

Handbook of the International Political Economy of Monetary Relations

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11 Exchange rates in transition economies

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Over the last 20 years, the transformation of centrally planned economies has held great attraction for both economists and political scientists. The exchange rate and monetary strategies are particularly interesting due to their role in economic development in the post-communist region. Under the command economy, the exchange rate served as an accounting unit for statistical purposes, but it had a very limited impact on actual trade flows (Radzyner and Riesinger 1996, 20). After the collapse of the Soviet-type socialist system, market institutions were virtually non-existent, and market mechanisms were weak or absent. In this context, the exchange rate has served as the most important asset price.

The choice of exchange rate regime, between fixed and floating exchange rates, has been a key macroeconomic policy decision in post-communist countries, albeit a highly contested one (Pomfret 2003, 600). The question of exchange rate regime choice in Eastern Europe (EE) is intriguing because in spite of the (arguably) similar starting point, transition countries adopted rather diverse exchange rate regimes, ranging from free floats to currency boards, and they experienced several regime shifts. These shifts were the result of proactive policy management as well as forced changes related to financial crises. Sharply different regimes continue to coexist, so exchange rate regimes in the transition region exhibit a degree of heterogeneity both across countries and over time.

How can we explain the exchange rate and monetary policy choices that countries in transition make? What theories do we have to explain the nature of countries' monetary relations? Both economists and political scientists offer myriad answers to these questions. The central economic theory that informs our understanding of the benefits and costs of fixed versus flexible regimes is the theory of optimum currency areas. In spite of substantial evidence that political factors, such as interest groups, electoral cycles, and other political institutions of democracy, have influenced economic reforms and policies in EE countries (Roland 2002; Hellman 1998; Murphy et al. 1992; Frye and Mansfield 2004; Johnson 2000), only a handful of scholars have explored the role of political factors in exchange rate regime choice. Political economy explanations are diverse, but revolve around at least four sets of factors: the role of interest groups; domestic political institutions; ideas and identities; and international influences on decisions of governments.¹ These factors have been evaluated with both econometric analyses and in-depth studies of national experiences. What is clear from recent scholarship is that both economic and political factors influence decisions of policymakers in the exchange rate area. There is, however, no agreement on the relative weights of these factors and the nature of their interactions.

This chapter highlights how research on the monetary and exchange rate policies in formerly command economies has contributed to the broader literature on international monetary relations. The 27 countries of the former Soviet Union and Eastern Europe fit into the category of economies in transition. This chapter does not include all important

works on exchange rates: too much has been written over the past 20 years, particularly by economists, to cover in a brief review. It will not seek to make a case for the analytical superiority or empirical primacy of discrete theoretical traditions.

VIVE LA DIFFÉRENCE

EE states began the post-communist transformation with similar legacies of communism.² As Table 11.1 depicts, the EE countries also had roughly similar macroeconomic imbalances, particularly high inflation, and faced similar reform program agendas known as the 'Washington Consensus.'³ Thus, they were expected to adopt similar exchange rate policies (Sachs 1991; Fischer et al. 1997; Shleifer and Vishny 1998; World Bank 1996). However, the governments of these countries adopted different exchange rate regimes at the beginning of transition. No uniform trend or particular direction seems to characterize the evolution of these regimes during the transition period, either. These states have also used different anchor currencies in different time periods. Some used the US dollar (Albania and many post-Soviet republics), while others pegged their currencies to the Deutsche mark or euro (ex-Yugoslav republics, Central European countries, and the Baltics). Latvia is an interesting case: its central bank pegged the national currency to the Special Drawing Right (SDR) before transitioning to the euro in 2004.

Nor is progress in political and economic reforms in EE countries correlated with their choices of particular regimes. On the one hand, the frontrunners in transition have opted for different regimes. In 2004, the Czech Republic exhibited a managed float, while Estonia pursued a currency board. On the other hand, transition leaders and laggards adopted similar regimes: compare again the Czech Republic, the leader in transition, with Albania or Moldova, transition laggards: these three exhibited flexible regimes. At one extreme of the exchange rate regime spectrum is the currency board. In the currency board system, monetary authorities lose control over the money supply, which is replaced by an automatic mechanism that links money supply changes to the balance of payments. Three EE countries introduced currency boards: Estonia in 1992, Lithuania in 1994, and Bulgaria in 1997.⁴ More recently, inflation targeting has become fairly popular in a number of countries.⁵ The post-communist countries have also been part of two regional monetary ventures: some joined European Monetary Union (EMU) (Slovenia in 2007, Slovakia in 2009, and Estonia in 2011), while others were members of the failed ruble zone experiment.

Equally puzzling is why many EE countries practiced exchange rate regimes that were, in fact, different from those they officially proclaimed. Attempting to explain these exchange rate discrepancies in EE countries, Von Hagen and Zhou (2005b) suggest that changing an officially proclaimed exchange rate regime is associated with costs, including loss of credibility; while adjusting an actual regime that does not involve the central bank commitment is less costly. As a result, governments tended frequently to adjust *de facto* regimes to 'fine tune' the official regime to respond to macroeconomic developments, while they changed official regimes only when the benefits of such a regime change exceeded the associated costs.

Table 11.2 is a systematic presentation of the evolution of exchange rate regimes in EE, reporting the percentages of country observations that fall into two categories of

Table 11.1 Exchange rates and inflation stabilization, 1990–2007

Country	Pre-program inflation ¹	Stabilization program date	Initial exchange rate regime (<i>de jure</i>)	Exchange regime in 2007 (<i>de jure</i>)	Exchange rate regime in 2007 (<i>de facto</i>)
Albania	293	Aug 92	Fixed	Flexible	Fixed
Armenia	1885	Dec 94	Flexible	Flexible	Flexible
Azerbaijan	1651	Jan 95	Flexible	Fixed	Fixed
Belarus	2180	Nov 94	Flexible	Fixed	Fixed
Bulgaria	245	Feb 91	Flexible	Fixed	Fixed
Croatia	1903	Oct 93	Fixed	Flexible	Fixed
Czech Republic	46	Jan 91	Fixed	Flexible	Fixed
Estonia	1086	Jun 92	Fixed	Fixed	Fixed
Georgia	56476	Sep 94	Flexible	Flexible	Fixed
Hungary	26	Mar 90	Fixed	Fixed	Fixed
Kazakhstan	2315	Jan 94	Flexible	Flexible	Fixed
Kyrgyz Republic	934	May 93	Flexible	Flexible	Fixed
Latvia	818	Jun 92	Flexible	Fixed	Fixed
Lithuania	709	Jun 92	Flexible	Fixed	Fixed
FYR Macedonia	248	Jan 94	Flexible	Fixed	Fixed
Moldova	1090	Sep 93	Flexible	Flexible	Fixed
Poland	1096	Jan 90	Fixed	Flexible	Flexible
Romania	314	Oct 93	Flexible	Flexible	Flexible
Russia	218	Apr 95	Flexible	Flexible	Fixed
Slovak Republic	46	Jan 91	Fixed	Fixed	Fixed
Slovenia	288	Feb 92	Flexible	Fixed	Fixed
Tajikistan	73	Feb 95	Flexible	Flexible	Fixed
Turkmenistan	20	NA	Flexible	Fixed	na
Ukraine	645	Nov 94	Flexible	Fixed	Fixed
Uzbekistan	1555	Nov 94	Flexible	Flexible	na

Notes:

The following regimes were coded as fixed: no separate legal tender, pre-announced peg or currency board, pre-announced horizontal band of less than $\pm 2\%$, de facto peg, pre-announced crawling peg, pre-announced crawling band of less than $\pm 2\%$, de facto crawling peg, and de facto crawling band of less than $\pm 2\%$.

A pre-announced crawling band of less than $\pm 2\%$, a de facto crawling band of less than $\pm 5\%$, moving band of less than $\pm 2\%$, managed floating, freely floating, freely falling, and hyperfloating were coded as flexible.

1. Pre-program inflation is inflation in the 12 months prior to the month of the stabilization program. Inflation is calculated from December to December.

Source: Fischer and Sahay (2000); Reinhart et al. (2008); IMF Annual Reports on Exchange Rate Regimes and Restrictions.

exchange rate regimes – fixed and float – during three sample periods, comparing *de facto* with *de jure* classifications. There has been a steady decline in the number of EE countries with *de jure* fixed regimes over the period 1990–2004, while simultaneously, the shares of official floats increased. The opposite, even more dramatic trend is noticeable with regard to *de facto* regimes. This difference between announced and actual exchange rate

Table 11.2 *Exchange rate regimes in transition economies, 1990–2004*

	<i>De jure</i> exchange rate regime		<i>De facto</i> exchange rate regime	
	Fix (%)	Float (%)	Fix (%)	Float (%)
1990–1994	39.74	60.26	17.39	82.61
1995–1999	23.48	76.53	45.00	55.00
2000–2004	37.19	62.81	73.51	26.49

Source: Based on Reinhart et al. (2008).

policies suggests that EE countries have been prone to ‘fear of floating,’ that is, officially claiming to run floats but intervening frequently in their foreign exchange markets to reduce exchange rate volatility, although monetary authorities had no official commitment to maintaining the parity (Calvo and Reinhart 2002). Some studies have highlighted this tendency on the part of some new European Union (EU) member countries whose central banks have paid considerable attention to the exchange rate policy in more recent years, despite fairly flexible official regimes (Frommel and Schobert 2006).⁶

In sum, the variation in exchange rate policies over nearly two decades and from country to country in the transition region cannot be easily attributed to systemic factors, common legacies, similar reform tasks, or integrationist ambitions. Attempting to explain this variation in exchange rate regimes across countries and over time has been an important task for economists and political scientists.

THE ECONOMICS OF EXCHANGE RATES IN TRANSITION

Economists remain interested in two broad issues: optimal exchange rate regime and the welfare effects of exchange rate policies. The economic research has produced a massive literature on what the optimal exchange rate regime should be. This research has been directed at the normative debate surrounding the choice of exchange rate regime; whether or not states ought to peg or float. The normative question revolves around weighing the costs of one exchange rate regime choice relative to the costs of the others. However, there is a lack of agreement among scholars on the optimal exchange rate strategies for EE countries. Some recommended that EE countries adopt more flexible arrangements once high inflation was eliminated and capital controls abolished (Sachs 1996). Others cautioned that floats do not provide as much insulation from the dangers of excessive speculative flows as conventional theory predicts (Coricelli 2002; Coricelli et al. 2006). Still others went further, suggesting the adoption of the Deutsche mark or euro currency boards (Hanke et al. 1992) and making the case for full euroization by declaring the euro to be legal tender or encouraging its use (Gros 2002; Coricelli 2002; Sulling 2002; Nuti 2002). Unilateral euroization would allow countries that are unable or unwilling to join a monetary union to enjoy most membership benefits, including lower transaction costs, lower interest rates, and lower exposure to speculative attacks. A credible adherence to a euro peg should also facilitate the necessary structural and institutional changes in EE countries.

Economists have also been concerned with the welfare consequences of national choices of exchange rate regimes. To this end, they have explored the effects of the exchange rate regime on long-run economic growth through real exchange rate volatility, macroeconomic stability, trade, and inflation. One lesson of the post-communist transformation is that a fixed regime is more effective than a flexible one in the disinflation process (Nehrllich 2002; Domac et al. 2001; Obstfeld 1995; Williamson 1993; Rosati 1996). But the existing empirical studies are inconclusive with regard to the superiority of a particular exchange rate regime in terms of overall growth performance. Lower nominal exchange rate volatility in fixed exchange rate regime countries was generally associated with higher growth but also with more 'excess' credit and greater external imbalances, and thus greater output fall during the recent financial crisis than in flexible regime countries (Arratibel et al. 2011). These findings are not unique to transition economies and confirm the general conclusion in the literature that, in contrast to trade policy, where there are strong economic arguments for the welfare superiority of free trade, there is no clear economic-efficiency argument for an optimal exchange rate regime. In other words, there is little evidence that the exchange rate regime per se has substantive consequences for economic growth (Ghosh et al. 2002; Klein and Shambaugh 2010). The rest of the chapter examines how economists and political scientists have attempted to explain the variation in exchange rate regime choices across countries and over time, both theoretically and empirically.

OPTIMUM CURRENCY AREA THEORIES

The principal set of economic explanations is associated with the theory of optimum currency areas (OCAs), according to which the choice of exchange rate regime depends on the structural characteristics of an economy. Strictly speaking, OCA theory applies predominantly to adopting a common (perhaps) new currency. But for most analysis of OCAs, the distinction between a fixed exchange rate and a common currency is not important (except for minor issues of transaction costs and seigniorage) (Canzoneri and Rogers 1990). Therefore, OCA analysis has been applied to assess the desirability of choosing a fixed exchange rate regime. The 'traditional' OCA theory stipulated the criteria to assess fixed rate regimes against flexible ones, including the symmetry of external shocks, degree of labor mobility, size and degree of openness, and extent of economic diversification (Mundell 1961; McKinnon 1963; Kenen 1969).

The central conclusion of empirical investigations has been that the OCA literature provides considerable guidance for the choice of exchange rate regimes in EE (Von Hagen and Zhou 2005a; Bénassy-Quéré and Lahrèche-Révil 2000; Coricelli 2002). Yet, some studies find a certain degree of misfit between the structural characteristics of EE economies and their exchange rate strategies. Contrary to OCA expectations, larger EE countries were more likely to fix their currencies than were smaller ones (Von Hagen and Zhou 2005a). Furthermore, from the perspective of OCAs, by reducing exchange rate risk and transaction costs, a fixed regime is likely to encourage trade and investments. Thus, small, open economies with a high proportion of economic agents sensitive to exchange rate risk will gain in trade and welfare derived from pegging their currencies to the currency of their large trading partner (Eichengreen and Leblang 2003). The

cross-national evidence from the post-communist world, however, challenges this argument. There is evidence that countries whose trade is more concentrated with Germany or the eurozone have been less likely to peg their exchange rates to the Deutsche mark or the euro. Some authors explain this counterintuitive effect of trade concentration on currency regime choice by differences in initial conditions in terms of trade with the West. Thus, countries with historically close economic ties and a 'natural' trade relationship with Western Europe have had fewer incentives to fix their exchange rates than do those with a lower degree of geographical trade concentration on EU countries (Frieden et al. 2010). Others refer to the 'sustainability hypothesis,' according to which open economies with a high degree of geographical trade concentration are more vulnerable to external shocks, thus facing difficulties in sustaining fixed exchange rates (Markiewicz 2006).⁷ Particularly in the early years of transition, EE countries generally opted for pegs to a currency basket containing over 30 percent United States (US) dollars (Bénassy-Quéré and Lahrière-Révil 2000).

Another structural factor, the development of a country's financial sector, may play a more significant role in exchange rate regime choices in the transition region than elsewhere. Debates about the nature and capacity of financial systems to promote long-term economic growth have been central to work on post-communist transitions.⁸ As predicted by OCA theory, one should expect countries with underdeveloped financial systems to choose currency pegs because they lack the market instruments to conduct open market operations, and they want to protect their banks against exchange rate instability (McKinnon 1991). A number of empirical works have confirmed these expectations, whether financial development was measured by the ratio of broad money (von Hagen and Zhou 2005a) or by private credit with commercial banks as a share of gross domestic product (GDP) (Markiewicz 2006; Frieden et al. 2010). Some, however, question the use of the latter measure of financial development in the post-communist context, as it does not reflect an improvement in access to finance by firms (Fries 2005).

The OCA theory is the principal theoretical framework for analyzing European monetary integration, examining the question of whether the EU constitutes an optimal currency area (Eichengreen and Bayoumi 1996). The essence of OCA theory is that the benefits of monetary unification (transparent prices, lower transaction costs, greater certainty for investors, enhanced competition) are balanced against the costs of sacrificing monetary and fiscal autonomy (Frankel and Rose 2002). The costs of forgoing monetary autonomy are linked to the asymmetry of economic shocks with potential anchor countries. In other words, the theory predicts that the costs of abandoning monetary independence (and of a flexible exchange rate) for a potential currency union member are lower if there is a high correlation in business cycles between that country and the anchor country (Frankel 1995).

When the transition states became EU members, they formally committed to joining EMU. This spurred a substantial amount of new research examining the business cycle correlation between these countries and the euro area (or Germany). The emerging conventional wisdom from these studies is that business cycles in several EE countries are as well synchronized with the euro area as those of its smaller, peripheral members (Portugal or Greece). The highest degree of business cycle correlations has been reported for Hungary, Slovenia, and Poland (Fidrmuc and Korhonen 2006; Furceri and Karras 2006).⁹ Notwithstanding, it appears that the decisions of the EE governments to peg or

join the monetary union may be motivated by factors not related to the OCA criteria. For instance, all Baltic countries pursue very rigid currency boards despite the relatively low synchronization of their business cycles with the euro area cycle.

Similarly, the debate on monetary and exchange rate arrangements in the post-Soviet states was initially couched in terms of OCAs.¹⁰ Some economists pointed to the desirability of retaining the ruble zone for the Soviet successor states, considered to be an optimum currency area mainly because internal trade among the constituent republics was greater than trade with outsiders. According to this argument, since intra-Union of Soviet Socialist Republics (USSR) trade was disrupted and the tendency to use barter accelerated, the common currency – the ruble – was seen as a bulwark against unfavourable economic developments in the early 1990s (Corden 1992). While this view gained considerable credence, other studies emerged that identified the major problems associated with membership in the ruble zone from the perspective of individual republics, as well as the reasons behind its collapse (Pomfret 2003; Abdelal 2001). According to these studies, the initial Russian reform program based on a restrictive monetary policy caused a shortage of cash, which led the other members to issue parallel currencies to alleviate it. But more importantly, the institutional setting of the ruble zone encouraged inflationary monetary policy. While all members retained control over domestic credit creation, there was no institution to exert monetary control of the ruble. As a result, many ex-Soviet republics exited the ruble zone just before Russia itself dissolved it in the summer of 1993.

In sum, OCA theory appears to be a 'major casualty' of the transition experience, as Pomfret (2003, 604) puts it. OCA explanations appear to be insufficient because they cannot fully explain why important differences in exchange rate policies have been observed among EE economies with similar economic structures. The costs and benefits of exchange rate regimes are seen from the perspective of a benevolent social planner seeking to maximize social welfare. In contrast, political scientists have been less concerned with the economic consequences of exchange rate regimes, focusing instead on their distributional consequences.¹¹ They underscore that what is optimal for a domestic economy as a whole may not be optimal for particular societal groups.

INTEREST GROUP APPROACHES

In a direct challenge to OCA, societal approaches consider exchange rate policy outcomes as a function of political competition among 'policy demanders' – interest groups, economic sectors, and voters – with different preferences and unequal political and economic power. Interest group models have attempted to delineate the groups that should favor and oppose a fixed exchange rate regime. Much of the literature on preferences for exchange rate policy has tried to deduce preferences of interest groups and economic sectors from economic theories of trade.

Frieden (1991, 2002) provides the most widely cited 'sectoral' (interest group) model of exchange rate regime choice, in which the preferences of domestic economic actors are determined by their sectoral interests. He employs the Ricardo–Viner model (endogenous tariff theory in international trade), which predicts that factors of production specific to import-competing (exporting) industries will be protectionist (free trade). Therefore, Frieden's model predicts support for fixed exchange rates from the groups

heavily involved in international trade and investments (such as international investors and exporters) because currency volatility may negatively influence their cross-border business activities. In contrast, non-tradable sectors and import-competing producers should prefer flexible regimes.

Can these deductive models of interest group preferences explain exchange rate regime choices? At a general level, interest group models have been challenged for their inability to specify a mechanism for selecting among powerful interest groups claiming governmental resources. In other words, they can provide useful deductive tools for identifying the preferences for exchange rate policy, at least in developed countries, but may be less equipped to explain actual regime outcomes.

An additional concern is the ambiguity in sectoral accounts concerning the preferences of some sectors. Using data from 21 transition economies, Frieden et al. (2010) find empirical support for the hypothesis that tradable producers benefit from depreciation and thus would oppose fixed regimes, while foreign investors, lenders, and borrowers, who dislike currency volatility, would favor it. So, exporters face a dilemma between concerns about currency volatility associated with higher risk and transaction costs and a desire to benefit from competitive real exchange rates.

Focusing on the role of interest groups and economic sectors seems appropriate when examining currency regime choices in EE countries because their institutional arrangements, insulated from popular pressures during most of the transition period, have rewarded narrow societal interests. Yet, the empirical evidence from the post-communist cases suggests a more nuanced and more dynamic view of interest group politics. Scholars of transition have advanced the notion that big winners from post-communist economic reforms were sufficiently powerful to capture the state and influence the further course of reforms (Hellman 1998). At the outset of transition, the industrial landscape was dominated by the powerful industrial lobbies in the heavily subsidized and non-competitive manufacturing sectors that survived the breakdown of communism. When EE governments opened their markets, these industries faced competitive international pressures to adjust but were well placed to use their political power to preserve their positional rents.

Recognizing the post-communist reality, one study explains the exchange rate management in the first years of transition as a bargaining game of governments with two groups of producers: 'old' and 'new' (Colombato and Macey 1995). Applying a public-choice approach, this study suggests that old producers in the tradable sectors, benefiting from their privileged position after the collapse of communism, wanted to preserve a protected economy, either by means of limited convertibility or appreciating exchange rates, so they could ask for state protection (for example, subsidies). In contrast, a flexible regime would not only delay state intervention, but would also facilitate entry of new producers.

Some recent research has challenged whether sectoral models are able to account for the change of sectoral exchange rate preferences. In a study of the politics of delayed devaluation and financial crisis in Russia (1998) and Argentina (2001), Woodruff (2005) applies the balance sheet approach to explore the dynamism of exchange rate preferences.¹² Firm balance sheets record an array of choices (for example, how much and in what currency to borrow) that determine how the financial circumstances of the firm will be affected by monetary turmoil, and thus reflect the time-varying exchange rate preferences of firms. Woodruff (2005) advances the notion that exchange rate-based stabilization programs

adopted in both countries to combat high inflation set off 'a dynamics of political "lock-in,"' creating powerful interest groups fighting to avoid devaluation. Therefore, he further argues, the tenacity with which monetary authorities of both countries resisted a timely devaluation of their currencies was motivated by the desire to avoid harming powerful tradable sectors and banks, particularly those that expected to use domestic-currency revenues to fulfill their foreign-currency obligations. But there is yet another element of this story that explains the political resilience of currency pegs. The supporters of potential devaluation did not push for currency debasement because they were offered alternative ways of satisfying their interests, such as tariff barriers or monetary surrogates. These more dynamic models of exchange rate policies and societal preferences are an important area of research helping us to explain exchange rate preferences and currency crises in developing countries in recent decades, including the Mexican crisis of 1994, the Asian crisis of 1998, and the Turkish crisis of 2001, to name just a few.

The post-communist cases also remind us that the reform process can change the balance of power among groups gaining and losing from reform in ways that are difficult to capture in a static analysis. Economic reforms that create new private actors (firms, banks) generate their own constituencies in support of reforms and sustainable exchange rate policies, while reforms that preserve the status quo and concentrated benefits to incumbent interest groups may result in monetary regimes allowing rent extraction.

My work (Grittersová 2009, 2013) extends this argument by asking how the ownership of the banking sector affects exchange rate regime. I emphasize that banks' interests depend on the nature of their ownership, which can take three forms: state-owned, private domestic, and foreign. My study advances the debate on exchange rates by tracking the entry of foreign private banks over time, and by demonstrating precisely how the presence of foreign banks compels governments to adopt and sustain fixed exchange rate regimes. I also advance the notion that when financial systems remain dominated by state-owned banks, governments lack the political support, willingness, and ability to commit credibly to low inflation and public debt to make fixed regimes sustainable and resistant to speculative attacks. Market participants have a limited confidence in the viability of these commitments, often forcing governments to abandon currency pegs in the face of banking and currency crises.

The preferences of other domestic actors have also been the focus of attention in studies on exchange rate policies in EE. Some researchers focus on individual voters. Valev (2005), for example, examined the determinants of the public support and opposition to official euroization in Bulgaria using survey data. The surveys revealed that voters' preferences are in conformity with the existing economic theories: Bulgarian voters supported euroization because it promised to eliminate the risk of devaluation, increase foreign direct investment, and enhance integration with the EU. Opponents strongly felt that the abandonment of a national currency meant the loss of a national symbol. Perhaps more important, contrary to standard assumptions, these surveys revealed that constituents had a good understanding of the operation of currency boards and associated them with loss of monetary policy and with fiscal austerity. In his subsequent work with Carlson (Valev and Carlson 2007), Valev examined the origins of 'incomplete credibility' of the Bulgarian currency board, using data from five national household surveys. Building on earlier work by Drazen and Masson (1994) that relates the imperfect credibility of fixed regimes to persistently high unemployment, these authors similarly

found that the majority of voters believed that the currency board contributed to high unemployment. As a result, voters perceived the currency board as unsustainable due to its limited impact on output stabilization policies in the face of high unemployment; although their confidence increased the longer the peg was in place.

The problem of weak micro-foundations is a common shortcoming in theories that dominate the political economy of international monetary relations. Interest group models have often been criticized, as they do not provide a theory of how preferences are aggregated at any level, let alone the national one. The advantage of the approach focusing on micro-level data is that it helps us to determine whether the population perceives the costs and benefits of a particular exchange rate regime on the national, firm, or personal level. For instance, contrary to expectations, firm-level data on sectoral attitudes over the exchange rate examined by Broz et al. (2008) reveals that most EE enterprises did not usually consider the exchange rate as an obstacle to their business activities. Arguments based on sturdier micro-foundations enable us to determine whether the actual regime outcomes were influenced by domestic or international factors.

Finally, the empirical reality in EE suggests that exchange rate policies have not replaced trade policy as a compensatory instrument for domestic interest groups in the world of trade integration and capital mobility. Supporters of this view (Drabek and Brada 1998) argue that the pursuit of exchange rate-based stabilization programs in EE countries, based on the belief that a stable nominal exchange rate would provide strong signals to investors about the comparative advantages of the country, has led to appreciation of the real exchange rates and deterioration of trade balances in the conditions of high inflation and low productivity growth. This has spurred the rise of protectionist lobbies pressuring governments to increase trade barriers (particularly import-restrictive measures). In other words, contrary to the arguments based on evidence from outside the region, these interest groups preferred trade protection over external monetary remedies (Henning 1994).

CREDIBILITY AND POLITICAL INSTITUTIONS

Another set of arguments emphasizes credibility-related considerations, based on the idea that a country with a history of high inflation or previous failed attempts at decreasing inflation will have an incentive to adopt a fixed exchange rate as a nominal anchor to import the credibility of low-inflation policies from a foreign central bank (Giavazzi and Pagano 1988; Fratiani and von Hagen 1992; Alesina and Barro 2002). This view is based on rational expectation theories examining the time-inconsistency problem in monetary policy. These theories build from the premise that governments have the ability to use surprise inflation to generate short-term gains in output (Kydland and Prescott 1977; Barro and Gordon 1983). Because private actors anticipate this behavior, the attempts of policymakers to create inflationary surprise will be neutralized and the economic outcome will be higher inflation without additional output. The key to solving the time-inconsistency problem is credibility. The exchange rate provides a highly visible, easily verifiable target. It serves to increase the credibility of non-inflationary announcements and to reinforce a government's commitment to macroeconomic stabilization.

An exchange rate commitment is particularly desirable in societies where central banks are not independent, lack credibility, and lack political support for market-based discipline. There is a widespread belief that the adoption of fixed regimes served as a 'policy crutch' for EE governments who valued price stability, since it removed monetary policy from the political arena (Markiewicz 2006; Frieden et al. 2010). In the initial reform phase, fighting against high inflation and establishing credibility on international markets were the top priorities of policymakers in most EE states. Price liberalization at the beginning of transition resulted in high inflation, even a wage-price inflationary spiral in some countries. The 12-month pre-stabilization inflation rates ranged from hyperinflation of 57 000 percent per annum to 26 percent in Hungary, as Table 11.1 shows. The view of the efficacy of the exchange rate anchor has gained considerable credence among the scholars of transition, suggesting that EE governments adopted a fixed regime, in the form of exchange rate-based stabilization programs that link the value of domestic currency to the authoritative international currencies, for reputation-building purposes and to break the inflationary inertia.

An independent central bank has been identified as an alternative source of credibility. In this view, fixed exchange rates and independent central banks are considered to be alternative ways to reduce the inflationary bias in monetary policy (Bernhard et al. 2003). An independent central bank, with price stability as its primary goal, should thus reduce the government's need to resort to fixed exchange rates. The evidence, including that from the post-communist world, however, challenges this substitution argument. In terms of legal reforms, post-communist governments have granted their central banks more independence than most developed countries in the 1980s, as Cukierman et al. (2002) and Dvorsky (2000) report. But many transition countries have used different mixes of these anti-inflationary institutions: some choose both an independent central bank and a fixed exchange rate regime, while others choose only one institution or none. Bodea (2010a) explains this empirical pattern by pointing to the particular disadvantages of each individual institution to deliver greater credibility, which motivated governments to 'doubly tie their hands.' Therefore, in addition to substitution between fixed rates and an independent central bank, there is potentially also a complementarity, where both institutions aim at delivering low inflation but each institution can deliver this goal only imperfectly.¹³ This is not surprising given the complex transitional economic conditions and underdeveloped financial markets which made it more difficult for post-communist central banks to ensure price stability than for their counterparts in advanced economies.

While central banks are important, scholars have identified other political institutions that matter for exchange rate policies. Political institutions aggregate the preferences of societal actors and may shape the ways in which these preferences are translated into policy. The structure of the government and the nature of the party system have been seen as important institutional factors influencing exchange rate policy. The theoretical literature does not yield clear predictions concerning the effect of ideological political parties on monetary institutions.¹⁴ Bodea (2010b), who expands on the work of Milesi-Ferretti (1995),¹⁵ suggests that post-communist left-wing governments were less likely to realign fixed exchange rate regimes, even when markets tested their resolve, because they enjoyed disproportionate credibility from these regimes.

The post-communist cases remind us about the importance of the duration or sustainability of chosen exchange rate regimes, which condition the effects of exchange

rates on economic outcomes. Why do governments often violate their exchange rate commitments? The post-communist countries experienced more switching between fixed and flexible regimes than did other regions, though new EU members changed regimes less frequently and the average size of adjustment was smaller than in other EE economies (Von Hagen and Zhou 2005b). Guided by the conventional wisdom emerging from prominent political-economy studies (Edwards 1996), empirical analyses from the post-communist world confirmed that strong governments operating in stable political environments are more likely to pursue an exchange rate peg, because they are better able to withstand the political costs of a possible currency crisis and make the peg sustainable (Markiewicz 2006). A slightly different argument suggests that many governments in post-Soviet republics were unable to commit credibly to responsible monetary and fiscal policies that would make a fixed exchange rate regime sustainable and durable, although given their geographic location and trade patterns, they were also disadvantaged by the lack of a natural anchor currency (Kluyev 2002).¹⁶ This is in line with De Grauwe's (1992, 53) insight, according to which merely fixing the exchange rate does not solve the credibility problem because a weak government is likely to renege on its commitment rather than carry unpopular policies to sustain the peg.

An interesting extension of this literature is Stone (Stone and Bagashka 2013), who models the implications of breaking an exchange rate commitment for the government tenure as a signaling game of exchange rate regime choices between rational voters and governments. These authors argue that the political costs of breaking such commitments should be conditional on government partisanship. Using data from the post-communist countries, they find that left-wing governments – perceived to be more prone to inflationary policies, thus suffering from greater distrust by the markets than right-wing governments – are less likely to renege on exchange rate commitments, but more likely to fall when they do so.

There is a consensus in the literature that 'good institutions' are important; but how countries develop them is a subject of debate (Acemoglu et al. 2001; Sokoloff and Engerman 2000). One prominent school, often associated with so-called 'shock therapy' economic reform in the post-communist region, suggests that the basic institutions of the market economy can be 'transferred' to new contexts with minor adaptations to domestic conditions. Others take a different track. Johnson (2006, 367–8) suggests that post-communist governments granted central banks significant statutory independence in emulation of the advanced democracies because independent central banks 'symbolized sovereignty and Western-ness.' Focusing on the role of ideas, she argues that the institutional transformation of post-communist central banks into 'independent guardians of price stability' occurred as 'ideational diffusion' through an intensive socialization process of these banks within the transnational central banking community as well as through an incentive-driven acceptance process in local political environments.

Very few studies, however, bring together theories of both preference formation and institutional influence. My work (Grittersová 2009) is one example. I claim that the connection between the interests of banks and exchange rate policy is mediated by the institutional structures of finance. The core idea behind this claim is that the ownership structure of the banking system empowers different types of banks, affects their interests, and shapes the responsiveness of government politicians to bank demands. In turn, each ownership group affects the demand and supply of monetary and regulatory institu-

tions that subsequently determine the ability of governments to commit to sustainable exchange rate policies.

INTERNATIONAL FACTORS

So far, the theories we have considered are domestic. But one further set of arguments underlines the influence of international factors, both economic and political. Capital mobility – that is, the ability of investors to move their capital across national borders – is an important structural feature of the international economic system. According to the influential open-economy macroeconomic framework called ‘Mundell–Fleming’ (also referred to as the ‘holy trinity’), in a world of high capital mobility, nominal exchange rate pegs cannot be sustained without giving up independent monetary policy (Mundell 1961; Fleming 1962). When the exchange rate is fixed, increased capital mobility reduces the effectiveness of monetary policy but enhances the effectiveness of fiscal policy. Based on the Mundell–Fleming model, expanded in Clark and Hallerberg (2000), Hallerberg et al. (2002) explore the political business cycle in new EU member states. The regression results appear to be consistent with those using data from developed countries. But analysis also reveals the surprising finding that post-communist central banks tightened monetary policy during electoral periods when exchange rates were flexible.

Other scholars recognized the importance of the international political dimension of exchange rate regime determination. One type of explanation stresses the importance of the anchor country, a dominant state willing to use its monetary leadership to make a fixed regime sustainable. According to the so-called hegemonic stability theory, the (economic and political) strength and engagement of the anchor country – the hegemonic power – plays a crucial role in sustaining policies of hard pegs because of its function as lender of last resort (Kindleberger 1986). Scholars advanced this notion by arguing that in spite of high trade integration, the ruble zone collapsed in part because Russia was no longer a viable economic anchor: Moscow no longer provided the public goods needed to stabilize the common monetary area (Odling-Smee and Pastor 2001). However, the theory is ambiguous over the nature and the exercise of power, and it lacks micro-foundations for understanding the benefits and costs of monetary cooperation to a hegemonic power (McNamara 1998).

The level of broader political ties with the anchor country, as well as the level of shared political engagement and mutual interdependence among the countries with fixed regimes, can substitute for the lack of hegemonic strength or domestic political weakness (Cohen 1994). The EU has loomed large in analyses of economic transformation, proven to be the most influential external influence on institutions and policies in EE countries. Ten post-communist countries have joined the EU to date, and several others are on the doorstep. And yet, not all EE states with EU integrationist ambitions and a high degree of trade and financial integration with the EU have chosen to peg their currencies to the European anchor.

There is little doubt that there are considerable gains for (small) EE states from anchoring their national exchange rates to a strong European currency to ensure exchange rate stability in the face of large, destabilizing capital flows. In reflecting on the impact of the EU, it is useful to remember that while the accession process implies legally binding trade

and financial liberalization measures, the EU does not define a specific exchange rate regime for the pre-accession phase. It recommends, however, that the applicant countries introduce exchange rate policies linked to the euro in order to prepare for participation in the exchange rate mechanism of the European Monetary System (ERM-II) and for eventual adoption of the euro (European Commission 2000). But the European Commission rules out unilateral euroization, involving a unilateral replacement of domestic currency by the euro, until full acceptance into the EMU.¹⁷

The OCA identifies the potential benefits of euro entry, including lower and more stable interest rates, lower transaction costs, and increased transparency, which in turn should promote trade and investments.¹⁸ At the same time, experts would also caution that entering the eurozone too rapidly may have some negative consequences, such as misalignment from entering with an overvalued exchange rate or the possible inflationary impact of entry given high productivity growth in the tradable sectors (the Balassa-Samuelson effect) (Kenen and Meade 2003). There has also been considerable debate about the effects of potential EMU members' current choice of currency regime on meeting the Maastricht exchange rate and inflation criteria.¹⁹ Studies have found that countries with fixed regimes will find it harder to satisfy inflation criteria on a sustainable basis (Lewis 2009).

One could argue that the economic costs and benefits of EMU membership may not be decisive and that a variety of factors may influence the government's decision to join the euro area, particularly where distributional consequences are involved. It may be helpful to consider the dynamic aspects of the preferences of both partners in the agreement. Although all new EU members expressed enthusiasm for joining the eurozone before they entered the EU, soon after the EU accession their governments' commitments to a rapid euro adoption diverged: some remained eager to rapidly adopt the single currency (the Baltic states, Slovakia, and Slovenia), while others (Poland, the Czech Republic, and Hungary) have been delaying their entry. Johnson (2006, 2008) explains that post-communist central bankers, enjoying little domestic support, wanted to adopt the euro quickly in order to impose its fiscal discipline on their governments and protect price stability; but this push for early adoption met with strong resistance from the government, fueling domestic policy conflicts.

There are also scholars who argue that material preferences matter less than ideational factors in determining exchange rate policy. In reflecting upon the impact of ideas, let me start with the statement by Václav Klaus, former Prime Minister of the Czech Republic (Klaus 1997): 'The collapse of communism "happened" in the moment when the economic profession believed in fixed exchange rates and in the advantage of anchoring the economy by means of one fixed point – especially in a situation when all other variables undergo large changes and fluctuations.' The mainstream theoretical thinking and the practical experience of the International Monetary Fund (IMF) with stabilization policies in developing, predominantly Latin American, countries during the 1970s and 1980s was to adopt fixed regimes on the grounds that they provided a 'nominal anchor' for domestic price stabilization. It is easy to caricature the blueprint school of the IMF officials to force cookie-cutter solutions on EE policymakers who have little choice but to follow instructions. Grabel (2003) argues that the 'IMF-World Bank complex' engaged in aggressive promoting of currency boards as well as independent central banks in order to fill the 'credibility deficit' that confronted economic policymaking in emerging

market countries and to assure foreign investors that governments would not reverse neoliberal economic reforms. But the view is somewhat more subtle and contextual. By some accounts, many of the drastic adjustment programs in EE countries that involved exchange rate stabilization have typically been self-imposed, to which the IMF has given 'its blessing, rather than having been the primary initiator' (Bruno 1992, 72). The IMF was often reluctant to advise EE governments to adopt fixed regimes (and strongly opposed currency boards) because of its unwillingness to provide stabilization funds to those countries that lacked adequate foreign reserves to defend pegs, as the case of Estonia illustrates (Sachs 1996; Nenovsky et al. 2002).

The decision to fix also involves a broader issue of policy dependence with respect to the policies of the anchor country and can impact a country's conception of its national sovereignty. This insight, put forward by Abdelal (2001), explains the paradoxical adoption of a currency board by Estonia after it exited the ruble zone, motivated by the objective to politically link national autonomy from Russia to a new statehood in Europe. With this line of argument in mind, Dyson (2006) explains the commitment of the Baltic states and Slovenia to rapid euro adoption because of their expectations that it would provide 'a vital underlying shared identity,' thus separating them from Russia and ex-Yugoslavia.

External economic conditions and exogenous shocks, such as contagion of financial crises, may also affect the preferences of actors and lead to shifts in exchange rate policies. The 1998 Russian financial crisis triggered a panic on international financial markets as well as currency collapses in several post-Soviet republics. But such crises can also arise from domestic sources. High and visible costs of crises undermine the credibility of incumbent constituencies. In responding to these crises, elites, and the societal groups they mobilize, determine the new macroeconomic policies. The distributional politics of the 1996 financial crisis in Bulgaria nicely illustrates this argument. As Nenovsky and Mihaylova (2007) and Grittersová (2009) explain, in pre-1997 Bulgaria, the debtors – composed of incumbent political elites, the subsidized state-owned enterprises, and refinanced state-owned banks (SOBs) – with debt in domestic currency were strong supporters of a flexible regime. They benefited from periodic devaluations under float, resulting in high inflation, which depreciated and reduced the real cost of servicing the debt. On the other hand, devaluations systematically depreciated the savings of the population – the main creditor. This politics of redistribution then evolved into a politics of hyperinflation, resulting in the 1996 financial crisis, in response to which a political coalition favouring exchange rate stability emerged. A newly elected government adopted a currency board arrangement in 1997 to restrict the possibility of monetizing the fiscal debt (Berlemann and Nenovsky 2004).

A related issue is the role of exchange rate regimes in financial crisis. Misguided choices of exchange rate regimes have led to financial crises in many countries, often with severe domestic and international consequences. In the wave of the 2007–2009 global financial crisis, there has been a vigorous debate concerning the role of exchange rate regimes in accumulating imbalances in EE countries that subsequently determined the severity with which these countries were affected by the crisis. Some argue that fixed exchange rate regimes enjoyed high credibility, and thus created an incentive for domestic agents to borrow in foreign currency, taking advantage of low interest rates on euro loans. This behavior eventually led to credit and housing booms, high current accounts, and external debt. As a result, fixed exchange rate countries were hit harder by the crisis than were

flexible regime countries, for the latter group received less capital flows and experienced less pronounced imbalances (Bakker and Gulde 2010; Darvas 2011). The second debate was about the role of currency regimes in crisis management. Some scholars praised the so-called 'internal devaluation,' involving unpopular policies of wage freezes and fiscal tightening, pursued by fixed regime countries to sustain their pegs and regain competitiveness (Aslund 2010, 2011). But many, including Paul Krugman and Nouriel Roubini, highlighted the benefits of devaluations that impose the smaller pain of a contracting domestic economy on voters and allow faster improvement in competitiveness.

CONCLUSION

The optimal exchange rate regime has been a subject of lively debate in international economics, but little consensus has been reached. A 'one size fits all' optimal exchange rate regime does not seem to exist. Rather, the appropriate regime seems to depend on the specific circumstances of the countries and the time period involved (Frankel 1999). The post-communist cases remind us that satisfying explanations require an understanding of how institutional and cultural factors shape monetary outcomes. This chapter has argued that the scholarship on exchange rates in transition has produced a number of empirical and theoretical insights that have challenged existing literature and contributed to areas of interest for those studying the politics of international finance.

The literature from the transition region has developed a more nuanced understanding of interest group politics than commonly found in the literature on the political economy of exchange rates. Preferences of interest groups may vary across sectors, but alternative cleavages exist, too. For instance, in my work (Grittersová 2009, 2013) I caution against the notion, often assumed in the literature, that the financial sector is a homogeneous societal group that is uniformly conservative, inflation-averse, and supportive of monetary convergence.²⁰ However, government-owned banks tend to be members of patronage networks that serve as the basis for the distribution of political power and economic resources, mainly through risky 'soft' loans to connected parties. Consequently these banks may favor high inflation, as it eases the burden of bad assets on bank portfolios and allows them to pay negative interest rates on deposits, in the presence of government protection. Scholars have considerable room to build on these substantive insights by providing stronger micro-foundations as well as by developing a more dynamic approach to studying monetary regimes. Conducting surveys of a variety of economic and political agents, voters, firm managers, and bankers is never easy but may be necessary if we are to evaluate fully domestic preferences for macroeconomic policies.

Macroeconomic policymaking in the transition region has reinforced the importance of institutions. However, the quality and effectiveness of institutions such as central banks are shaped in part by preferences of political and economic actors. More research is needed to determine why political elites build institutions enabling them to pursue sustainable macroeconomic policies. Tracing causality back in time and understanding how historical legacies – colonial, pre-communist, communist – influence institution building can generate a productive research agenda.

The cases at hand have also found that the EU has not been a key element in exchange rate regime choices, although it has played a powerful role in economic reforms. The ben-

efits of euro membership alone did not prove to be decisive, since governments across the region expressed varying degrees of support for euro adoption. To be sure, international interactions shape government policies toward exchange rate regimes, but the challenge is to specify the relative weight of these international effects with domestic influences when faced with divergent policies of trading partners or neighboring countries.

The post-communist cases also remind us that the direction of causation is an important concern in studies on exchange rate regime determination. The direction of causality between various economic and political determinants and exchange rate regime choice likely runs both ways, which makes analysis of this question a challenge. Scholars of exchange rate regimes in transition countries have developed a range of innovative instruments to address this problem, but many questions remain about causal relationships in this literature as well as in other areas of political economy.

There are a number of potentially fruitful research avenues worth traversing in the future. Hopefully, these and other provocative questions will keep scholars motivated to pursue research into East European macroeconomic policies for years to come.

Scholars of the political economy of national exchange rate policies have paid a great deal of attention to how economic interests and political institutions influence exchange rate regime and exchange rate level decisions but neglect the idea that currency regime sustainability could come under threat if monetary and other policies are at cross-purposes. An exclusive focus on exchange rate policy choices misses other foci of political struggle, such as inflationary monetary policies or expansive fiscal or credit policies that dramatically influence the decisions and ability of governments to pursue the currency policies they do.

Another area for future research is to explore the factors behind the persistence of currency boards in EE, which went out of fashion after the collapse of Argentina's currency board in 2002. What factors – political, ideological, or institutional – drive countries to 'outsource' their monetary policy? And why, given the high political costs of austerity packages, were the governments of the Baltic countries and Bulgaria so determined to sustain their currency boards in response to the 2007–2009 global financial crisis, instead of opting for the easier path of devaluation to restore domestic competitiveness? More knowledge on the factors that explain the variation of countries' policy responses to pressures on currency and to financial crises is necessary.

Another trend observable in transition and emerging market countries is the rapid spread of inflation targeting in the last two decades, which began to displace alternative approaches to monetary policy. How and why do monetary and currency policies diffuse internationally, and what are the diffusion mechanisms involved? What is the role of ideas, beliefs, and social learning processes in exchange rate policies? This may help contribute to larger debates in the field about the international diffusion of policy ideas.

NOTES

1. See Broz and Frieden (2001) and Klein and Shambaugh (2010) for recent surveys of the scholarship on the politics and economics of exchange rates.
2. EE states share the political legacy of authoritarianism. Despite some cross-country variation in the degree of openness of each communist regime, the political and institutional structures were the same in all EE countries (Bunce 1999). Furthermore, they share the common legacy of central planning.

- Command (centrally planned) economies were characterized by the absence of property rights, central planning, administrative control, a semi-monetized financial system, soft budget constraints, and chronic shortages (Kornai 1992).
3. Three neoliberal stabilization-cum-liberalization reform measures were particularly important: price and trade liberalization; macroeconomic stabilization; and privatization.
 4. For a comparison of the institutional designs of currency boards in EE countries, see Nenovsky et al. (2002).
 5. For inflation targeting in EE, see Jonas and Mishkin (2005).
 6. There is a good amount of informational, descriptive, and policy-oriented writing on exchange rate policies in EE countries, scattered across research departments of international financial institutions, central banks, and think tanks (Corker et al. 2000; Backé 1999; Nehrlich 2002; Pautola and Backé 1998; Nuti 1996; Barisitz 2007). The Economic Analysis and Research Department of the Austrian National Bank and the Bank of Finland's Institute for Economics in Transition have proven to be invaluable sources of information and research. They have, among others, published regular, detailed surveys and forecasts of exchange rate and other macroeconomic policies. The European Bank for Reconstruction and Development (EBRD) constructed a database of different reform indicators and policies and annually publishes its flagship Transition Reports on the progress of reforms in various economic areas. The peer-reviewed journal *Economics of Transition*, publishing articles and symposia on the economics of post-communist transformation, is an excellent source of theoretical research.
 7. This finding is substantiated by other studies examining exchange rate regime determination in developing countries, including Poirson (2001) and von Hagen and Zhou (2004).
 8. For analysis of the financial systems in transition countries, see for instance, Berglof and Bolton (2002), Grittersova (2009), and Denizer et al. (2006).
 9. See Fidrmuc and Korhonen (2006) for a comprehensive review of this literature. These authors count 35 independent studies providing over 450 estimations of business cycle correlations between the euro area and the individual EE countries.
 10. The Symposium of the 2005 issue of the *Journal of Comparative Economics* provides an excellent review of monetary and exchange rate policies in the former Soviet republics.
 11. OCA theorists consider the distributional effects of currency regimes to be unclear, small, or both (Giovannini 1995).
 12. For analysis of the politics of exchange rates in Russia see Treisman (2006).
 13. Bodea (2010a, 412) reports that in the post-Bretton Woods period, 26 countries adopted both fixed regimes and independent central banks, while the rest chose only one institution or none.
 14. See, for instance, Simmons (1994) and Frieden (2002).
 15. Milesi-Ferretti (1995) shows that the left-wing parties, suffering from inflationary reputation policies, have more incentives to choose fixed regimes to improve their reputations than do right-wing governments.
 16. For analysis of exchange rate stabilization in post-Soviet republics see, for example, Keller and Richardson (2003) and Schnabl (2005).
 17. For criticism of the Commission's approach to unilateral euroization, see Sulling (2002) and Bratkowski and Rostowski (2002).
 18. For a review of the long-run benefits and costs of euro adoption for the new EU members, see for example Schadler et al. (2005).
 19. Each EMU candidate must meet the Maastricht convergence criteria. In addition to nominal interest rate convergence and sound public finances, candidate countries are also required to achieve a high degree of price and exchange rate stability. The inflation criterion is defined as a country year-average inflation that does not exceed by more than 1.5 percentage points that of the 'three best performing Member States in terms of price stability.' The exchange rate criterion is defined as the observance of the normal fluctuation margins provided for by the ERM-II, which is an arrangement that links the currencies of prospective euro area members to the euro within a ± 15 percent band for exchange rate fluctuations, without devaluing against the currency of any other member state.
 20. See Posen (1993) and Goodman (1992).

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