rates that harm economic activity. On the other hand, realignments can have substantial costs: For one, large realignments generate sudden changes in the relative prices of tradable goods. In addition, realignments have political costs associated with back-tracking on a visible, de jure, policy with distributional consequences, and, in the case of the EMS, back-tracking on a key policy that furthered integration in the European Community.

Previous work studies the determinants of devaluation expectations and actual devaluations in the EMS (Edin and Vredin 1993, Rose and Svensson 1994, Eichengreen et al. 1995, Siklos and Tarajos 1996, Chen and Giovannini 1997, Ozkan 2003). This research, however, generally marginalizes political economy considerations⁷ except indirectly via the effect that macroeconomic variables have on the optimizing calculus of governments. Such political economy considerations are important, however, given that many of the EMS realignments have been coordinated among member countries and did not occur necessarily under intense financial market pressure. Below, I tie the cost-benefit calculation involved in EMS exchange rate realignments to the political gains to be had by left-wing parties and the availability of benefits from the broader European integration. First I examine first the role of partisanship in altering policy-makers incentives to realign. Following, I focus on the role of linkage to other policy areas in realignment behavior.

3.1. Realignments and partisanship

Theories predicting partisan differences in macroeconomic policy suggest that right wing parties have a preference for low inflation, and are more likely to tolerate variation in employment in order to reduce inflation (Hibbs 1977, Alesina et al. 1997). Fixed exchange rates and central bank independence have been argued to improve the credibility of monetary policy (Rogoff 1985) and empirical evidence links them to low inflation (Ghosh 2011). Fixed rates, in particular, work to reduce inflation because they are transparent commitments that raise the political cost of excessive monetary growth that leads to

⁷ Siklos & Tarajos (1996) show an inconsistent effect of elections on the expected exchange rate depreciation for France, Netherlands, Italy and Belgium while in the EMS. Ozkan (2003) does not find an effect of partisanship on EMS devaluations and revaluations against the ECU. Eichengreen et al. (1995) finds that past government defeats are linked to currency crises.

devaluations.⁸ In a very direct way, then, the right may have incentives to fix exchange rates to reduce inflation, while the left may favor flexible exchange rates that allow employment stabilization. On the other hand, however, in a rational expectations framework, when additional inflation does not result in economic growth and the left cares more about employment than the right, the left is shown to be more likely to fix the exchange rate (Milesi-Ferretti 1995).⁹ The left has incentives to fix the exchange rate because it suffers from a relatively larger inflation credibility problem than the right, yet at the cost of lost flexibility to respond to economic shocks (Milesi-Ferretti 1995, Author 2010).

Thus, unless other conditions are specified, the relationship between partisanship and the choice of fixed exchange rates is unclear. The empirical evidence reflects this ambiguity: Simmons (1994) finds that more left wing representation increases the chance of countries staying on the gold standard, but does not reduce currency depreciation for the whole inter-war period. Frieden (2002) shows that left wing governments reduce the volatility of European currencies (1973-1994), but not their depreciation rates. Leblang (2003) shows left wing governments to be more likely to defend currencies from losing value in the face of speculative attacks. Berdiev et al. (2012) find that left wing governments are less likely to maintain de facto fixed exchange rates.

The assumption in Milesi-Ferretti (1995) is that exchange rates are fixed forever. However, the experience of the EMS and, more broadly, the existence of a gap between declared fixed exchange rates and de facto practice (Rogoff and Reinhart 2004), make this assumption unrealistic. Realignments that devalue a particular currency result in more imported inflation and, consequently, the political right may be less likely to be associated with such realignments. Yet, the frequent use of realignments also damage the credibility of fixed exchange rates¹⁰, and realignments may be used less by those political parties who would fix the exchange rate because of credibility considerations. Méon (2001) has a different explanation for why the left may act against expectations based on ideology. Without elections, political parties behave according to financial market expectations and the left (being more sensitive to output shocks) is more likely to revalue the fixed exchange rate. With elections, however, under some parameter conditions, if the left gets elected to office it will benefit from the lower inflation expectations

⁸ For a discussion of the relative transparency of fixed exchange rates see Broz (2002), Author (2010).

⁹ This effect obtains both in the presence and absence of elections. Elections, however, incentivize the left to “overcommit” to fixed exchange rates, because fixed rates increase the chance the left is re-elected.

¹⁰ Assessing the Bretton-Woods experience, Eichengreen (2008) suggests small currency devaluations were perceived to be destabilizing and large ones were feared because of possible leaks during IMF negotiations. Gros and Thygesen (1998) also note specifically that EMS members other than Germany were all “anxious to give the appearance of committing themselves to tight exchange-rate management” (p. 51) and therefore convince financial markets of the strength of such commitments. For example, financial markets judged negatively the June 14 1982 EMS realignment: “Currency moves alone, it was feared, would have paved the way for yet another realignment before long. That, in turn, it is felt, would have undermined the system's credibility and perhaps endangered its very existence.” (The Financial Times, June 14 1982 “Double strategy’ pleases Bonn”).

that markets factor in due to pre-electoral uncertainty over who will win the elections. With high electoral uncertainty, the left benefits from the right's credibility and is less tempted to react to negative shocks via exchange rate revaluation. Very directly then, the ambiguity of the credibility-flexibility framework for fixed exchange rate choice carries over to the relationship between partisanship and realignments.

Yet I argue that there are additional reasons why the left would have a preference for less realignment in the EMS. First, the left likely faces higher political costs from undertaking such realignments. When witnessing a realignment financial markets are uncertain about the true magnitude of adjustment costs to the shocks that lead to realignments and incentives for policy-makers to overstate such costs (Obstfeld 1997). The public and markets are likely to believe that realignments by the right are not gratuitous. For the left, however, it is questionable whether realignments are warranted by unexpected events and realignments may be linked to incompetence or policies inconsistent with the fix. Bagashka and Stone (2013), for example, document the higher political costs faced by the left by showing that only left wing governments are punished by voters in elections for breaking exchange rate commitments.

Second, by 1980 the left faced an economic environment favoring neo-liberal solutions, with policy-makers starting to accept that inflation was unable to buy more economic growth (McNamara 1998). At the same time, however, the left was less able to rely on the traditional relationship with unions to moderate wage demands. Boix (2001) and Ross (2001) show, for example, that in the 1980s both the Spanish and the French Left had lost wage bargaining as a traditional tool to deliver an acceptable level of price stability, increasing the attraction of fixed exchange rates.

Third, the EMS provided for the left the added benefit of joint interventions to defend fixed rates and, more importantly, the political benefit of being able to blame tough decisions on EMS' multilateral decision making process. This allowed the left more leeway in balancing external constraints with the demand for accommodative monetary policy from its domestic constituencies. For example, Niels Thygesen argues that "the continued EMS membership prompted the adoption of domestic policies of budgetary consolidation and de-indexation which are anyway desirable, but would have been more controversial in the absence of the EMS" (McNamara 1998: 162). This is echoed by Moravcsik (1994), who writes that the EMS contributed to "the domestic institutionalization and rhetorical legitimization of unpopular and costly policies, offering particularly valuable support for centrist and socialist governments" (p. 48).

Summing up, the left in the EMS suffered from a lack of inflation fighting credibility, was faced with an economic environment favoring neo-liberal solutions and, at the same time, was less able to

rely on its traditional relationship with unions to moderate wage demands. In this particular context exchange rate cooperation offered it both a way to purchase credibility and the ability to placate its political constituency. The expectation is then that the left fears both that realignments will cost it politically and that they would unravel monetary cooperation. This leads to a first hypothesis:

H1: More left wing representation makes exchange rate realignments less likely.

3.2 Realignments and Issue Linkage

While the evidence is largely anecdotal, another determinant of exchange rate choices, especially in the context of monetary cooperation is linkage to other policy areas. For example, after 1936, the French, British and Americans cooperated on monetary policy and the devaluation of the French currency under the shadow of their common security interests (Oye 1985). In another example, Stasavage and Guillaume (2002) show using cross-country evidence that exit from fixed exchange rates in the African currency unions is less likely when a government risks losing in other policy areas where there is a parallel institutionalized agreement on trade, aid or the military.

For the EMS there are a number of plausible linkage mechanisms that affect the value of monetary cooperation and therefore the political cost-benefit calculations for realignments. Martin (2001), for example, argues that European Community's institutional structure "enhances the value of members' reputations for living up to agreements, allowing them to construct deals that would be more difficult to sustain if undertaken outside the institutional context" (p. 88). Previous work, however, provides little systematic analysis of the links between exchange rate choices and the other dimensions of European integration. Below, I examine policy linkage mechanisms that include a nested relationship with the broader European integration, the availability of European community financial transfers, linkage to other EC policies or explicit coordination of exchange rate policy.

Broadly, the exchange rate cooperation game in the EMS was nested in the European integration game. Axelrod and Keohane (1985) write that placing a bargain "within the context of a more important long-term relationship ... affects the outcome of the particular bargaining process" (p. 241). In the EMS exchange rate adjustments occurred with the risk that monetary cooperation collapsed entirely if realignments induced markets to stop trusting countries medium-term commitments. More directly, cooperation on fixed exchange rates and broader integration are strongly linked in case study investigations: Frieden (2001) and Oatley (1997) argue that in France and Italy linkages between monetary integration and other European Community issues allowed the formation of domestic coalitions supporting the austerity measures required for fixing the exchange rate. While such informal accounts abound, there is little systematic evidence that standing to gain from other aspects of European integration affected countries' realignment behavior in the EMS. A testable implication from the

perspective of a nested game is that a favorable perception of the broader European integration raises the value of fixed exchange rates and, on average, should reduce the use exchange rate realignments.

Therefore, I expect that:

H2.1: Support for broad European integration results in less exchange rate realignment.

Another type of likely linkage is direct compensation with European Community resources for the costs of exchange rate cooperation. On monetary cooperation, the 1979 Brussels Resolution acknowledges the costs of domestic adjustment entailed by EMS membership and asks directly that the European Investment Bank provide poorer countries with subsidized loans. Also, anecdotal evidence suggests that transfers of resources were used to foster monetary cooperation in the EMS (Dyson 1994).¹¹ Besides anecdotes, there is little systematic evidence that resource transfers affected EMS exchange rate choices, however.¹²

Financial transfers can be linked to realignments with contrasting arguments, leading to different empirical expectations. On the one hand, transfers can function as quid pro quo compensation for actors that refrain from an action that is in their interest (Axelrod and Keohane 1985). In this case the expectation is that larger transfers reduce realignment risk. On the other hand, transfers can be viewed as a reflection of expected costs of adjustment required by EMS membership, and, in this case, transfers are linked to more realignment. Several factors give more plausibility to the second view. First, the size of the EU budget is small, standing at roughly 1% of European gross domestic product, so, while transfers can alleviate on the margin political constraints, they are unlikely to fully compensate adjustment costs in an evenhanded quid pro quo. In addition, reform, including structural adjustment, deregulation or changes to wage indexation, require domestic negotiations and are thus likely delayed. For example, in Italy, the Scala Mobile – the generalized price indexation scheme – was reformed successively in 1983 and 1985, with some provision surviving well into the 1990s due to trade union pressure. Also, the positive effects of such reforms, if undertaken, require time to materialize because the public needs to update expectations. Theoretically, then, there are more reasons that EC transfers are targeted to those countries that have a harder time meeting their commitments in the EMS, and, consequently that:

H2.2: Intra EC transfers are associated with more exchange rates realignments.

¹¹ Bargaining over the Economic and Monetary Union (EMU) in 1990, Spain, Portugal, Greece and Ireland threatened to veto the deal unless richer countries agreed to more transfers (Martin 2001).

¹² Such evidence exists for the use of transfers to push for the completion of the single European market (Carruba 1997). For trade integration, Carrubba shows that intra EC transfers are provided by the states with a pro-integration agenda to the less integrationist countries as a way to move integration along. Transfers served as side payments to lower the costs from domestic adjustments incurred in the process of integration and thus reduce short-run political constraints.

Another key reason behind exchange rate cooperation in Europe was facilitating trade in the common market. Thus, when making exchange rate decisions countries very likely link them to the strength of their trade and investment ties in the union. Neatly delineating the interest groups that stand to lose or gain from exchange rate movements is difficult. However, prominently, Frieden argues that support for exchange rate stability emerges from sectoral interests. That is, “support for monetary integration from cross-border investors and exporters of specialized manufactures who stand to lose from currency volatility” and “opposition from those, especially import competitors, who stand to lose from the inability of national governments to engage in depreciations to gain international competitiveness” (Frieden 2002, p. 832). Empirically, Frieden connects the size of countries’ exports of specialized manufactured goods to the German currency bloc (Germany and Benelux countries) to less exchange rate depreciation and volatility. Exporters of these specialized, product-differentiated manufactured products will experience less exchange rate pass-through, will be less likely to care about the level of the exchange rate, and, by comparison, dislike volatility more (Frieden 2002). Because EMS realignments directly generate currency instability, the expectation is that the sectors identified by Frieden also generate support for less EMS realignments:

H2.3: More exports to the German currency bloc decrease the risk of exchange rate realignment.

Finally, EMS realignments implied coordination among members. In many cases countries asked for a devaluation of their currency and negotiated realignment terms with the broader membership. Even during periods with no realignments consultation on exchange rates occurred in the regular meetings of established European Community institutional infrastructure, including the Council of Ministers, the Monetary Committee and the Committee of Central Bank Governors. The realignment behavior of a member country is thus likely affected by the costs and benefits faced by other countries. One way in which coordination may manifest itself is in the observation of countries acting together. For example, in the October 1981 realignment initiated by France, the French and the Germans had preliminary bilateral negotiations that included realignments for other countries’ currencies. Subsequently, the two leading countries pressed the rest of the EMS membership to accept their initial agreement and follow France in devaluation against the German currency. Coordination can also be observed empirically through individual country reaction directly to the costs-benefit analysis of other members. Following, if realignments follow a process of consultation on exchange rates by EMS members, I expect that countries respond to the economic and political cost/benefit assessment of the rest of EMS membership. This implies that:

H2.4: Individual country realignment risk is lower when other EMS countries experience favorable economic conditions or have more political aversion to realignment.

4. Methods and data

This section describes first the statistical methodology used to test hypotheses related to country realignment behavior. I then discuss the dependent variable, the key independent variables and the list of controls that make the baseline econometric model.

4.1 Econometric model

Realignments against the German currency are binary variables, taking the value of 1 when such an event takes place and zero otherwise. Given the dependent variable, I use panel logit models. Country fixed effects are included to control for time-invariant country characteristics not captured by the regressors. In addition, to control for the time dependence of observations I include the length of time from the previous realignment, the square and the cube of this time length.¹³ To control for time-specific factors, models also include a counter variable for time in the sample. Global trends and common shocks may, however, be better captured by time fixed effects. The inclusion of year fixed effects is not suitable for this study, because they cause the loss of observations for all years in which no country experience a realignment event.¹⁴ I discuss the year fixed effects specification in robustness checks. Still, to control for time related factors I include dummy variables for specific periods in the life of the EMS (Gros and Thygesen 1997) that are detailed in the section on control variables.¹⁵ Finally, models are estimated with robust country clustered standard errors, to address serial correlation and country heteroskedasticity.

4.2 Data and dependent variable

Data covers monthly observations for all nine members of the EMS' Exchange Rate Mechanism (ERM): Belgium, Denmark, France, Ireland, Italy, the Netherlands, Portugal, Spain and the UK. The data stretches from EMS' inception on March 1979 (or subsequent country entry) until the widening of the fluctuation margins to +/- 15% in August 1993.¹⁶ The dependent variable codes all currency realignments against the de facto anchor currency the German Deutsche Mark (DM).¹⁷ There are 54

¹³ Carter and Signorino (2010) recommend this solution to deal with time dependence in binary independent variables. Their Monte Carlo simulations show that for many of the types of hazards seen in substantive research this polynomial approximation always outperforms time dummies. Klein and Marion (1997) use just the time from the previous realignment and its squared value. Results are similar when the length of time between successive realignments and the cubic splines are included instead (Beck et al. 1998).

¹⁴ Other studies of realignments (Klein and Marion 1997, Ozkan 2003, Eichengreen et al. 1995) similarly do not include year fixed effects..

¹⁵ The use of period fixed effects is similar to Ozkan (2003) and Klein and Marion (1997).

¹⁶ After 1993, the formal +/-15% commitment is not a significant constraint on exchange rate policies. De facto, many countries maintained narrower fluctuation margins. With such wider margins, fluctuation around the central parity rather than realignments becomes a more interesting dependent variable.

¹⁷ Svensson (1993) notes that, in practice, the most important fluctuation band in the EMS was the one against the German DM, the currency that never underwent a bilateral devaluation.

realignments against the German currency (Gros and Thygesen 1998). The unit of analysis is country - year - month.¹⁸

4.3 Explanatory variables

To measure partisanship I use the strength of left wing parties in the legislature based on the Comparative Manifesto Project (CMP, Budge et al. 2001). The CMP codes political parties' programmatic statements with the purpose of quantifying the parties' ideas and policy goals. Here I am interested exclusively in the capturing parties' partisan differences on economic issues. Suitably, the CMP codes favorable statements on planned economy and market economy.¹⁹ Parties that are favorable to planned economy include in their manifestos statements supporting government controlling prices or wages, government having plans for the economy and regulating the economy. On the other hand, parties favorable to market economy emphasize the need for economic orthodoxy (reduce spending and deficits, support a strong currency, the banking sector and the stock market), the superiority of capitalism and private property rights. By coding parties' political statements the CMP also minimizes the chance that the identification of left or right wing parties incorporates actions in exchange rate policy. In contrast, expert judgments are more likely to consider our outcome variable in their coding of partisanship, raising the risk of endogeneity. For the baseline analysis I code the percentage of votes of left leaning parties in national legislatures. Thirty-six percent of observations have a minority government, so using votes for national legislature rather than government partisanship gauges better the left's influence on policy. The robustness section shows results with other measures of partisanship.

Testing hypotheses H2.1-H2.4 requires operationalizing the linkages that tie countries in the European Community. First, to test the relationship between realignments and the broader European integration, I code positive and negative party positions on the European Community, provided by the Manifesto Project. A positive view of the European Community includes favorable mentions, desirability of remaining a member, expanding the community or increasing its competencies. To the contrary, a negative attitude includes hostile mentions or opposition to specific European policies. I code the position of the government on European issues (percentage of seats in parliament as weights)²⁰. As

¹⁸ Other countries from outside the European Community had fixed exchange rates during the 1980s (Finland, Norway, Sweden, Austria) and experienced repeated realignments. However, the inclusion of such countries from outside the EU does not allow for testing my EC linkage mechanisms. Austria and Finland joined the EMS after their January 1995 entry in the EU (Austria in January 1995, Finland in October 1996), and are therefore outside of the sample.

¹⁹ In the CMP, the spectrum of policy issues for left and right wing parties ranges from external relations to freedom, democracy, the economy and welfare, for a total of 56 items. Planned economy adds codes 403, 404, 412 and market economy adds codes 401 and 414. I subtract market positions from planned economy position, and parties are coded as left leaning if they have positive scores (Carruba 2001).

²⁰ Computation is based on Carruba (2001). There are few parties with a negative view of the EC. Rather, parties are more or less positive on Europe. It makes then little sense to code the share of pro/anti European parties in legislatures. The correlation between partisanship and government's position on European issues is low.

with partisanship, using the CMP reduces the risk that behavior in the EMS influences party positions on European issues, therefore minimizing the risk of endogeneity.

Second, to test the relationship between the risk of realignment and EC resources I use data on real net per-capita intra-EC transfers as a rolling average of past two years (Aksoy and Rodden 2009). Net real transfers are the difference between the total amount of money each member state received from and contributed to the EU budget, in euro adjusted for inflation (base year 2000). Since transfers are supposed to capture the compensation for slow moving adjustment costs from EMS membership, the averaging is done to smooth out yearly noise. Results are, however, similar when using the one year lag of the variable.

Third, to test the role of trade with Germany in product-differentiated manufactured goods I use the one year lag of manufactured exports to the German DM zone (Germany, Belgium, Luxembourg, and the Netherlands) as a percentage of GDP (Frieden 2002). I expect that more specialized manufactured exports to the DM zone increase incentives to preserve exchange rate stability and avoid realignments.

Finally, to test the idea that countries coordinate exchange rate realignments I use several variables that measure the costs and benefits of realignments for the rest of the EMS membership. There are different potential ways to proxy such cost/benefit assessment. I use the average for all the other countries in the EMS (the reference country and Germany excluded) for both left wing party strength and government position on European issues. I also use a measure for the loss of international reserves for all the other countries in the EMS (the reference country and Germany excluded). This measure is the average for all the other EMS membership of the three month lagged percentage change in international reserves (IMF International Financial Statistics - IFS). The expectation is that, if coordination matters, more political aversion to realignment and steady international reserves in other EMS members reduce individual country realignment risk as well.²¹

4.4 Control variables

The first generation models linked balance of payments crises to lax monetary and fiscal policies (Krugman 1979). In this view, the level of foreign exchange reserves is a fundamental determinant of exchange rate choices. The second generation models (Obstfeld 1996, Ozkan and Sutherland 1998), on the other hand, expect exchange rate choices to be driven by more variables. For my baseline econometric specification I use as controls economic variables found to determine realignments in previous work: *international reserves* (Ozkan 2003, Klein and Marion 1997); the *balance of trade*

²¹ Another way to gauge coordination is to include the proportion of other EMS countries that realign against the German currency at the same time. This spatial lag is, however, endogenous and the usual fix for the problem (temporal lagging), while reasonable for estimating the effect of exchange rate crisis contagion, makes little sense as a proxy for realigning together (coordination).

(Ozkan; 2003; Eichengreen et al. 1995); the *real exchange rate* (Klein and Marion 1997); the *German DM/US dollar exchange rate* (Ozkan 2003); *German inflation and interest rate* (Ozkan 2003); *domestic unemployment*²² (Eichengreen et al. 1995) and *domestic inflation* (Eichengreen et al. 1995).²³

Countries' holdings of *international reserves* operationalize directly the perspective of the first generation models. Foreign reserves influence realignment risk because they are linked to governments' ability to maintain fixed exchange rates. Klein and Marion (1997) rightly argue that in pooled data international reserves need to be scaled to give a sense of the size of foreign assets to the potential demand for such assets. Suitable scaling variables include a country's monetary aggregates. For the countries and years in this paper monetary aggregates data has a significant number of missing values, so instead I use a differenced variable. Data on foreign reserves holdings is from IMF IFS and I use the change in reserves over the previous three months.²⁴

Several of the included variables relate directly to the competitiveness of domestic producers. As competitiveness deteriorates, all things equal, countries should be more likely to realign their fixed exchange rate. The *balance of trade* is captured by the logged difference between exports and imports (IMF IFS). Governments facing a balance of trade deficit are likely to favor realigning the exchange rate against the German DM. This variable is lagged one month. In addition, Klein and Marion (1997) suggest that the evolution of the actual *real exchange rate* can give an approximation of the potential misalignment of the real exchange rate. Misalignment increases the cost of maintaining a currency commitment. I use the one month lagged CPI based real effective exchange rate index (IMF IFS). Increases in the index show the real appreciation and I expect real appreciation to increase realignment risk. Also, given the asymmetric role of the German currency in the EMS, an increase in the *German DM/US dollar exchange rate* increases the competitiveness of EMS members for products traded outside the EMS area. A weaker DM should reduce then the risk of realignment. The variable is from the IMF IFS and is lagged one month. Similarly, high *domestic inflation* (*high inflation in Germany*), reduces (increases) the competitiveness of domestic producers. The expectation is, that domestic inflation (*German inflation*) increases (reduces) the risk of exchange rate realignment. Inflation variables are from IMF IFS and are lagged one month.

EMS governments may also realign their exchange rate in response to *domestic unemployment* and changes in *Germany's interest rates*. In the second generation models, domestic unemployment

²² Ozkan (2003) uses an indirect proxy for unemployment: the domestic industrial production.

²³ Included are all the economic variables in Ozkan (2003), with the addition of domestic inflation and real exchange rates. A direct test of the functional form in Ozkan (2003) that includes three lags of the independent variables (or two lags of the differenced variables) is in the robustness section.

²⁴ The one month difference is not statistically significant. Using the change in reserves over the past 6 months does not affect the key results.

negatively affects the political survival of governments and therefore increases the risk of exchange rate realignment. Related, increases in the anchor currency's interest rate are linked to the need to raise domestic rates in response, which, in turn, increase domestic unemployment and political risks. Monthly unemployment data is unavailable, and I use the yearly unemployment rate lagged one year (IMF IFS). I also use the three month change in the German interest rates (central bank discount rates – IMF IFS).²⁵

Finally, baseline empirical models include dummy variables for three distinct periods in the EMS (Gros and Thygesen 1997): The turbulent EMS until the March 1983 realignments (1979/3-1983/3); The period until the signing of the Basle-Nyborg Agreement (1983/3-1987/9); The period after the negative vote in the Danish referendum on the Maastricht Treaty (1992/6-1993/8). The reference category (not included) is the tranquil period between Basle-Nyborg and the Danish referendum.

5. Empirical results

Models 1 and 2 in Table 2 show the baseline empirical results. Model 1 uses domestic country characteristics as the key hypothesized explanatory variables for realignment behavior. These include: the vote share of left in parliament; government's position on European issues; manufactured exports to the German currency zone; and the real net intra-EC budget transfers. Model 2 aims to capture additionally the posited coordination of policies among countries. This follows the logic that countries may adjust their own realignment behavior to the cost-benefit calculation of other EMS member states. Model 2 includes therefore three additional key explanatory variables based on the averages for all other EMS countries (reference country excluded) of left wing party representation, government position on European issues and foreign reserves changes. While they are not my preferred specification because of the massive loss of data, Models 3 and 4 show estimations that include year fixed effects.

[Table 2 about here]

Models 1 and 2 show strong support for hypothesis H1. As expected, the coefficient for left wing representation is negative and statistically significant. This means that more left wing representation in the domestic legislature decreases significantly the likelihood of realignment. As shown in Models 3-4, these results are robust to the inclusion of year fixed effects that control more rigorously for global trends or shocks. Hypothesis H2.1 receives support as well. The expectation is that a more favorable view of European integration reduces the risk of exchange rate realignment. In Models 1 and 2, the coefficient on this variable is negative and statistically significant as expected. The loss of observations in the year fixed effects Models 3 & 4, results in a loss of statistical significance. More robust is the manufactured exports to the DM zone variable testing hypothesis H2.2. The coefficient for this variable is negative and statistically significant in three out of four models in Table 1. Also, greater intra-EC

²⁵ Using the change in reserves over the past 6 months does not affect the key results.

transfers (hypothesis H2.3) are associated with more realignment, and the coefficient is statistically significant across Models 1-4. Finally, there is evidence for coordination of policies (hypothesis H2.4): Model 2 shows that countries realign as a reaction to the partisan affiliation and views on Europe in the other EMS countries. The coefficients on these variables remain negative, as expected, but lose statistical significance in the Model 4 using year fixed effects. Also, a loss of reserves in the rest of the EMS memberships is related to higher realignment risk. The coefficient on reserves changes in the other EMS countries is negative and highly statistically significant across Models 2 & 4.²⁶

While the coefficients on the variables of interest are in the expected direction and generally statistically significant, logit models do not directly convey substantive effects. Table 3 shows predicted probabilities when moving the key independent variables from the 25th to the 75th percentile and keeping the remaining covariates at mean values. Predicted probabilities are shown for Model 2, which considers EMS coordination. Thus, moving from a 30 percent share of votes for left wing parties in the legislature to a majority (57 percent vote share for the left) reduces the risk of realignment by almost a half (from 0.07 to 0.04). The magnitude of the effect on country exchange rate realignment is similar for the other independent variables of interest: A more positive government position on European issues (a move from the 25th to 75th percentile) roughly halves the risk. More per-capita EC transfers from negative net transfers (-22 per-capita euro) to positive net transfers (109 per-capita euro) increases the same risk of realignment by half. And countries that have greater manufactured exports to the Germany currency zone are (a move from the 25th to the 75th percentile) are about 65% less likely to realign. Finally, varying the measures for country coordination (again, from the 25th to the 75th percentile) changes the predicted probability of realignment by 33% for changes in the reserves of other EMS members, by 43% for the vote share of left parties in the other EMS countries and 90% for the average government position on European integration in the other EMS countries.

[Table 3 about here]

In addition to the key estimates, several control variables are statistically significant in the empirical models. As expected, market pressure, as evidenced by drops (negative changes) in international reserves translates in more exchange rates realignment. In three out of four models the coefficient of this variable is negative and statistically significant. Several competitiveness indicators are also important: A weaker German currency and higher inflation in Germany are linked across all four models with lower realignment risk; Real exchange rate appreciation increases the probability of realignment in one out of

²⁶ Individual country realignment risk reacts similarly strong to unemployment in the other EMS countries.

four models. Finally, supporting second generation models, higher domestic unemployment and increases in Germany's interest rates raise the risk of realignment in two out of four models in Table 3.

6. Robustness

This section discusses robustness checks grouped in three categories. First, I check the robustness of the findings to alternative definitions of partisanship and discuss the possibility of non-random left wing party representation. Second, I test robustness to additional explanatory variables. Third, I consider an alternative baseline specification with deeper lags for key economic control variables.

Several findings are very robust: Realignment is less likely when the left is in power; for countries with more manufactured exports to Germany; for countries with little resource transfers from the European Community; when other EMS countries do not experience international reserve losses and their governments are more pro-European. Less robust is the evidence that a country's own more positive position on European integration reduces realignment risk. Also not entirely robust is the finding that more left wing representation in the rest of the EMS membership reduces individual country risk of realignment.

6.1 Alternative definitions of partisanship and reverse causality

In this section I operationalize the strength of left wing representation with two additional variables. First I compute government partisanship based on the Comparative Manifesto Project. The percentage of seats in parliament are used as weights to aggregate the positions on economic policy of the parties in government. Positive values on this variable denote more left wing governments, while negative values show the right being in power. Second, I use the Cabinet Center of Gravity based on expert coding of political parties. This measure uses the party composition of the cabinet, weighed by ideological scores (Frieden 2002). The variable takes the following values: 1=Far left, 2=Social democratic, 3=Christian democratic, 4=Mainstream conservative, 5=Far right. Table 4 shows the empirical results using these two alternative measures of partisanship.²⁷ The coefficients for both government partisanship (Model 5 & 6) and the cabinet center of gravity (Models 7 & 8) are consistently statistically significant, and signed in the expected direction (negative for government partisanship, and positive for the cabinet center of gravity). Governments on the left of the political spectrum tend to realign exchange rates less. Less robust is the coordination mechanism based on averages of government partisanship for all other members of the EMS (Models 6 & 8).

[Table 4 about here]

²⁷ Table A3 in the Appendix shows the year fixed effects models for the alternative measures of partisanship. The key findings on partisanship are confirmed.

The support for hypothesis (H1) is robust to different definitions of partisanship, yet another concern may be that results are an artifact of non-random left wing representation. Voters could punish governments if forgone exchange rate realignments lead to worsening domestic economic conditions. While the consequence of voter behavior may simply be government turnover, arguably, a bad economy can result in more left wing governments in the period after 1987, when EMS realignments were rare. There are several ways to counter concerns over reverse causality. First, there is no clear evidence of more leftist representation in the period when the EMS experienced little realignment (1987-1993): Before and after 1987 average left wing party representation in the legislature is about the same at 47%. Nor is there a clear pattern of more left wing governments in particular countries: Ireland's government, for example, becomes more conservative in 1989. In Belgium a right wing coalition government remains center-right after elections in 1987. Similarly, in Italy, a left wing government only comes to power in April 1992. Second, I test the argument more formally by limiting the sample to the period of abundant EMS realignments before the Basle-Nyborg Agreement (September 1987). Table 5 shows the results with the restricted sample. The key estimates for all three measures of left wing influence (left wing representation in legislature, government partisanship and cabinet center of gravity) remain statistically significant and in the expected direction.

[Table 5 about here]

6.2 Additional explanatory variables

Besides the variables included in the baseline specification, other time-varying factors not captured by the country fixed effects may affect realignment behavior. The exclusion of such variables could affect the estimates presented so far due to omitted variable bias. Table 6 below uses the empirical specifications in Models 1 & 2 and includes two sets of additional explanatory variables.

[Table 6 about here]

Models 15 & 16 include additional political variables. Previous research suggests that, because of political costs, governments may postpone realignments until after elections (Eichengreen 1995, Méon 2004). In addition, politically weak governments and governments facing labor strikes may have a credibility problem vis-à-vis their exchange rate commitments and face capital flight (Simmons 1994). I include therefore two variables coding the 6 months prior and post elections, whether the government has a minority support in the legislature (Strom et al. 2008), as well as the number of strikes in the past year (Banks Cross National Time Series Archive). The key independent variables remain largely unaffected in these models. Of the added controls, countries are more likely to realign in the first six months after an election and following strike activity. The additional political factors considered are not statistically significant.

Models 17 & 18 include additional economic variables. In particular, realignments may be less needed when capital controls are in place or can be caused by expansionary fiscal policy (Eichengreen et al. 1995). Also, the EC's Common Agricultural Policy was arguably another reason for seeking exchange rate stability. Moreover, instead of coordinating exchange rate realignments, countries may engage in competitive devaluations and follow other countries that realign. To account for such considerations, I include a measure of capital account openness (Chinn and Ito 2008), the fiscal balance as a percentage of GDP (IMF IFS), employment in agriculture scaled by total employment (World Bank World Development Indicators) and a count of the number of realignments in all other EMS members in the past six months. Again, the key independent variables of interest remain largely unaffected. Only in Model 17 real net intra-EC transfers loses its statistical significance, but remains positive as expected. Of the additional control variables, only the number of realignments in other EMS countries is negative and statistically significant, showing no evidence of competitive devaluations.²⁸ Rather, individual country realignments are in fact less likely to follow temporally parity realignments in other member countries. Finally, Models 18 & 20 include all additional economic and political control variables, and results for the key explanatory variables are substantively similar to those already discussed for Models 15-17.

6.3 Alternative baseline specification

The baseline specification so far includes a comprehensive set of economic variables found to influence realignments in previous research. As an alternative baseline, I use the variables and the lag structure in Ozkan (2003), the most recent evaluation of EMS events (revaluations and devaluations). The variables include the log of *international reserves*, the *balance of trade* and *domestic industrial production* (IMF IFS), the *German DM/US dollar exchange rate* and the *German inflation* and *interest rate*. The estimations are shown in Table 7. Models 21 & 22 include three lags of the economic controls. Models 23 & 24 include two lags of the first difference of economic controls. While these specifications exclude some relevant indicators of competitiveness and industrial production is only an indirect proxy for the political costs of unemployment, the advantage of these models is that they account for the possibility that deeper lags of the economic variables affect realignment risk and their exclusion biases my inferences thus far.

[Table 7 about here]

Generally, the key independent variables fare well in these demanding specifications. Partisanship and real net intra-EC transfers remain statically significant and in the expected direction in four out of

²⁸ A count of realignments in other EMS countries over the past 12 months is similarly negative and statistically significant and does not change the substance of the key findings.

four models. Manufactured exports to the Germany currency zone maintains statistical significance in three out of four models, while government position on European integration is significant in two out of four models. In addition, two of the variables operationalizing coordination remain consistently statistically significant (averages of other EMS members for government position on European issues and changes in international reserves).

7. Conclusion

At the start of the EMS a key concern on the side of Germany and the Bundesbank has been whether countries would use exchange rate realignments enough to alleviate chronic overvaluation of some currencies (Gros and Thygesen 2008, Ungerer 1989). Realignments are not a panacea: Their extensive use reduces the substance and credibility of exchange rate cooperation and this, in turn, increases the costs imposed by markets on countries that aim to continue to cooperate. Thus, while countries used the flexibility afforded by the EMS framework, the evidence here suggests that for particular policy-makers, political costs and the simultaneous consideration of other issues in European integration reduced realignments' appeal.

To understand the determinants of the use of flexibility in fixed exchange rate agreements, realignments are analyzed in terms of costs and benefits for the policy-maker. For the EMS period, the net benefits of exchange rates stability and monetary cooperation are argued to be higher for left wing parties and governments making linkages with the broader European integration. Consistent with expectations, results show that more left wing representation reduces the likelihood of realignments vis-à-vis the German currency. Earlier work shows that monetary cooperation is longer lasting when there are linkages to parallel policy areas (Stasavage and Guillaume 2002). The results here suggest that the use of realignments is also affected by the availability of issue linkages: While not completely robust, a positive view of European Community competencies translates in less frequent use realignments; Trade integration on specialized manufactured goods with the German currency area is associated with less usage of the realignment flexibility clause; Also, intra-EU budget transfers are more likely to go to countries expected to face high costs from monetary integration; And countries appear to react to the political and economic costs of other EMS members when deciding on their own exchange rate realignments.

This research has several implications. The findings further substantiate the need to consider context conditions in the study of partisanship and exchange rate policy, already emphasized by Broz and Frieden (2001). Investigating the real sources of currency policy, Frieden (2002) finds inconsistent evidence for the role of partisanship in European monetary integration since the 1970s. This paper, however, shows that in the narrower context of the EMS, partisanship significantly affects how

countries use exchange rate realignments. The evidence here supports the view that, in the EMS, the left has had more incentives to adhere to fixed rates because it suffers from a lack of credibility, consistent with findings on defenses against speculative attacks (Leblang 2003), realignment behavior in currency crises (Author 2010) or maintaining the gold standard (Simmons 1994).

Finally, future work can extend the implications and evidence from this paper. For example, the hypothesis that the left cares about realignments to declared fixed exchange rate regimes can be tested more broadly, using as the dependent variable the “fear of pegging” identified by Alesina and Wagner (2006). If the left uses fixed rates for credibility reasons and strays away from declared commitments relatively less than the right, we would expect to see for the left less of a gap between a declared de jure fix and de facto exchange rate behavior. Such work can complement the large sample findings in Berdiev et al. (2012) on the relationship between partisanship and the de jure exchange rate regime. Future work can also relate linkage politics in the EU to the degree of fluctuation of currencies in the Exchange Rate Mechanism II before some of the member countries adopted the euro.

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Tables

Table 1. The timing of ERM realignments: March 1979 – August 1993

| Time | Belgium | Denmark | France | Ireland | Italy | Netherlands | Portugal | Spain | UK |
|----------------|---------------------------|---------|--------|---------|-------|---------------------------|----------|-------|------|
| September 1979 | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| November 1979 | | Yes | | | | | | | |
| March 1981 | | | | | Yes | | | | |
| October 1981 | Yes | Yes | Yes | Yes | Yes | | | | |
| February 1982 | Yes | Yes | | | | | | | |
| June 1982 | Yes | Yes | Yes | Yes | Yes | | | | |
| March 1983 | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| July 1985 | | | | | Yes | | | | |
| April 1986 | Yes | Yes | Yes | Yes | Yes | | | | |
| August 1986 | | | | Yes | | | | | |
| January 1987 | Yes | Yes | Yes | Yes | Yes | | | | |
| January 1990 | | | | | Yes | | | | |
| September 1992 | | | | | Exit | | | Yes | Exit |
| November 1992 | | | | | | | Yes | Yes | |
| January 1993 | | | | Yes | | | | | |
| May 1993 | | | | | | | Yes | Yes | |
| August 1993 | +/- 15 % fluctuation band | | | | | +/- 15 % fluctuation band | | | |

Note: The UK enters the ERM October 1990, Spain June 1989, and Portugal April 1992.

Table 2. Determinants of exchange rate realignments against the German DM (EMS: 3/1979-8/1993)

| | Model 1 | Model 2 | Model 3 | Model 4 |
|--|------------------------|----------------------|----------------------|----------------------|
| | Period dummy variables | | Year fixed effects | |
| Vote share of left parties in parliament | -1.524 (0.444)*** | -2.103 (0.926)** | -2.163 (0.426)*** | -2.468 (0.788)*** |
| Government position on Europe (positive if favorable) | -0.457 (0.192)** | -0.713 (0.201)*** | -0.440 (0.297) | -0.514 (0.314) |
| Manufactured exports to DM zone/GDP ^a | -0.696 (0.164)*** | -0.715 (0.228)*** | -0.470 (0.309) | -0.570 (0.277)** |
| Real net intra-EC transfers per-capita ^a | 0.005 (0.002)*** | 0.006 (0.002)*** | 0.006 (0.003)** | 0.006 (0.003)** |
| Vote share of left parties in parliament – ERM average of other members | | -6.304 (3.359)* | | -2.935 (2.678) |
| Government position Europe – ERM average of other members | | -2.912 (0.985)*** | | -0.562 (1.416) |
| Change in international reserves - ERM average of other members ^b | | -0.054 (0.018)*** | | -0.046 (0.011)*** |
| Trade balance ^c | 0.057 (0.036) | 0.062 (0.041) | 0.040 (0.034) | 0.038 (0.033) |
| Unemployment ^a | 0.357 (0.162)** | 0.318 (0.205) | 0.190 (0.131) | 0.224 (0.133)* |
| Change in international reserves ^b | -0.023 (0.011)** | -0.023 (0.014) | -0.030 (0.011)*** | -0.028 (0.012)** |
| DM/USD exchange rate ^c | -1.245 (0.357)*** | -2.634 (1.040)** | -1.382 (0.704)** | -1.749 (0.948)* |
| German inflation ^c | -0.924 (0.243)*** | -1.031 (0.324)*** | -1.273 (0.469)*** | -1.268 (0.433)*** |
| Change in German interest rate ^b | 0.868 (0.466)* | 1.120 (0.674)* | 0.463 (0.459) | 0.301 (0.641) |
| Real exchange rate index ^c | 0.027 (0.037) | 0.046 (0.026)* | 0.022 (0.033) | 0.030 (0.033) |
| Domestic inflation ^c | -0.144 (0.253) | -0.134 (0.246) | -0.190 (0.275) | -0.187 (0.278) |
| Period dummy: 1979/3-1983/3 | 12.751 (2.685)*** | 11.331 (2.755)*** | | |
| Period dummy: 1983/4-1987/1 | 7.427 (1.948)*** | 5.273 (1.777)*** | | |
| Period dummy: 1992/6-1993/8 | 2.677 (1.262)** | 2.151 (1.184)* | | |
| Constant | -20.833 (5.137)*** | -11.631 (5.399)** | -1.920 (6.679) | 3.429 (8.922) |
| Predicted probability – when actual realignment=1 – when actual realignment=0 | 0.21 0.03 | 0.24 0.03 | 0.22 0.06 | 0.22 0.05 |
| Years sample | 1979-1993 | 1979-1993 | 1979-1993 | 1979-1993 |
| Countries | 9 | 9 | 9 | 9 |
| Number of observations | 1125 | 1125 | 734 | 734 |
| Number of realignments | 54 | 54 | 54 | 54 |
| Log pseudo-likelihood | -154 | -143.9 | -147.73 | -145.6 |
| Pseudo-R square | 0.29 | 0.34 | 0.23 | 0.24 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. All models include country fixed effects, time between realignments, time squared and time cubed.

Table 3. Predicted probabilities of realignment when varying key variables

| Key independent variables | Predicted probability of realignment | Percent Change |
|--|--------------------------------------|----------------|
| Vote share of left = 0.32 (25 th percentile) | 0.07 [0.05-0.08] | 43% |
| Vote share of left = 0.57 (75 th percentile) | 0.04 [0.042-0.045] | |
| Government position Europe (0.7-25 th percentile) | 0.06 [0.05-0.07] | 50% |
| Government position Europe (1.8-75 th percentile) | 0.03 [0.02 -0.04] | |
| Real net intra-EC transfers per capita = -22 (25 th percentile) | 0.03 [0.028-0.036] | 50% |
| Real net intra-EC transfers per capita = 109 (75 th percentile) | 0.06 [0.045-0.07] | |
| Manufactured exports to DM zone = 3.2 (25 th percentile) | 0.17 [0.8-0.25] | 65% |
| Manufactured exports to DM zone = 7.1 (75 th percentile) | 0.06 [0.03-0.1] | |
| Vote share of left – ERM average of other members = 0.41 (25 th percentile) | 0.07 [0.042-0.09] | 43% |
| Vote share of left – ERM average of other members = 0.52 (75 th percentile) | 0.04 [0.04-0.046] | |
| Government position Europe – ERM average of other members = 0.9 (25 th percentile) | 0.1 [0.04-0.16] | 90% |
| Government position Europe – ERM average of other members = 2 (75 th percentile) | 0.01 [0.007-0.019] | |
| Change in international reserves - ERM average of other members = -2.2 percent (25 th percentile) | 0.06 [0.05-0.06] | 33% |
| Change in international reserves - ERM average of other members = 5.8 percent (75 th percentile) | 0.04 [0.035-0.04] | |

Note: Marginal effects use Model 2. Remaining variables are at average of observational values. 95% confidence intervals in parentheses.

Table 4. Alternative definitions of partisanship

| | Model 5 | Model 6 | Model 7 | Model 8 |
|--|--|----------------------|---|----------------------|
| | Government partisanship Comparative Manifesto Project | | Cabinet center of gravity Expert surveys | |
| Government partisanship (positive if left; negative if right) | -0.051 (0.028)* | -0.091 (0.039)** | | |
| Cabinet center of gravity (higher levels show the right) | | | 0.363 (0.174)** | 0.454 (0.160)*** |
| Government position on Europe (positive if favorable) | -0.249 (0.154) | -0.490 (0.213)** | -0.352 (0.268) | -0.618 (0.261)** |
| Manufactured exports to DM zone/GDP ^a | -0.802 (0.249)*** | -0.730 (0.261)*** | -0.765 (0.251)*** | -0.929 (0.368)** |
| Real net intra-EC transfers per-capita ^a | 0.004 (0.001)*** | 0.006 (0.002)*** | 0.007 (0.002)*** | 0.007 (0.003)*** |
| Government partisanship – ERM average of other members | | -0.254 (0.185) | | |
| Cabinet center of gravity – ERM average of other members | | | | -0.553 (1.338) |
| Government position Europe – ERM average of other members | | -2.593 (1.131)** | | -3.002 (1.240)** |
| Change in international reserves - ERM average of other members ^b | | -0.064 (0.018)*** | | -0.060 (0.017)*** |
| Predicted probability – when actual realignment=1 – when actual realignment=0 | 0.18 0.04 | 0.23 0.04 | 0.22 0.04 | 0.23 0.04 |
| Years sample | 1979-1993 | 1979-1993 | 1979-1993 | 1979-1993 |
| Countries | 9 | 9 | 9 | 9 |
| Number of observations | 1125 | 1125 | 1125 | 1125 |
| Number of realignments | 54 | 54 | 54 | 54 |
| Log pseudo-likelihood | -159.6 | -144.8 | -154.4 | -145.4 |
| Pseudo-R square | 0.26 | 0.33 | 0.28 | 0.32 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. Models include all controls, country fixed effects, time between realignments, time squared and time cubed.

Table 5. Restricted sample (March 1979- September 1987) and alternative definitions of partisanship

| | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 |
|--|----------------------------|----------------------|-------------------------|----------------------|------------------------------|----------------------|
| | Vote share of left parties | | Government partisanship | | Government center of gravity | |
| Vote share of left parties in parliament | -1.596 (0.456)*** | -2.233 (0.888)** | | | | |
| Government partisanship (positive if left; negative if right) | | | -0.060 (0.034)* | -0.107 (0.044)** | | |
| Cabinet center of gravity (higher levels show the right) | | | | | 0.355 (0.159)** | 0.511 (0.177)*** |
| Government position on Europe (positive if favorable) | -0.480 (0.193)** | -0.760 (0.217)*** | -0.226 (0.157) | -0.484 (0.226)** | -0.349 (0.265) | -0.643 (0.279)** |
| Manufactured exports to DM zone/GDP ^a | -0.574 (0.192)*** | -0.552 (0.208)*** | -0.675 (0.243)*** | -0.548 (0.236)** | -0.628 (0.244)** | -0.735 (0.324)** |
| Real net intra-EC transfers per-capita ^a | 0.005 (0.002)*** | 0.006 (0.002)*** | 0.004 (0.001)*** | 0.006 (0.002)*** | 0.006 (0.001)*** | 0.007 (0.002)*** |
| Vote share of left parties in parliament – ERM average of other members | | -6.377 (3.337)* | | | | |
| Government partisanship – ERM average of other members | | | | -0.288 (0.169)* | | |
| Cabinet center of gravity – ERM average of other members | | | | | | -0.127 (1.199) |
| Government position Europe – ERM average of other members | | -3.159 (1.162)*** | | -2.803 (1.299)** | | -3.274 (1.426)** |
| Change in international reserves - ERM average of other members ^b | | -0.050 (0.017)*** | | -0.060 (0.018)*** | | -0.057 (0.017)*** |
| Predicted probability – when actual realignment=1 – when actual realignment=0 | 0.2 0.05 | 0.25 0.04 | 0.19 0.04 | 0.24 0.04 | 0.20 0.5 | 0.23 0.4 |
| Years sample | 1979-1987 | 1979-1987 | 1979-1987 | 1979-1987 | 1979-1987 | 1979-1987 |
| Countries | 6 | 6 | 6 | 6 | 6 | 6 |
| Number of observations | 725 | 725 | 725 | 725 | 725 | 725 |
| Number of realignments | 38 | 38 | 38 | 38 | 38 | 38 |
| Log pseudo-likelihood | -147.7 | -137.4 | -152.5 | -138.02 | -148.2 | -139.14 |
| Pseudo-R square | 0.22 | 0.27 | 0.19 | 0.27 | 0.21 | 0.26 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. Models include all controls, country fixed effects, time between realignments, time squared and time cubed.

Table 6. Additional explanatory variables

| | Model 15 | Model 16 | Model 17 | Model 18 | Model 19 | Model 20 |
|--|--------------------------------|-----------------------|-------------------------------|----------------------|---|-----------------------|
| | Additional political variables | | Additional economic variables | | Additional political and economic variables | |
| Vote share of left parties in parliament | -1.747 (0.831)** | -2.223 (0.983)** | -2.120 (0.873)** | -2.853 (1.024)*** | -2.425 (1.389)* | -2.914 (1.372)** |
| Government position on Europe (positive if favorable) | -0.387 (0.304) | -0.664 (0.271)** | -0.406 (0.222)* | -0.659 (0.200)*** | -0.443 (0.399) | -0.671 (0.352)* |
| Manufactured exports to DM zone/GDP ^a | -0.911 (0.247)*** | -0.817 (0.169)*** | -0.897 (0.297)*** | -0.963 (0.332)*** | -1.163 (0.332)*** | -1.139 (0.408)*** |
| Real net intra-EC transfers per-capita ^a | 0.009 (0.002)*** | 0.008 (0.002)*** | 0.007 (0.005) | 0.007 (0.005) | 0.013 (0.007)* | 0.011 (0.006)** |
| Vote share of left parties in parliament – ERM average of other members | | -7.773 (3.290)** | | -7.583 (2.844)*** | | -9.488 (3.294)*** |
| Government position Europe – ERM average of other members | | -2.594 (1.026)** | | -2.411 (1.058)** | | -2.123 (1.095)* |
| Change in international reserves - ERM average of other members ^b | | -0.057 (0.019)*** | | -0.068 (0.018)*** | | -0.070 (0.019)*** |
| Minority government | -1.311 (1.030) | -0.865 (0.684) | | | -1.378 (1.076) | -0.884 (0.833) |
| Six months post election | 0.542 (0.281)* | 0.814 (0.366)** | | | 0.938 (0.352)*** | 1.178 (0.485)** |
| Six months before elections | -0.297 (0.505) | -0.066 (0.547) | | | -0.312 (0.422) | -0.176 (0.524) |
| Strikes ^a | 0.506 (0.272)* | 0.586 (0.223)*** | | | 0.229 (0.451) | 0.430 (0.478) |
| Capital controls ^a | | | -0.161 (0.521) | -0.116 (0.329) | -0.342 (0.368) | 0.026 (0.281) |
| Employment in agriculture ^a | | | 0.470 (0.316) | 0.463 (0.305) | 0.613 (0.364)* | 0.601 (0.374) |
| Fiscal balance ^a | | | -0.009 (0.166) | 0.052 (0.125) | -0.039 (0.197) | 0.040 (0.156) |
| Number of realignments in other EMS countries in past 6 months | | | -0.279 (0.088)*** | -0.311 (0.124)** | -0.298 (0.081)*** | -0.339 (0.110)*** |
| Constant | -22.688 (5.926)*** | -13.866 (4.608)*** | -35.007 (11.992)*** | -22.366 (12.734)* | -41.034 (14.060)*** | -28.603 (13.301)** |
| Predicted probability – when actual realignment=1 | 0.23 | 0.26 | 0.23 | 0.27 | 0.25 | 0.29 |
| – when actual realignment=0 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| Years sample | 1979-1993 | 1979-1993 | 1979-1993 | 1979-1993 | 1979-1993 | 1979-1993 |
| Countries | 9 | 9 | 9 | 9 | 9 | 9 |
| Number of observations | 1,125 | 1,125 | 1,116 | 1,116 | 1,116 | 1,116 |
| Number of realignments | 54 | 54 | 54 | 54 | 54 | 54 |
| Log pseudo-likelihood | -149.6 | -140 | -147.1 | -136.6 | -142.4 | -132.4 |
| Pseudo-R square | 0.31 | 0.35 | 0.31 | 0.37 | 0.34 | 0.39 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. All models include the baseline economic controls shown in Models 2 & 3, country fixed effects, time between realignments, time squared and time cubed.

Table 7. Alternative baseline specification

| | Model 21 | Model 22 | Model 23 | Model 24 |
|--|----------------------|----------------------|-------------------------------------|-----------------------|
| | Lag models | | Difference models | |
| Vote share of left parties in parliament | -2.007 (0.781)** | -2.283 (0.912)** | -1.701 (0.437)*** | -1.724 (0.392)*** |
| Government position on Europe (positive if favorable) | -0.228 (0.322) | -0.373 (0.270) | -0.548 (0.234)** | -0.760 (0.259)*** |
| Manufactured exports to DM zone/GDP ^a | -0.349 (0.346) | -0.408 (0.238)* | -0.431 (0.228)* | -0.347 (0.202)* |
| Real net intra-EC transfers per-capita ^a | 0.006 (0.003)* | 0.005 (0.003)* | 0.005 (0.002)** | 0.004 (0.002)** |
| Vote share of left parties in parliament – ERM average of other members | | -3.381 (3.632) | | -1.785 (1.247) |
| Government position Europe – ERM average of other members | | -1.453 (0.681)** | | -2.307 (1.125)** |
| Change in international reserves - ERM average of other members ^b | | -0.056 (0.012)*** | | -0.027 (0.011)** |
| Trade balance - Lag 1 | 0.044 (0.030) | 0.045 (0.032) | 1 st difference Lag 1 | 0.045 (0.019)** |
| - Lag 2 | 0.019 (0.043) | 0.018 (0.056) | 1 st difference Lag 2 | 0.023 (0.052) |
| - Lag 3 | 0.006 (0.043) | -0.001 (0.041) | | 0.045 (0.022)** |
| Industrial production - Lag 1 | 9.069 (8.053) | 9.737 (7.294) | 1 st difference Lag 1 | 12.082 (6.669)* |
| - Lag 2 | 2.440 (6.808) | 3.724 (7.870) | 1 st difference Lag 2 | 14.934 (6.777)** |
| - Lag 3 | -12.239 (6.633)* | -13.439 (7.480)* | | 11.077 (6.264)* |
| International reserves - Lag 1 | -3.353 (3.072) | -3.630 (3.539) | 1 st difference Lag 1 | -2.525 (2.388) |
| - Lag 2 | -2.121 (2.991) | -1.437 (3.254) | 1 st difference Lag 2 | -2.669 (1.906) |
| - Lag 3 | 4.581 (2.588)* | 4.241 (2.682) | | -3.007 (2.845) |
| DM/USD exchange rate - Lag 1 | -4.299 (2.630) | -3.981 (2.954) | 1 st difference Lag 1 | -4.899 (1.697)*** |
| - Lag 2 | 5.146 (3.975) | 5.602 (4.777) | 1 st difference Lag 2 | -1.851 (1.477) |
| - Lag 3 | -1.434 (1.984) | -3.304 (3.116) | | -1.709 (1.401) |
| German inflation - Lag 1 | 0.006 (0.507) | -0.053 (0.544) | 1 st difference Lag 1 | 0.691 (0.253)*** |
| - Lag 2 | -1.370 (0.474)*** | -1.333 (0.407)*** | 1 st difference Lag 2 | 0.394 (0.158)** |
| - Lag 3 | -1.320 (0.523)** | -1.146 (0.514)** | | 0.653 (0.253)*** |
| German interest rate - Lag 1 | -0.566 (0.477) | -0.397 (0.590) | 1 st difference Lag 1 | -0.469 (0.383) |
| - Lag 2 | 2.882 (0.303)*** | 2.571 (0.285)*** | 1 st difference Lag 2 | 3.435 (0.823)*** |
| - Lag 3 | -3.255 (0.688)*** | -3.189 (0.770)*** | | 0.211 (0.794) |
| Period dummy: 1979/3-1983/3 | 7.671 (2.020)*** | 6.680 (1.901)*** | | 9.555 (2.316)*** |
| Period dummy: 1979/3-1987/1 | 17.729 (3.942)*** | 17.193 (3.896)*** | | 14.478 (3.422)*** |
| Period dummy: 1992/6-1993/8 | 4.738 (1.956)** | 4.482 (1.843)** | | 2.159 (1.109)* |
| Constant | -9.310 (14.462) | -5.379 (13.152) | | -19.969 (4.625)*** |
| Predicted probability – when actual realignment=1 | 0.32 | 0.34 | | 0.25 |
| – when actual realignment=0 | 0.03 | 0.03 | | 0.04 |
| Years sample | 1979-1993 | 1979-1993 | | 1979-1993 |
| Countries | 9 | 9 | | 9 |
| Number of observations / realignments | 1125/54 | 1125/54 | | 1125/54 |
| Log pseudo-likelihood | -129.4 | -125.1 | | -140.6 |
| Pseudo-R square | 0.4 | 0.4 | | 0.35 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. All models include country fixed effects, time between realignments, time squared and time cubed.

Online Appendix

Table A1. Summary statistics

| Variable | Frequency | Obs. | Mean | Std. Dev. | Min | Max | Data source |
|--|-----------|------|-------|-----------|---------|--------|---|
| Devaluation against the DM | Monthly | 1125 | 0.05 | 0.21 | 0.00 | 1.00 | Gros and Thygesen (1998); Ozkan (2003) |
| Vote share of left parties in parliament | Monthly | 1125 | 0.47 | 0.21 | 0.02 | 0.93 | Comparative Manifesto Project (Budge et al. 2001) |
| Government position Europe (positive numbers if favorable) | Monthly | 1125 | 1.39 | 1.04 | -0.85 | 5.36 | Comparative Manifesto Project (Budge et al. 2001) |
| Vote share of left parties in parliament – average other EMS members | Monthly | 1125 | 0.47 | 0.10 | 0.20 | 0.70 | Comparative Manifesto Project (Budge et al. 2001) |
| Government position Europe – average other EMS members | Monthly | 1125 | 1.39 | 0.59 | 0.47 | 2.73 | Comparative Manifesto Project (Budge et al. 2001) |
| Change in international reserves average other EMS members | Monthly | 1125 | 2.68 | 8.16 | -16.56 | 51.32 | IMF International Financial Statistics |
| Manufactured exports to DM zone / GDP | Yearly | 1125 | 5.64 | 3.61 | 1.43 | 15.10 | Frieden (2002) |
| Real net intra-EU transfers per capita | Yearly | 1125 | 91.99 | 191.75 | -149.99 | 771.80 | Aksoy and Rodden (2009) |
| Trade balance (log) | Monthly | 1125 | -1.70 | 6.08 | -9.68 | 9.24 | IMF International Financial Statistics |
| Unemployment | Monthly | 1125 | 10.13 | 3.14 | 4.10 | 19.10 | IMF International Financial Statistics |
| Change in international reserves | Monthly | 1125 | 2.68 | 14.10 | -43.76 | 78.37 | IMF International Financial Statistics |
| DM/USD exchange rate | Monthly | 1125 | 2.03 | 0.46 | 1.45 | 3.30 | IMF International Financial Statistics |
| German inflation | Monthly | 1125 | 0.26 | 0.36 | -1.64 | 1.73 | IMF International Financial Statistics |
| Change in German interest rate | Monthly | 1125 | 0.05 | 0.40 | -1.00 | 1.00 | IMF International Financial Statistics |
| Real exchange rate index | Monthly | 1125 | 96.53 | 11.09 | 77.89 | 130.95 | IMF International Financial Statistics |
| Domestic inflation | Monthly | 1125 | 0.49 | 0.68 | -1.30 | 7.32 | IMF International Financial Statistics |
| Cabinet center of gravity | Monthly | 1125 | 3.08 | 0.55 | 2.00 | 4.12 | Frieden (2002) |
| Government partisanship | Yearly | 1125 | -1.15 | 2.97 | -10.01 | 5.11 | Comparative Manifesto Project (Budge et al. 2001) |

Table A1. Bivariate correlations: Key independent variables

| | Vote share of left parties in parliament | Cabinet center of gravity | Government partisanship | Government position Europe | Vote share of left parties in parliament – average other EMS members | Government position Europe – average other EMS members | Change in international reserves average other EMS members | Manufactured exports to DM zone / GDP | Real net intra-EU transfers per capita |
|--|--|---------------------------|-------------------------|----------------------------|--|--|--|---------------------------------------|--|
| Vote share of left parties in parliament | 1 | | | | | | | | |
| Cabinet center of gravity | -0.13 | 1 | | | | | | | |
| Government partisanship | 0.4395 | -0.7016 | 1 | | | | | | |
| Government position Europe | -0.1932 | -0.176 | 0.1845 | 1 | | | | | |
| Vote share of left parties in parliament – average other EMS members | 0.0432 | -0.0941 | 0.1546 | 0.0952 | 1 | | | | |
| Government position Europe – average other EMS members | 0.0734 | -0.1136 | 0.1204 | 0.3163 | -0.0015 | 1 | | | |
| Change in international reserves average other EMS members | 0.0382 | 0.0272 | -0.0526 | -0.1121 | 0.0369 | -0.1967 | 1 | | |
| Manufactured exports to DM zone / GDP | -0.4695 | 0.0799 | -0.111 | 0.2663 | 0.1726 | -0.0431 | -0.0185 | 1 | |
| Real net intra-EU transfers per capita | 0.3026 | 0.16 | 0.206 | -0.3279 | -0.1094 | 0.0862 | -0.0074 | -0.158 | 1 |

Table A3. Alternative measures of partisanship and year fixed effects

| | Model A1 | Model A2 | Model A3 | Model A4 |
|--|--|----------------------|---|----------------------|
| | Government partisanship Comparative Manifesto Project | | Cabinet center of gravity Expert surveys | |
| Government partisanship (positive if left; negative if right) | -0.072 (0.043)* | -0.096 (0.054)* | | |
| Cabinet center of gravity (higher levels show the right) | | | 0.581 (0.334)* | 0.373 (0.378) |
| Government position on Europe (positive if favorable) | -0.030 (0.298) | -0.126 (0.353) | -0.209 (0.292) | -0.367 (0.344) |
| Manufactured exports to DM zone/GDP ^a | -0.489 (0.253)* | -0.523 (0.294)* | -0.519 (0.378) | -0.656 (0.369)* |
| Real net intra-EC transfers per-capita ^a | 0.004 (0.002)** | 0.006 (0.002)*** | 0.008 (0.003)** | 0.008 (0.003)*** |
| Government partisanship – ERM average of other members | | -0.199 (0.096)** | | |
| Cabinet center of gravity – ERM average of other members | | | | -1.366 (0.786)* |
| Government position Europe – ERM average of other members | | -0.036 (1.449) | | -0.917 (1.397) |
| Change in international reserves - ERM average of other members ^b | | -0.049 (0.013)*** | | -0.048 (0.012)*** |
| Trade balance ^c | 0.035 (0.025) | 0.033 (0.032) | 0.036 (0.035) | 0.032 (0.035) |
| Unemployment ^a | 0.083 (0.118) | 0.204 (0.142) | 0.214 (0.170) | 0.256 (0.178) |
| Change in international reserves ^b | -0.033 (0.012)*** | -0.026 (0.012)** | -0.028 (0.011)** | -0.024 (0.011)** |
| DM/USD exchange rate ^c | 0.445 (0.725) | -0.872 (0.851) | -0.733 (0.942) | -1.192 (0.981) |
| German inflation ^c | -1.256 (0.401)*** | -1.242 (0.444)*** | -1.291 (0.448)*** | -1.278 (0.417)*** |
| Change in German interest rate ^b | 0.754 (0.487) | 0.388 (0.609) | 0.487 (0.460) | 0.318 (0.635) |
| Real exchange rate index ^c | 0.072 (0.042)* | 0.050 (0.036) | 0.052 (0.039) | 0.062 (0.041) |
| Domestic inflation ^c | -0.163 (0.226) | -0.172 (0.278) | -0.155 (0.260) | -0.148 (0.269) |
| Constant | -5.234 (7.658) | -4.791 (9.378) | -12.012 (7.150)* | -2.593 (9.504) |
| Predicted probability – when actual realignment=1 – when actual realignment=0 | 0.17 0.06 | 0.22 0.06 | 0.22 0.06 | 0.23 0.06 |
| Countries | 9 | 9 | 9 | 9 |
| Number of observations | 734 | 734 | 734 | 734 |
| Number of realignments | 54 | 54 | 54 | 54 |
| Log pseudo-likelihood | -158.6 | -146.5 | -148.4 | -145.9 |
| Pseudo-R square | 0.17 | 0.24 | 0.23 | 0.24 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. All models include country fixed effects, year fixed effects, and time between realignments, time squared and time cubed.

Table A4. Alternative definitions of partisanship

| | Model 5 | Model 6 | Model 7 | Model 8 |
|--|--|-----------------------|---|-----------------------|
| | Government partisanship Comparative Manifesto Project | | Cabinet center of gravity Expert surveys | |
| Government partisanship (positive if left; negative if right) | -0.051 (0.028)* | -0.091 (0.039)** | | |
| Cabinet center of gravity (higher levels show the right) | | | 0.363 (0.174)** | 0.454 (0.160)*** |
| Government position on Europe (positive if favorable) | -0.249 (0.154) | -0.490 (0.213)** | -0.352 (0.268) | -0.618 (0.261)** |
| Manufactured exports to DM zone/GDP ^a | -0.802 (0.249)*** | -0.730 (0.261)*** | -0.765 (0.251)*** | -0.929 (0.368)** |
| Real net intra-EC transfers per-capita ^a | 0.004 (0.001)*** | 0.006 (0.002)*** | 0.007 (0.002)*** | 0.007 (0.003)*** |
| Government partisanship – ERM average of other members | | -0.254 (0.185) | | |
| Cabinet center of gravity – ERM average of other members | | | | -0.553 (1.338) |
| Government position Europe – ERM average of other members | | -2.593 (1.131)** | | -3.002 (1.240)** |
| Change in international reserves - ERM average of other members ^b | | -0.064 (0.018)*** | | -0.060 (0.017)*** |
| Trade balance ^c | 0.049 (0.030) | 0.052 (0.039) | 0.058 (0.037) | 0.046 (0.038) |
| Unemployment ^a | 0.224 (0.099)** | 0.338 (0.223) | 0.378 (0.188)** | 0.465 (0.245)* |
| Change in international reserves ^b | -0.024 (0.011)** | -0.023 (0.014) | -0.022 (0.011)** | -0.021 (0.012)* |
| DM/USD exchange rate ^c | -0.365 (0.420) | -0.978 (0.491)** | -0.902 (0.376)** | -1.253 (0.731)* |
| German inflation ^c | -0.867 (0.173)*** | -0.991 (0.337)*** | -0.923 (0.246)*** | -1.341 (0.289)*** |
| Change in German interest rate ^b | 0.880 (0.443)** | 1.124 (0.677)* | 0.852 (0.456)* | 1.041 (0.721) |
| Real exchange rate index ^c | 0.072 (0.036)** | 0.058 (0.026)** | 0.045 (0.034) | 0.077 (0.035)** |
| Domestic inflation ^c | -0.158 (0.232) | -0.101 (0.257) | -0.143 (0.247) | -0.104 (0.247) |
| Period dummy: 1979/3-1983/3 | 13.172 (3.591)*** | 11.791 (2.910)*** | 12.594 (2.814)*** | 12.020 (2.454)*** |
| Period dummy: 1979/3-1987/1 | 8.181 (2.695)*** | 5.152 (1.668)*** | 7.284 (1.940)*** | 5.859 (1.398)*** |
| Period dummy: 1992/6-1993/8 | 2.185 (1.128)* | 2.384 (1.168)** | 2.807 (1.275)** | 1.872 (1.168) |
| Constant | -24.437 (5.620)*** | -22.358 (4.291)*** | -25.485 (4.756)*** | -24.253 (5.701)*** |
| Predicted probability – when actual realignment=1 – when actual realignment=0 | 0.18 0.04 | 0.23 0.04 | 0.22 0.04 | 0.23 0.04 |
| Years sample | 1979-1993 | 1979-1993 | 1979-1993 | 1979-1993 |
| Countries | 9 | 9 | 9 | 9 |
| Number of observations | 1125 | 1125 | 1125 | 1125 |
| Number of realignments | 54 | 54 | 54 | 54 |
| Log pseudo-likelihood | -159.6 | -144.8 | -154.4 | -145.4 |
| Pseudo-R square | 0.26 | 0.33 | 0.28 | 0.32 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. All models include country fixed effects, time between realignments, time squared and time cubed.

Table A5. Restricted sample (March 1979- September 1987) and alternative definitions of partisanship

| | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 |
|--|----------------------------|----------------------|-------------------------|-----------------------|------------------------------|-----------------------|
| | Vote share of left parties | | Government partisanship | | Government center of gravity | |
| Vote share of left parties in parliament | -1.596 (0.456)*** | -2.233 (0.888)** | | | | |
| Government partisanship (positive if left; negative if right) | | | -0.060 (0.034)* | -0.107 (0.044)** | | |
| Cabinet center of gravity (higher levels show the right) | | | | | 0.355 (0.159)** | 0.511 (0.177)*** |
| Government position on Europe (positive if favorable) | -0.480 (0.193)** | -0.760 (0.217)*** | -0.226 (0.157) | -0.484 (0.226)** | -0.349 (0.265) | -0.643 (0.279)** |
| Manufactured exports to DM zone/GDP ^a | -0.574 (0.192)*** | -0.552 (0.208)*** | -0.675 (0.243)*** | -0.548 (0.236)** | -0.628 (0.244)** | -0.735 (0.324)** |
| Real net intra-EC transfers per-capita ^a | 0.005 (0.002)*** | 0.006 (0.002)*** | 0.004 (0.001)*** | 0.006 (0.002)*** | 0.006 (0.001)*** | 0.007 (0.002)*** |
| Vote share of left parties in parliament – ERM average of other members | | -6.377 (3.337)* | | | | |
| Government partisanship – ERM average of other members | | | | -0.288 (0.169)* | | |
| Cabinet center of gravity – ERM average of other members | | | | | | -0.127 (1.199) |
| Government position Europe – ERM average of other members | | -3.159 (1.162)*** | | -2.803 (1.299)** | | -3.274 (1.426)** |
| Change in international reserves - ERM average of other members ^b | | -0.050 (0.017)*** | | -0.060 (0.018)*** | | -0.057 (0.017)*** |
| Trade balance ^c | 0.046 (0.038) | 0.053 (0.049) | 0.046 (0.035) | 0.044 (0.045) | 0.047 (0.039) | 0.036 (0.043) |
| Unemployment ^a | 0.288 (0.115)** | 0.228 (0.144) | 0.166 (0.070)** | 0.232 (0.167) | 0.310 (0.149)** | 0.359 (0.184)* |
| Change in international reserves ^b | -0.024 (0.011)** | -0.025 (0.013)* | -0.025 (0.011)** | -0.026 (0.014)* | -0.022 (0.011)** | -0.023 (0.011)** |
| DM/USD exchange rate ^c | -1.191 (0.403)*** | -2.576 (1.202)** | -0.372 (0.476) | -0.846 (0.604) | -0.828 (0.439)* | -1.022 (0.788) |
| German inflation ^c | -1.013 (0.258)*** | -1.127 (0.362)*** | -0.935 (0.192)*** | -1.038 (0.381)*** | -1.013 (0.256)*** | -1.421 (0.335)*** |
| Change in German interest rate ^b | 1.039 (0.536)* | 1.378 (0.776)* | 1.053 (0.528)** | 1.396 (0.786)* | 1.018 (0.521)* | 1.312 (0.841) |
| Real exchange rate index ^c | 0.024 (0.040) | 0.041 (0.029) | 0.067 (0.036)* | 0.055 (0.027)** | 0.042 (0.036) | 0.073 (0.035)** |
| Domestic inflation ^c | -0.129 (0.258) | -0.125 (0.251) | -0.138 (0.242) | -0.089 (0.261) | -0.126 (0.252) | -0.094 (0.251) |
| Period dummy: 1979/3-1983/3 | 11.857 (3.215)*** | 11.339 (3.129)*** | 13.193 (3.637)*** | 11.615 (3.296)*** | 11.563 (3.290)*** | 12.052 (2.865)*** |
| Period dummy: 1979/3-1987/1 | 5.965 (2.506)** | 4.533 (1.879)** | 7.545 (2.749)*** | 4.118 (1.886)** | 5.680 (2.627)** | 5.032 (1.462)*** |
| Constant | -20.026 (6.090)*** | -11.457 (6.882)* | -24.615 (6.351)*** | -22.364 (5.750)*** | -24.690 (5.874)*** | -25.891 (7.045)*** |
| Predicted probability – when actual realignment=1 | 0.2 | 0.25 | 0.19 | 0.24 | 0.20 | 0.23 |
| – when actual realignment=0 | 0.05 | 0.04 | 0.04 | 0.04 | 0.5 | 0.4 |
| Years sample | 1979-1987 | 1979-1987 | 1979-1987 | 1979-1987 | 1979-1987 | 1979-1987 |
| Countries | 6 | 6 | 6 | 6 | 6 | 6 |
| Number of observations | 725 | 725 | 725 | 725 | 725 | 725 |
| Number of realignments | 38 | 38 | 38 | 38 | 38 | 38 |
| Log pseudo-likelihood | -147.7 | -137.4 | -152.5 | -138.02 | -148.2 | -139.14 |
| Pseudo-R square | 0.22 | 0.27 | 0.19 | 0.27 | 0.21 | 0.26 |

Note: Table shows coefficients and robust country clustered standard errors in parentheses. Stars reflect levels of statistical significance: *** 1%; ** 5%; * 10%. ^a: yearly values, lagged one year; ^b: three month changes; ^c: one month lag. All models include country fixed effects, time between realignments, time squared and time cubed.