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PEGGING TO THE DOLLAR AND THE EURO

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Abstract

The newly-launched euro is bound to attract some "trackers" – that is, countries that attempt to maintain exchange rate stability against the euro. In this paper, we ask whether the existence of trackers should be a matter of concern for the European Union. To gain some insight, we review the historical experience of the US with respect to dollar trackers. We identify and analyse the countries most likely to track the euro. Although the aggregate size of the group of potential euro-trackers is small relative to the euro zone, we argue that this not justify an attitude of benign neglect. Rather, we make recommendations for EU policy towards euro-trackers, arguing in favour of some limited and conditional support for stable bilateral exchange rates.

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PEGGING TO THE DOLLAR AND THE EURO

1 Introduction

For small countries that have succeeded in establishing macroeconomic and fiscal stability, nominal exchange rate stability with a currency representing an important trading partner can be attractive. Could attempts by non-Community countries to link their currencies to the euro have adverse consequences for EMU members by inhibiting needed real exchange rate adjustments? Or, to the contrary, might cooperative exchange rate links between the EMU and selected other trading partners be beneficial?

This goal of this paper is to address these issues. We first discuss the benefits and costs to EMU members of cooperative arrangements with such countries. Benefits include the potential for reducing longer-term misalignments as well as limiting short-term fluctuations which affect economic behaviour by increasing uncertainty. An unsustainably overvalued exchange rate peg is a false friend, as becomes evident in the disruption accompanying the peg's collapse. On the other hand, the costs to the EMU of undervaluation by pegging countries are less likely to be severe or lasting.

To gain some insight, we initially review the experience of the United States and the various countries that have from time to time tracked or pegged their currencies to the US dollar. Even though the US was not their largest trading partner, an important group of East Asian countries formally or informally tracked the US dollar in the years up to 1997, a fact that points to the collective dimension in exchange rate policy. By examining the characteristics of these countries and exploring some counterfactuals (among other things, employing **MULTIMOD**) we find that the US was not strongly affected by this tracking behaviour.

We next proceed to identify likely euro-trackers, via statistical analysis and consideration of political/institutional factors. Top of this list are all six of the next wave of EU accession states as well as three other candidate states. Other likely trackers include Malta and a number of African countries: Morocco, Tunisia, Mauritius, Cape Verde and the CFA zone. Although the EU is highly important to these countries, their collective economic size countries is small relative to the aggregate EU economy. However, links with individual EU countries and importance in certain sectors means that bilateral exchange rates are politically important.

Our analysis leads to the following policy recommendations.

The EMU should be open to active collaboration with neighbouring countries on a bilateral basis in the field of exchange rate arrangements and related policies. This could include intervention support to assist policies conducive to bilateral exchange rate stability (conditional on the pursuit of sustainable policies within an agreed framework). Such arrangements are likely to be most successful in the context of a flexible type of bilateral exchange rate stability such as a target zone regime. (The EMU should not provide open-ended financial guarantees for a rigid currency board type arrangement).

Issues of common interest in the exchange rate and monetary field should be the subject of regular bilateral contacts between the EMU and interested neighbouring countries and

standing arrangements to facilitate this should be put in place. Complementing the efforts of the international financial institutions, the EU should offer a special contribution at the level of technical assistance to help these countries strengthen the safety and prudential soundness of their banking and financial sectors.

The rest of the paper is organised as follows. In section 2, we discuss the pros and cons of exchange rate stability from the viewpoint of the "anchor" currency zone. Section 3 turns to consideration of the US experience with dollar trackers. We identify the countries most likely to track the euro in section 4 and discuss the problems of "split miniblocs" and collapsing pegs in section 5. Section 6 concludes by making recommendations, based on the preceding analysis, regarding EMU policy towards euro trackers.

2. Pros and cons of exchange rate stability

In this section, we discuss the potential magnitude of microeconomic benefits from bilateral exchange rate stability *per se*. Many of the benefits of bilateral stability are enjoyed both by the anchor country and the trackers but there are at least two sources of asymmetry. First, if one zone is much smaller than the other, exchange rate stability will be more important to the smaller country, since it will be proportionately more heavily dependent on international trade. Second, if one is a net creditor to the other, changes in the exchange rate have transfer effects between the two regions in the sense of adjusting the value of outstanding debts, posing risks to the financial system and/or debtors.

At a fundamental level, exchange rate uncertainty has several adverse effects. First, uncertainty can discourage investment, depressing the overall level of economic activity and the rate of economic growth. Second, in the presence of uncertainty, risk-averse firms will set prices that are excessively high (in order to compensate for possible shocks to revenues or costs). Both factors lead to a reduction in international trade, since domestic transactions are less risky than international exchanges under these conditions. Less trade means less growth, other things being equal (Sachs and Warner 1995).

As pointed out by Sapir, Sekkat and Weber (1994) and Sekkat (1998), it is important to distinguish between two kinds of exchange rate variability: misalignment and volatility. As is confirmed in their empirical work, short-term volatility has a relatively small impact on trade volumes (partly because of the possibility of hedging) but longer-term misalignments have a significant adverse impact on trade activity. Misalignment can also distort the allocation of FDI and portfolio investments. For instance, if the Yen is unusually strong against the dollar (and assuming that net worth constrains investment decisions and acquisition strategies), Japanese firms will be at an advantage to US firms in bidding for dollar assets.[1] This phenomenon was clearly evident in the late 1980s, with the Japanese engaging in an asset-purchasing spree in US asset markets (see Froot and Stein, 1989).

An important source of currency misalignment is eliminated by a credible commitment to a stable exchange rate, namely, market bubbles where a currency is driven higher solely on the

[1] Net worth is a constraint if capital markets are imperfect (Bernanke and Gertler 1989).

expectation of future appreciation. Bubbles are a possibility in any asset market and are especially prevalent in a currency market if there is no anchor to tie down a long-value for the exchange rate. As such, nominal exchange rate stability can help to reduce the possibility of misalignment by providing less room for bubbles to develop.

A related argument is made by Flood and Rose (1998). They note that the main statistical difference between flexible and fixed exchange rate regimes is the much greater volatility of (nominal and real) exchange rates under floating, despite the absence of any rise in volatility in underlying macroeconomic fundamentals. They argue that greater volatility is intrinsic to the market microstructure of foreign exchange markets that trade floating currencies – as such, this source of trading volatility can be eliminated, or at least much reduced, by moving to a credible pegged exchange rate arrangement.

Exchange rate stability also has a pro-competitive effect by improving the clarity of price signals, thereby reducing search costs for consumers in final goods markets and for firms in purchasing intermediate goods. The noise associated with exchange rates that fluctuate on a daily basis makes it difficult to compare prices in different currencies, endowing local sellers with extra market power. In contrast, a stable exchange rate plausibly forces a closer convergence in prices for similar goods.

Exchange rate stability can also provide benefits in the financial markets. A credibly stable exchange rate reduces the risk premium for foreign investors to purchase domestic assets, deepening and making more liquid the domestic capital markets. In the other direction, exchange rate stability encourages domestic residents to become more active in international capital markets, acquiring both foreign assets and liabilities. Such integration enhances competition in the credit market, improving borrowing terms for firms.[2] Moreover, it allows a greater range of financial contracts to be traded, improving risk-management. As pointed out by Obstfeld (1994a), this can raise the long-term growth rate: diversification encourages firms to pursue higher-risk higher-return projects, yielding a higher average, if more variable, long-term growth rate.

These benefits notwithstanding, it is also important to point out the possible dangers in maintaining stable exchange rates. As documented by Obstfeld and Rogoff (1995) and Rogoff (1998), the vast majority of exchange rate pegs ultimately collapse. One reason is that a fixed exchange rate does not rule out misalignment, if the underlying monetary and fiscal policies are inappropriate. An unsustainable exchange rate peg can temporarily survive, if a country has adequate reserves, employs capital controls or if market expectations are excessively optimistic.

This last consideration is especially problematic in the case of transition economies and emerging markets. In these countries, economic reforms and structural transformations are taking place and these developments in themselves may justify quite significant real appreciation. As such, if one observes such a country under a fixed exchange rate but experiencing real appreciation, it is difficult to evaluate whether the real appreciation is an

[2] Assuming the autarkic interest rate is above the world interest rate.

equilibrium phenomenon, which is compatible with an exchange rate peg, or is a sign of misalignment, rendering the peg unsustainable. Eventually, enough evidence may accumulate that misalignment exists and the peg ultimately collapses.

Such temporary exchange rate pegs are not innocuous. First, if a peg is perceived to be temporary in nature, it may distort economic behaviour: for instance, agents may bring forward purchases of imported consumer durables in anticipation of future devaluation and the perceived low real interest rate encourages a spending boom, generating a current account deficit. The peg may also cause "overborrowing" as banks and debtors are tempted to avail of apparently cheap international credit. Second, the ultimate collapse of a peg improves the competitiveness of firms in the devaluing country against rivals in the anchor region. Third, the devaluation can cause repayment problems on loans denominated in the anchor currency, hurting debtors but also weakening the balance sheets of the creditor financial institutions, both in the devaluing country and in the anchor region. We will explore in more detail the impact of a currency collapse for the anchor and tracking countries in section 5.

The greater is the degree of international capital mobility, the more fragile the exchange rate peg. In the case of clearly unsustainable pegs, their demise is accelerated by the free capital mobility, as in "first generation" models of speculative attacks. However, as emphasised by "second generation" models, international capital mobility may also lead to the collapse of pegs that otherwise could be sustained (Obstfeld 1994b). Here, the intuition is that if a country has fundamentals that are not too strong, agents may coordinate: if each believes other speculators will attack the currency, he will also attack. The attack can be self-fulfilling, since the government, if the fundamentals are not too strong, may prefer to devalue rather than to live with the alternative of high interest rates. This is an example of an "unnecessary" currency collapse, in the sense that another equilibrium path is for no speculative attack to take place and for the peg to survive. The lesson is that increasing financial integration makes it harder to sustain pegged exchange rates: in the case of the CEECs, this means that, paradoxically, efforts to satisfy EU rules on capital mobility may make it tougher to satisfy the Maastricht requirement of ensuring exchange rate stability against the euro.

3 Lessons from US Experience

In thinking about the implications of exchange rate trackers for a large currency bloc, there exists an obvious precedent: the US experience with dollar trackers. To identify dollar trackers, we conducted a statistical analysis, classifying trackers as those countries that maintained a low monthly exchange rate variance against the dollar during 1987-96.[3] This is an ex-post classification, which may be more reliable than relying on the official classification published in the IMF's *Exchange Rate Arrangements and Restrictions* which does not take into account deviations from announced policies. We arrived at a compact set of East and South-East Asian countries which, aside from oil exporters and small tourist economies,

[3] Details are available from the authors upon request. We allowed for a smooth trend in the nominal exchange rate against the dollar, to reflect differences in trend inflation or real appreciation, since we are most interested in higher-frequency tracking of the dollar. This is the relevant concept in addressing the question: what is the response of these countries to a surprise shift in the dollar's value?

represent the main countries that can be said to have tracked the US dollar. These trackers are Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Taiwan, Thailand and Singapore.

This list is quite diverse in terms of size and level of development. However, all can be classified as highly open to international trade and as maintaining tight fiscal policies during the tracking period (Table 1).

Alhough their rapid growth before the 1997- crisis, and the relatively tight control they maintained on fiscal policy are important shared characteristic (albeit to a lesser extent in the Philippines), the Asian trackers in fact display considerable heterogeneity. At one extreme, Hong Kong and Singapore are city-states, have small populations and very high per capita incomes. At the other, Indonesia and the Philippines are relatively populous and poor economies. In the middle are Korea, Malaysia, Taiwan and Thailand.

One common factor is that, all the countries, adjusting for differences in country size, are highly open, as shown by their export or trade ratios.[4] However, the US is not the predominant trading partner of these countries, suggesting that the dollar peg was not primarily motivated by trade considerations. On average, only 6 percent of the exports of these countries goes to the US and only 5 1/2 percent of their imports are sourced in the US; Japan is a more important trading partner for these countries. Nor are these countries especially linked to the US economy via foreign direct investment inflows (Bargas, 1997).

It is important to consider the collective incentives facing these countries, rather than just treat them on an individual country-by-country basis. These countries, in broad terms, produce similar goods and are rivals as host locations for multinational investment. As such, as an alternative to beggar-thy-neighbour competitive depreciation strategies, exchange rate stability against each other is an attractive collective equilibrium and one way to achieve such stability was to track a common anchor currency, the dollar.

This collective consideration helps to rationalize why each of these currencies chose to track the dollar during the 1987-96 period, despite the considerable heterogeneity in their individual economic characteristics.

Exchange rate pegs are famously non-durable. Obstfeld and Rogoff (1995) show that only six major countries with open capital markets had maintained a fixed exchange rate (defined as fluctuations within a +/- 1 percent band) for longer than five years up to 1995: Austria, Hong Kong, Luxembourg, The Netherlands, Saudi Arabia and Thailand. As we know, one of this select group (Thailand) has subsequently also abandoned its peg. The 1997 Asian currency collapses is just the latest episode of a string in which pegged exchange rates have been dramatically abandoned: the 1992/93 EMS currency crisis and the Mexico devaluation of December 1994 are two other examples in the 1990s alone.

It is worth pointing out that an alternative strategy of pegging against the Yen during the 1987-96 period would have sharply increased the bilateral volatility of these currencies against

[4] See Romer (1993), Lane (1997, 1999).

the dollar. However, the sharp multilateral real appreciation that occurred in line with the strengthening dollar after mid-1995 might have been avoided. Under dollar targeting, many of these countries experienced significant multilateral real appreciation: in part, this may be attributed to rapid growth in these countries but a "fundamentals" interpretation of the 1997 currency crisis suggests that overvaluation also occurred.

Higher volatility would arguably have hampered trade and FDI relations but the macroeconomic impact on the US would have been limited, since these countries are only minor trading partners. However, it is possible that higher volatility, by raising the explicit exchange rate risk in international investment, would also have reduced the capital inflow into these countries during the 1987-96 period and hence avoided the "overborrowing syndrome" that contributed to the weakening of the banking and financial sectors in several of these countries.

We employed the IMF's quantitative macromodel MULTIMOD to verify that the significance of these countries' exchange rate policies for US macroeconomic behaviour is quantitatively small.[5] Since the volume of US trade with these countries is collectively small relative to the size of the US economy, even real exchange rate movements of these Asian countries can have only a limited impact on the US in the context of MULTIMOD. Even in the case of a sustained real depreciation, however, the impact is small. In addition, MULTIMOD builds in rapid local wage and price adjustment to nominal depreciation in developing countries, so that nominal devaluations have little real impact. The measured effects are so small as to be not worth reporting in detail here.

4 Who will track the euro?

In identifying plausible euro-trackers, we began by statistically identifying which non-EU countries have maintained stable nominal exchange rates against the DM in recent years (using the same methodology as for the US dollar above). Since more countries are likely to track the euro than might have tracked the DM, we supplemented the statistical analysis with consideration of other factors that may influence tracking decisions.

Historic DM trackers

Only a few non-EU countries have maintained tight stability against the DM for the entire period 1987-96. These are: Cyprus, Cape Verde, Malta, Mauritius, Morocco, Norway, Switzerland and Tunisia. This illustrates the difficulty of maintaining a peg over a long time span, as emphasised by Obstfeld and Rogoff (1995) and Rogoff (1998). The EMS currency crisis episode of 1992-93 was partly responsible, since several countries adjusted their exchange rates in response to the UK and Italian devaluations at that time. Although relatively few countries sustained a peg to the DM over this interval, countries may find it easier to sustain a peg to the euro, since individual EMU member countries no longer will be able to engage in currency devaluations that destabilise the system. This consideration makes the euro a naturally more stable anchor currency than a loose DM-led EMS system.

[5] Details are available upon request from the authors.

Taking the entire 1987-96 period, the African countries of the CFA zone would not qualify as DM trackers (via their link to the French franc).[6] This exclusion is by dint of the large, one-time 50 percent devaluation of the CFA franc in January 1994 – at all other times, stability against the franc has been preserved.

In the most recent 1995-97 period, a larger set of countries has maintained stability against the DM. The list includes several EU applicant countries, namely Croatia, Cyprus, the Slovak Republic and Slovenia, and also Malta, as well as the CFA zone, Cape Verde, Estonia, Iceland, Malta, Mauritius, Morocco, Norway, Switzerland and Tunisia.

The wider coverage of the euro than the DM increases its range of appeal as an anchor currency beyond the countries that have tracked the DM, and this will be reinforced if the euro grows as a vehicle and invoicing currency.

EU accession countries

Political and historical factors also are relevant in the tracking decision. For instance, it may be politically easier to peg to an "international" currency such as the euro rather than to the currency of an individual nation. But even more clearly, those countries hoping to join the EU in the near-term are prime candidates to be trackers of the euro – in the forefront are the six first-wave accession countries, namely Cyprus, the Czech Republic, Estonia, Hungary, Poland and Slovenia. A key reason is that all new members of the EU must join the monetary union, once the Maastricht criteria are satisfied (no new opt-outs will be entertained). Among the Maastricht conditions is the requirement that candidate members establish a record of stability against the euro in the prelude to joining the monetary union.

However, accession to the EU itself is not conditional on meeting the Maastricht criteria and it not clear that a policy of strictly pegging to the euro from the outset will be an optimal strategy for some of these countries (see Backe 1997). Those countries that have relatively high inflation, large current account deficits and/or weaknesses in the banking sector may prefer to retain some short-run exchange rate flexibility, even if their medium-run goal is membership of EMU. Indeed, flexibility in the short-run may even enhance the credibility of EMU as a longer-term objective, by providing the room to copper-fasten the structural reforms that will allow these countries to participate in the EU as mature, market-orientated, well-regulated and stable economies. This point is reminiscent of the argument of Drazen and Masson (1993): the policy regime must be sustainable for a commitment announcement to be credible; an unsustainable regime is always abandoned in the end. Pautola (1998) pushes the argument further, stating that the priority for Eastern Europe is to complete structural transformation and liberalisation before participation in EMU and that a peg to the euro would not be appropriate until this process is completed.

An alternative strategy for these countries has been proposed by Dornbusch and Giavazzi

[6] The CFA zone comprises Benin, Burkina Faso, Cameroon, the Central African Republic, Chad, Comoros, Congo (Brazzaville), Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea-Bissau, Mali, Niger, Senegal and Togo.

(1998). Conditional on having a sound banking system, they recommend a currency board arrangement for these countries by which the local currency is fully backed by holdings of euros. As is well understood from the debate on currency boards, this imposes severe restrictions: among the costs are that, by limiting domestic credit expansion, seigniorage is lost and the local central bank is unable to act as lender of last resort.[7] However it is precisely the severity of the system that makes it credible. In other words, a currency board arrangement is analogous to a "poison pill". The authors make this recommendation on the basis that weaker forms of exchange rate pegs have been demonstrated by the various crisis episodes of the 1990s to be incompatible with full capital mobility. They argue that, rather than devote resources to building domestic monetary institutions that can successfully control inflation under a free float, it is better for these countries to import world-class monetary conditions from the new euro-area. The persuasiveness of this argument critically depends on whether these countries have sufficiently mature financial systems and can yet afford to give up exchange rate flexibility as a tool to deal with disinflation and external adjustment problems in order to make a currency board arrangement a viable proposition.

Other tracking candidates: the Mediterranean, Africa and beyond
Further possible trackers can be found in the countries around the Mediterranean Sea. The EU has embarked on a process of establishing closer trade and political linkages with these countries. Among these countries, Malta, Morocco and Tunisia have, like Cyprus, an established history of maintaining stability against the DM and can be expected to display similar links with the euro.

Turkey is an unlikely candidate to track the euro. A basic obstacle is its ongoing high inflation rate (on the order of 90 percent). In addition, its large size and relative closedness to international trade make it more reluctant to sacrifice its monetary autonomy. Under the current regime, Turkish exchange rate policy is either assigned to controlling inflation or, if inflation is stable, to achieving external balance.

Morocco and *Tunisia* are the most likely of the north African countries to initially track the euro (see also Chaffour and Stemitsiotis, 1998). As was noted above, each has experienced only limited currency fluctuations against the DM in recent years. Moreover, these countries have the strongest trade and financial linkages to the EU and their external debts are also heavily denominated in EU currencies (28 and 22 percent respectively). An additional reason for these countries to track the euro is their reliance on EU customers for tourism revenues. That said, financial and capital account liberalisation may make it harder in the future for these countries to sustain exchange rate pegs.

The other North African countries are at present unlikely to have stable exchange rates against the euro. Generally speaking, these countries still face the challenge of structural reform and have smaller trade linkages with the EU. The political situation in several of these countries is also not amenable to monetary stability. Finally, several of these countries are heavily dependent on oil or other commodities for export revenues. Since these commodities are

[7] This latter restriction means that a sound banking system is a prerequisite for a successful currency board arrangement.

priced in dollars, the euro may not be the natural anchor currency for any exchange rate commitment.[8]

As mentioned, the *CFA zone*, comprising African countries with close economic and cultural links to France, will be tied to the euro. However, the 50 percent devaluation of the CFA franc in 1994 has inevitably raised the question of whther this peg might be subject to occasional large realignments.

Among other African nations, most currently have independently floating exchange rates. In most cases, the countries have no choice in the sense that the economic fundamentals are too weak to sustain any significant exchange rate commitment. (Though Lesotho, Namibia and Swaziland peg to the South African rand, in effect forming a regional exchange rate system.) Both *Cape Verde* and *Mauritius* have a history of maintaining stability against the DM (officially, Cape Verde pegs to a currency basket and Mauritius has a managed float). The openness of these economies increase the attractiveness of stable exchange rates and both countries have experienced steady growth rates and relatively low inflation.[9] As other African economies stabilise and liberalise trade, external anchors for monetary policy may become more attractive and exchange rate stability may be more feasible.

The group of former British colonies may also find a euro peg more attractive if and when the United Kingdom joins EMU. These countries retain strong trade and cultural linkages to Britain and UK membership would both make the euro a more suitable anchor currency and have a positive demonstration effect on policymakers in these countries.

Finally, those Latin American and Asian countries that target a basket of currencies will likely give a greater weight to the euro in the composition of these baskets. However, this effect will be relatively minor, since Europe will still be a less significant trading partner than the US or Japan for most of these countries.

Strategic interaction between countries

The analysis of the US dollar case showed that there is no unique set of characteristics that identify currency trackers. The group of Asian countries that tracked the dollar during the 1987-96 period exhibited a wide range of structural and macroeconomic characteristics and the US was not even the main trading partner for these countries. Rather, that case study illustrates the importance of viewing exchange rate arrangements in a collective fashion: the decision of any one Asian country to peg against the dollar cannot be taken in isolation from the decisions made by the other countries. Indeed, among a set of countries that are rivals in international trade, exchange rate commitments are *strategic complements* – if country A pegs to the dollar, it is then more attractive for countries B and C also to fix their exchange rates against the dollar.

This reasoning is helpful in thinking about the potential set of countries that may opt to track

[8] Algeria, Egypt, Libya and Syria are important oil exporters; Jordan relies heavily on potash, phosphates and derivative products.

[9] In the case of Cape Verde, another motivation for a fixed exchange rate is to preserve the domestic currency value of emigrant remittances.

the euro. Already, the CFA zone is a set of countries that has made a collective decision to peg to the euro (in succession to a peg to the French franc). Similarly, the CEECs and Mediterranean countries will, at least in part, be influenced by each other in whether or not to track the euro. Indeed, this leads to an interesting indeterminacy: one equilibrium path may be for countries A, B and C to track the euro but it may also be an equilibrium for none to track the euro. This raises the possibility of a coordination failure: although all may prefer to track the euro, so long as the others also track the euro, it requires coordination (or one country to take the lead) in order to achieve this outcome.

It is also worth pointing out a dynamic consideration. Imagine only a small set of countries initially tracks the euro. Over time, neighbouring countries will compare their performance to that of the trackers: if it appears that the trackers are performing relatively well, this encourages other countries to learn from their example and switch to euro-tracking.

Country characteristics

Of course, individual country characteristics also matter. Based on the preceding analysis, we list in Table 2 the countries that we consider to be the most likely candidates to be euro trackers in the medium-term (say 2003), together with some of their macroeconomic characteristics. As with the dollar trackers, many of the candidate euro-trackers are highly open countries with well-managed public finances. Some of the countries already have quite low inflation but the process of disinflation is not yet complete for others. The most questionable macroeconomic feature is that some countries have quite large current account deficits. However the final column shows that total external debt levels are quite moderate for these countries, so that significant current account deficits are more "affordable" than for countries with larger outstanding stocks of external liabilities.

It is worth making the point that, relative to the US case, the euro is a more natural anchor for the these countries than the dollar was for the Asian countries. Moreover, again in contrast to the US case, the close political relationship between the EU and these countries makes tracking a more feasible proposition.

As a memorandum item, their current exchange rate arrangements are summarised in Table 3. As is evident from the table, these countries possess a variety of formal exchange rate systems: ranging from currency board arrangements to managed floats.

Although the aggregate GDP of the group is equivalent to about 14.5% of the EU total, and although the EU is a very large trading partner for each of these countries, none of the countries is a large trading partner of the EU as a whole (Table 4). Of course, as we will argue in the next section, the bilateral trade between some of these countries and individual EU countries or regions may be quite significant and/or these countries may be a large player in individual sectors or industries.

5 Further aspects of policy towards exchange-rate stability

The problem of split miniblocs

Our discussion has focussed on relationships between potential euro-trackers and the EMU-area as a whole. But the regions and countries that form the EMU are economically diverse both in the sectoral composition of their production and in the geographical distribution of their trading and financial linkages. As a result, the exchange rate relationship between certain outside countries and the euro can have a much greater impact on certain insider regions than on others. Trade and financial linkages that appear modest on an EMU-wide basis can be of regional importance. In short, the particular bilateral euro rate of most interest to individual EMU regions differs from region to region.

One way of expressing this issue is to picture the economic interrelationships involving EMU regions and their trading and economic partners as forming clusters (or "mini-blocs"). Where a cluster includes regions both within and outside the EMU, exchange rate movements between members of the cluster or minibloc assume importance. Even if average welfare in the EMU as a whole is not much affected by such movements, welfare in the regions belonging to the cluster are affected. This is what has been referred to as the problem of "split miniblocs" in Honohan (1997).

To the extent that the outsider countries involved in such split miniblocs are small, there is clearly a potential for a bilateral exchange rate policy involving the euro and that currency to be in operation, without disturbing the overall exchange rate policy for the euro. Indeed, we may assume that there will be some political pressure from producer interests in the affected regions for precisely such a policy, if the outsider currency shows a tendency to depreciate unduly.

The most obvious practical issue is the question of avoiding real misalignments and more generally smoothing bilateral euro exchange rates. Where EMU participants and the outsider in question have a common interest in stabilizing a particular bilateral exchange rate, there is a *prima facie* case for considering institutional arrangements to achieve such stability. It does not, however, follow that the degree of concern about any given bilateral exchange rate is always the same on the part of outsiders and insiders. For example, an outsider may be able to shift part of the burden of a real supply shock onto EMU members by allowing an adjustment in the real exchange rate. In this way, the impact of an asymmetric shock hitting one minibloc more than the rest of the EMU can be greatly amplified, so far as the EMU members of the minibloc are concerned. If bilateral exchange rate policy can be used to insulate or hedge these shocks, that will be a useful offset to the adverse side-effects of currency union membership.[10]

Analysis of trade patterns points to at least seven clusters of closely-trading countries among the EU, EEA and pre-accession countries, of which four will be split by the establishment of the EMU (Honohan, 1997). A degree of real exchange rate stability within each cluster could help insulate the participant country from some real shocks hitting the cluster as a whole, but

[10] A theoretical analysis is in Honohan (1997). Such arrangements can also alleviate the problem, identified by von Hagen and Süppel (1994), whereby the differing objective functions of different members may not be optimally reconciled by a preset Central Bank constitution.

asymmetric with regard to the rest of the EMU. This is one basis for considering these clusters as potential mini-blocs. Other more subtle linkages are evidently present, as is evident for example in the correlated banking crises of the Nordic countries.

The four miniblocs split by the EMU are:

Insular This minibloc is formed of two EU (Ireland and the UK) members, one of which has opted out of early EMU participation. The UK is an important export destination for other countries too (Cyprus, Iceland, Norway), but only Ireland bulks significantly in UK exports as well. Nevertheless, Ireland is clearly the dependent partner in this minibloc. Because of the asymmetry of this minibloc, and the size of the UK economy, it would be unrealistic to assume that Ireland's vulnerability to UK exchange rate shocks would be influential in determining UK exchange rate policy with regard to the euro.

Nordic This minibloc, including all the Nordic countries (Denmark, Iceland, Norway, Sweden and Finland), accounts for between 17 and 20 per cent of its participants' exports, except for Iceland (an exporting-only member), which exports about 12 per cent within the minibloc. All of these countries have at least 55 per cent of their exports within the EU. (These countries also have strong trading links with the UK, and the within-minibloc share of the Nordic countries would rise to a minimum of 26 per cent if the UK were included).

Central European This group (most of whose members also trade disproportionately with Germany) includes the important Czech-Slovak sub-group, together with Austria and Slovenia (which also exports strongly to Italy, included in a different minibloc). With their unit labour costs likely to remain much lower for many years to come, and their current and prospective emphasis on price-sensitive export products, the Czech Republic and Slovakia may, as they climb the quality scale, become increasingly important competitors for Austria and parts of Germany, giving rise to concern about any competitive devaluation. On the other hand, their proven vulnerability to currency speculation could make them interested in cooperative arrangements with the euro area that could help them resist such pressure.

Mediterranean The Italian minibloc includes Malta and Romania, which are dependent exporting-only partners. Italy is an importing-only member, but for Malta in particular - a third of whose exports go to Italy - the exchange rate issue will be an important one. Malta's position is also strongly influenced by the tourist trade, within which there is a different pattern of interdependency, as Cyprus and Malta compete with each other, and with Greece, Spain, Portugal and Italy (along with other countries not included in our set) as Mediterranean sun holiday destinations. As such, one begins to recognize a common interest in the sun resorts of the latter countries to ensure that none of the island destinations indulge in competitive depreciation.

Although historical experience does not support the idea of a fixed or systematic relationship between the currencies of our miniblocs, and although trade patterns are no doubt endogenous to the exchange rate regime (and will evolve under other pressures too, especially in the transition economies), the identified miniblocs suggest the likely focus of concerns about bilateral exchange rates of the euro. Casting a wider net, some additional dependencies can be

foreseen, especially in regard to the tourist trade, with Morocco, Tunisia and Turkey sectorally important competitors for coastal regions of Portugal, Spain and possibly France and Italy.

If the euro is likely to be a peg or at least the major reference point for many fringe currencies, and if there are significant interests within the EMU area anxious to minimize the amount of competitive depreciation undertaken by minibloc partners, then there is an *a priori* case for opening the possibility of collaborative arrangements between the EMU and the fringe.

Collapsing Pegs

The termination of an exchange rate peg (which, as mentioned, appears to be almost inevitable, if history is to be a guide) typically takes the form of a discrete collapse, often triggered by a speculative attack.[11] Moreover, the ongoing Asian crisis illustrates that exchange rate collapses can take place in a "wave", with a number of countries devaluing within a short time interval.[12]

The abandonment of a peg by an (implicit or explicit) tracker can affect the anchor country via a number of mechanisms. At a macro level, the expenditure-switching effect of devaluation will reduce demand for imports from the anchor country and raise the supply of exports to the anchor country. The decline in import demand may be compounded by a contraction in aggregate demand in the devaluing country, since devaluation may be accompanied by a capital outflow and the introduction of a fiscal austerity programme.[13] In the case of the Asia crisis, trade linkages with the US and Europe are small (the average of merchandise exports and imports was in the 1.5-3 percent range in 1996) so that the macroeconomic impact of the Asian currency collapses via such trade-related mechanisms is necessarily limited.

Devaluation also has sectoral trade implications. Firms in the anchor country that compete with rivals from the devaluing country suffer a sharp loss of competitiveness and may experience a reduction in profitability and/or a decline in market share. This effect will be more important the more similar are the anchor and devaluing countries, in terms of sectors of specialization and the production quality levels. In contrast, if the countries are dissimilar in the sense of specializing in different industries then this effect will be small, since few firms in the anchor country will be directly competing with firms from the devaluing country. In reference to the Asian crisis, producers in those countries typically produce lower-quality goods and in different sectors than firms in the US and Europe and so there is relatively little

[11] In many cases, the speculative attack just accelerates the collapse of a peg that is in terminal decline. Traders recognise that the collapse is inevitable, either because the fixed exchange rate is directly inconsistent with another policy stance (e.g., money-financed fiscal deficits) or because the government is politically compelled to relax monetary policy (e.g., due to a recession or fragility in the financial sector). However, recent research (so-called "second generation" models of speculative attacks) suggests that speculation in itself can sometimes force the collapse of a peg that is otherwise viable. Even in this case, however, the fundamentals must be already weak for such an attack to take place. See Flood and Marion (1998) for a review of this literature.

[12] See Corsetti et al. (1998) for an account of the Asian crisis.

[13] Milesi-Ferretti and Razin (1998) document that currency collapses are typically associated with a sharp domestic recession.

direct sectoral competition.

The anchor country gains via an improved terms of trade. Lower prices on goods exported by the devaluing country allow a greater volume of purchases and place downward pressure on the domestic price level. In turn, the alleviation of inflation pressures enables the central bank of the anchor country to maintain a lower interest rate than would otherwise be possible. Again, this effect depends on the extent of trade linkages between the anchor and devaluing countries.

With respect to the capital account, devaluation is often accompanied by an initial capital outflow from the devaluing country. This enlarges the pool of capital available to investors in the anchor country, placing further downward pressure on the domestic interest rate. On the other side, devaluation also raises the attractiveness of foreign direct investment in the devaluing country by firms based in the anchor country for two reasons. One is a wealth effect: anchor country firms will be able to outbid cash-constrained local firms in the devaluing country and hence purchase assets at "fire-sale" prices. The other is that real depreciation reduces relative production costs in the devaluing country and hence may tempt an anchor country firm to switch some of its labour-intensive activities to the foreign location. [14] This raises a potential distribution issue since low-skilled workers in the anchor country now face more intense competition from the workforce in the devaluing country.

There are fiscal effects also, though too much can be made of the adverse effects of the automatic translation effect of the devaluation on the local currency value of the official foreign debt. The government's nominal tax revenues should recover strongly if the devaluation increases the volume of imports and more generally its ability to finance the foreign debt will be enhanced if real economic activity expands in response to devaluation.

Finally, devaluation can affect the financial and banking systems. spilling over to the anchor country, especially when its banks have been active in lending to borrowers in the devaluing country, whether in domestic or in foreign currency. Banking crises often accompany currency crises, especially where banks' clients have unhedged foreign currency liabilities.[15] This in turn can increase the exposure of anchor currency banks who have lent to the devaluer's banks. If banks in the anchor country are already weak, rising bad debts owed by entities in the devaluing country may force a curtailment in even domestic credit activity, in an effort to rebuild balance sheets. It has been suggested that this negative spillover effect may be currently operative in Japan, whose banks have significant liabilities in the Asian crisis countries. However, European and US banks are currently enjoying strong profits and so can more easily absorb losses on their Asian liabilities.

More generally, if investors in the anchor country own assets in the devaluing country, they will suffer a negative wealth shock from any decline in the devaluing country's stock and real estate markets. This of course is the downside of cross-border investment and its costliness

[14] See Froot and Stein (1989), Klein and Rosengren (1992), Goldberg and Klein (1998), Krugman (1998).

[15] See Goldfajn and Valdes (1997), Chang and Velasco (1998), Miller (1998), Obstfeld (1998). The relationship is bidirectional: problems in the banking sector may be the trigger for devaluation.

should be judged in the context of the shared gains when the asset markets in the foreign country are performing well.

The disruptions associated with a currency collapse may also prompt international labour flows. In the case of the 1994 Mexico episode, rapid assistance was offered by the US, at least in part motivated by fear of a sharp inflow of migrants crossing the border from Mexico to the US. In contrast, the threat of increased illegal immigration flows from the Asian crisis countries into the US is remote.

Finally, it is again important to note the potential importance of collective devaluations, well illustrated by the Asian crisis.[16] Although the abandonment of a peg by any one country is a comparatively minor event, the impact becomes greater when a entire region is shocked by a wave of currency collapses. Allowing for such systemic risk is important, for instance, in the lending decisions of international banks if the financial sectors in the lending countries are to be protected. The regional nature of the crisis also introduces strategic political considerations. Although the US has not been much directly affected by the crisis, concerns for stability in Asia and the health of the Japanese banking system has arguably persuaded the Federal Reserve Bank not to implement the interest rate increases warranted by domestic macroeconomic conditions.

Correlated currency collapses can be explained by a number of factors. Clearly common disturbances are important: two good examples are the German unification shock in the EMS case, the depreciation of the Yen against the dollar in the Asian case. Shared policy mistakes are another source, such as the failure of some of the Asian countries to adequately regulate their financial sectors in the wake of capital account liberalization.[17]

However, contagion effects also play a role. A working definition of contagion is that devaluation by country A raises the likelihood that country B will also devalue. Contagion has both rational and irrational forms. Along the rational dimension, a devaluation by country A weakens the competitive position of rival firms in country B and so places pressure on country B to engage in a matching devaluation. This mechanism clearly has been in operation in the Asian episode.[18] More generally, Glick and Rogoff (1998) find that trade relationships do a far better job than other factors (such as similarity in macroeconomic conditions) in explaining patterns of contagion in a large sample of currency crisis episodes since the early 1970s.[19]

The microstructure of international financial markets can also generate contagion effects. If a crisis in country A prompts investors to withdraw savings from regional-based mutual funds, the mutual fund companies will have to sell its regional holdings in order to raise the cash to meet redemptions. Similarly, portfolio allocation models may be built around regional

[16] Similarly, the EMS 1992/93 currency crisis involved multiple countries.
[17] In a comprehensive study, the IMF (1998) finds that real appreciation and growth in bank lending are the two best predictors of financial and currency crises.
[18] Indeed, some observers trace the origins of the crisis to the 1994 Chinese devaluation. However, there is now a consensus that the effective magnitude of this devaluation has been overstated, since a large share of Chinese trade did not take place at the official exchange rate. See Fernald et al. (1998).
[19] See also Rigobon (1998).

strategies such that a "sell" signal applies to the regional in general. In addition, as shown by Calvo and Mendoza (1997), costly information acquisition and broad international diversification combine to make investors highly sensitive to negative rumours about a country's prospects. In turn, a panic-driven capital outflow can prompt a country to devalue in the face of a liquidity crisis. Such a panic is all the more potent when a country has a lot of foreign currency liabilities (such as Thailand, Indonesia and Korea) since the domestic monetary authority can only act as a lender of last resort with respect to domestic currency liabilities.[20] In this way, a general panic about prospects for Asia can force devaluations even by countries that could otherwise have sustained a stable exchange rate.

In summary, the termination of exchange rate pegs, especially collective collapses, can have important feedback effects on the anchor country. Due to limited trade relationships, the US has escaped relatively lightly from the Asian crisis. However, to some extent, this was a matter of good timing: a booming domestic economy and a cyclically profitable banking sector has provided insulation that Japan, for example, lacks. Moreover, even if the direct impact has been limited, regional political considerations has induced the US to moderate its interest rate policy, possibly at the expense of future domestic price stability. The EMU needs to be aware of the risks posed by currency collapses on the part of potential peggers to the euro.

6 Policy Options

Costs and benefits

In section 4, we identified a substantial group of countries that are likely to target the euro. How should the EMU respond? One option is to pursue a US-style “benign neglect” strategy by which the behaviour of bilateral exchange rates are a matter of indifference for the EMU. For several reasons, this may be a suboptimal response. At the most basic level, non-intervention with respect to exchange rates may be at the price of later larger-scale interventions to cope with the consequences of a particularly unstable bilateral exchange rate. For instance, the necessity for sizeable US financial aid to Mexico in the wake of its 1994 devaluation and to Asia during 1997-98 may in part have its roots in earlier neglect of these key bilateral exchange rates. But in addition, as already discussed, exchange rate stability is attractive to the EMU, especially those parts of it with significant linkages with potential tracker countries. For instance, the tourism industries of Spain, Portugal and Italy would be damaged if the currencies of rival sun destinations such as Cyprus, Malta, Morocco and Tunisia were to depreciate against the euro.

Since many of the tracker countries have close political ties to the EU and several are potential EU members, the EMU will also want to take into account diplomatic issues in evaluating the benefits of exchange rate stability: thus if arrangements for stability are in the interest of the tracker countries, the EU may be able to offer something on this front to ease other diplomatic issues. Indeed, since the trackers are heavily dependent on EU trade, the benefits of stability are plausibly much larger for these countries than for the EU. In particular, for these countries, a stable exchange rate is important not only for smooth trade relations but also for

[20] See also Radelet and Sachs (1998).

overall monetary stability.

The fact that the group of potential trackers are collectively small in terms of their of aggregate economic size actually limits the risks involved in such bilateral arrangements. This provides EMU with considerable latitude in pursuing bilateral exchange rate stability since any required foreign exchange interventions would not have a significant impact on the aggregate euro money supply. (In particular, there is much less danger of such a policy destabilizing the EMU than was present for the Bundesbank in agreeing to the intervention arrangements of the EMS.) Since monetary aggregates would not be threatened, supporting bilateral stability is consistent with the mandate of the ECB to pursue price stability as its primary objective.

Our conclusion is that the potential benefits of arrangements to promote bilateral exchange rate stability with at least some of these countries are not negligible. The risks and costs can be contained to an acceptable minimum by careful choice of policy design.

Bilateral support and conditionality

In order to capitalize on the opportunity for constructive collaboration with these countries, a standing administrative arrangement should therefore be set up with a view to establishing formal and regular bilateral consultations between the EMU and interested countries. The bilateral arrangements could evolve from consultations to more formal agreements to collaborate in relation to exchange rate policy.

Of course, we do not recommend that the EMU provide open-ended or unconditional intervention support for bilateral exchange rates with the tracker countries. Any such commitment would generate an obvious moral hazard problem in that a tracker country may believe that lax domestic policies will be "forgiven" by EMU foreign exchange support. However, the problem of moral hazard is diminished by the fact that the tracker countries have every incentive to maintain good political relations with the institutions of the EU and therefore will be reluctant to abuse any support offered by the EMU. The moral hazard problem has more force with respect to the actions of private agents, who may pursue riskier borrowing strategies in the belief that a bail-out will be forthcoming in the event of adverse economic developments.

Rather, intervention support should be provided only in a situation in which a tracker country is following sustainable policies. Indeed, a country that follows policies that are inconsistent with a peg to the euro should be encouraged to readjust its exchange rate in timely fashion. The alternative of a peg that must ultimately collapse is an undesirable situation, since temporary pegs distort production and spending decisions and a discrete currency collapse has a sharp adverse impact on asset prices, creditworthiness and macroeconomic stability.

Sustainability refers not only to sound monetary and fiscal policies but also involves adequate regulation of the financial sector. Excessive lending in domestic currency may require the domestic central bank to exercise its lender of last resort function. Excessive borrowing in foreign currency raises exposure to speculative attack. As such, the sustainability of an exchange rate peg requires the maintenance of a healthy banking and general financial sector. In this regard, one method by which the EMU can promote exchange rate stability is through

the provision of technical assistance in helping tracker countries develop adequate financial regulation systems.

Sound monetary and fiscal policies in the tracker countries can be promoted by the proposed regular bilateral meetings between the EMU and trackers, which would provide the EMU with a forum to express its opinion on the macroeconomic policies pursued by the tracking countries. The right of the EMU to express an opinion on these policy choices is in effect the price that must be paid by the trackers in exchange for the promise of intervention support. An external evaluation can help to clarify the policy choices each country faces. In addition, it may be politically helpful to appeal to EU opinion in persuading domestic actors of the necessity of sound macroeconomic policies. That said, it is important that any policy advice is communicated in diplomatic fashion, in order to avoid the perception that domestic policies are being externally imposed by the EMU and the purpose is not to replicate the IMF's surveillance role.

If a tracker country follows sustainable policies, why might intervention support still be required in order to ensure exchange rate stability? As "second generation" models of currency crises make clear, there is a range of fundamentals for which self-fulfilling speculative attacks are possible. This provides the rationale for EMU intervention: namely, in order to forestall such "unnecessary" currency crises. The message of this literature is that an economy that is temporarily weak is vulnerable to a speculative attack and may opt to devalue, even though no devaluation would take place in the absence of the attack. The promise of EMU intervention under such circumstances would deter speculators and help maintain such sustainable pegs.

Cooperation and coordination among trackers

The issue also arises as to whether cooperation between sub-groups of trackers could also be beneficial (both the the trackers and to the EMU), particularly by reducing the risk of competitive devaluations. After all, there could be a kind of contagion, whereby if one partner country devalues, the incentive and pressure for others to devalue is greater. Such and externality among prospective trackers (who compete with each other on European markets) could exacerbate exchange rate movements which are unwanted from the EMU's point of view. Hence the cooperative arrangements that can be envisaged might be more effective if they embodied arrangements between the "spokes" and not only between the "spokes" and the "hub".

In this context it is worth bearing in mind that the creation of a large euro zone raises the stakes of a competitive devaluation by an outsider – greater than was the case for devaluations in the EMS with its smaller core.

Financial sector stability

It is important to the EMU to avoid unnecessary currency collapses. Aside from the disruption of international trade, the Asian episode has vividly demonstrated that a currency attack can result in a liquidity crisis in the financial sector, as creditors all rush to reclaim their assets prior to a devaluation. This panic equilibrium is costly all round, including for creditors. In the euro context, many foreign creditors are likely to be EU banks or funds and so there is a justification to avoid liquidity crises by supplementing the lender of last resort function of a

central bank under a peg with the promise of EMU foreign exchange intervention. In the event of an incipient financial panic, an additional step that could be taken by the EMU would be attempt to coordinate the actions of EU creditors. This would help to avoid the "scramble for the exit" by which individual creditors seek to ensure repayment, even though it is in their collective self-interest to avoid the forced liquidation of efficient long-term investment projects. The existence of this negative spillover in creditor actions justifies efforts to organize a coordinated, orderly response to financial crises. The recent intervention by the Federal Reserve Bank of New York in the LTCM crisis provides a useful illustration. No public money was offered: rather, the role of the bank was to facilitate coordination among the creditor institutions in order to ensure that LTCM's investment positions were not inefficiently unwound.

Type of exchange rate arrangement

Regarding the precise nature of exchange rate arrangements between the EMU and trackers, it is true that ERMII offers a general framework; however, it is too broad to be useful for countries seeking a tighter arrangement. Some countries may, as already noted, wish to enter into a currency board arrangement. Even if this a preferred option, it is doubtful that that the EMU should enter into a formal agreement to support any currency board. It is not only that this could entail a much larger financial commitment, but that such an agreement would introduce an element of moral hazard almost surely fatal to the logic of a currency board, based as it is on imposing a severe policy constraint.

But support could be provided for a more flexible form of exchange rate tracking. One attractive form is a "target zone" system (Williamson, 1985), allowing a soft margin of fluctuation around the targeted path. For a country that wishes to match the inflation of the euro zone and does not face the prospect of real appreciation, the target path would be stable; otherwise the target path for exchange rate could allow for trend movements. For example, a country that has similar inflation to the euro zone but expects trend real appreciation may want to allow the target exchange rate to smoothly appreciate over time. Conversely, a country that has trend inflation far above the euro zone average may want to allow for trend nominal depreciation. Over time, such a country could gradually disinflate by progressively reducing the rate of "crawl" in the target.

A target zone arrangement avoids the rigidity problems inherent in tighter arrangements. The zone provides an anchor for expectations by indicating the trading range desired by the domestic and EMU monetary authorities. If a currency drifts away from its target par value, countervailing monetary policy can return the exchange rate towards the middle of the range. If the drift is large enough, domestic action may need to be supplemented by EMU intervention in order not to threaten the level of external reserves. Indeed, the promise of intervention in itself will be enough to forestall a certain amount of destabilising speculative activity.

In addition to allowing room for some speculative volatility in the exchange rate, a target zone also allows flexibility in adjusting to temporary asymmetric shocks. A good example would be a liquidity problem in the banking sector, requiring a temporary monetary expansion. Of course, in the event of a permanent real shock, the target par value could be adjusted, shifting

the centre of the band. Such adjustments would not be possible under the alternative of an inflexible currency board arrangement.

It may be better to enter into such target zone arrangements on a bilateral basis. The problem with a multilateral system is that recalibration of target paths requires collective action. The inherent coordination difficulties make the adjustment process more cumbersome and may introduce "hold-up" problems by which a change in target requested by one country is opposed by others that fear competitiveness losses. Moreover, the set of tracker countries may not display the internal political cohesion to ensure that such a multilateral system operates to maximise the common good. Finally, a multilateral system could diminish the influence of the EMU relative to a set of bilateral arrangements between the EMU and individual tracker countries.

If the EMU enters into a bilateral arrangement with a tracker country, it will want to negotiate the target path with the tracker to avoid both initial and subsequent misalignments, whether overvaluation or undervaluation. An overvalued exchange rate is to be avoided because slow growth in the tracking country is not in the interest of the EU, especially in the case of the accession group that aspires to EU membership. Moreover, an overvalued currency may ultimately lead to a currency collapse and the EU will suffer along with the tracking country in the wake of such a crisis.

It must be stressed that any such arrangement should not preclude adjustments in the case of misalignment (in particular because the transition process and therefore the path to EU accession itself requires flexibility). After all, the objective should not be *primarily* to export the monetary credibility of the EMU to non-participants, but to defend these countries against speculative attacks and eliminate some unnecessary exchange rate volatility. Indeed, in determining any formal agreement, the shared objectives of the agreement, will have be clearly stated to avoid divergent and contradictory understandings that could cause the arrangement to unravel.

References

Backe, P. (1997), "Interlinkages between European Monetary Union and a Future EU Enlargement to Central and Eastern Europe", *Review of Economies in Transition*, 2, Bank of Finland.

Bargas, Silvia (1997), "Direct Investment Positions for 1996: Country and Industry Detail", Survey of Current Business, July, 34-41.

Bernanke, B. and M. Gertler (1989), "Agency Costs, Net Worth and Business Fluctuations", *American Economic Review*, (79), 14-31.

Berrigan, J. and H. Carre (1997), "Exchange Arrangements Between the EU and Countries in Eastern Europe, the Mediterranean, and the CFA Zone", in P. R. Masson, T. H. Krueger and B. G. Turtelboom, eds., *EMU and the International Monetary System*, (Washington, DC: International Monetary Fund).

Calvo, Guillermo and Enrique Mendoza (1997), "The Globalisation of Securities Markets", mimeo, the University of Maryland.

Chaffour, J. and L. Stemitsiotis (1998), "The Impact of the Euro on Mediterranean Partner Countries", *Euro Papers* no. 24, European Commission.

Chang, Roberto and Andres Velasco (1998), "Financial Fragility and the Exchange Rate Regime", mimeo, New York University.

Corsetti, Giancarlo, Paolo Pesenti and Nouriel Roubini (1998), "What Caused the Asian Currency and Financial Crisis?", mimeo, New York University.

Dornbusch, R. and F. Giavazzi (1998), "Hard Currency and Sound Credit : A Financial Agenda for Central Europe", mimeo, MIT and Bocconi University.

Drazen, A. and P. Masson (1993), "Credibility of Policies versus Credibility of Policymakers", *Quarterly Journal of Economics* (109), 735-54.

Fernald, John, Hali J. Edison, and Prakash Loungani (1998), "Was China the First Domino? Assessing Links between China and the Rest of Emerging Asia", mimeo, Board of Governors of the Federal Reserve System.

Flood, Robert and Nancy Marion (1998), "Perspectives on the Recent Currency Crisis Literature". IMF Working Paper 98/130.

Flood, R. and A. Rose (1998), "Understanding Exchange Rate Volatility", mimeo, University of California at Berkeley.

Froot, K. and J. Stein (1989), "Exchange Rates and Foreign Direct Investment: an Imperfect

Capital Markets Approach", *Quarterly Journal of Economics*, 106, 1191-1217.

Gagnon, Joseph (1996), "Net Foreign Assets and Equilibrium Real Exchange Rates", mimeo, Board of Governors of the Federal Reserve System.

Glick, Reuven and Andrew Rose (1998), "Contagion and Trade: Why are Currency Crises Regional?", mimeo, University of California at Berkeley.

Goldfajn, Ilan and Rodrigo Valdes (1997), "Capital Flows and the Twin Crises: the Role of Liquidity", International Monetary Fund Working Paper #97-87.

Goldberg, Linda and Michael Klein (1997), "Foreign Direct Investment, Trade and Real Exchange Rate Linkages in SouthEast Asia and Latin America", NBER Working Paper #6344.

Honohan, P. (1997), "Miniblocs and Fringe Currencies of the EMU", *CEPR Discussion Paper* No. 1704.

International Monetary Fund (1998), World Economic Outlook, May.

Klein, Michael and Eric Rosengren (1992), "The Real Exchange Rate and Foreign Direct Investment in the United States: Relative Wealth versus Relative Wage Effects", NBER Working Paper #4192.

Korhonen, I. (1997), "A Few Observations on the Monetary and Exchange Rate Policies of Transition Economies", *Review of Economies in Transition*, 3, Bank of Finland.

Krugman, P. (1989), *Exchange Rate Instability*, Cambridge, MA: MIT Press.

Krugman, Paul (1998), "Fire-Sale FDI", mimeo, Massachusetts Institute of Technology.

Lane, Philip R. (1997), "Inflation in Open Economies", Journal of International Economics.

Lane, Philip R. (1999), "What Determines the Nominal Exchange Rate? Some Cross-Sectional Evidence", Canadian Journal of Economics, forthcoming.

Milesi-Ferretti, Gian Maria and Assaf Razin (1998), "Current Account Reversals and Currency Crises: Empirical Regularities" , mimeo, International Monetary Fund.

Miller, Victoria (1998), "The Double Drain with a Cross-Border Twist: More on the Relationship Between Banking and Currency Crises", mimeo, University of Montreal.

Obstfeld, M. (1994a), “Risk-taking, Global Diversification and Growth”, *American Economic Review* (84), 1310-29.

Obstfeld, M. (1994b), "The Logic of Currency Crises", *NBER Working Paper* No. 4640.

Obstfeld, Maurice (1998), "The Global Capital Market: Benefactor or Menace?", Journal of Economic Perspectives, forthcoming.

Obstfeld, Maurice and Kenneth Rogoff (1995), "The Mirage of Fixed Exchange Rates", Journal of Economic Perspectives, 9, 73-96.

Obstfeld, M. and K. Rogoff (1998), "Risk and Exchange Rates", mimeo, University of California at Berkeley and Princeton University.

Pautola, N. (1998), "Optimal Currency Areas, EMU and the Outlook for Eastern Europe", *Review of Economies in Transition*, 1, Bank of Finland.

Radelet, Steve and Jeffrey Sachs (1998), "The Onset of the East Asian Financial Crisis", Brookings Papers on Economic Activity, forthcoming.

Rigobon, Roberto (1998), "Informational Speculative Attacks: Good News is No News", mimeo, Massachusetts Institute of Technology.

Rogoff, K. (1998), "The Risks of Unilateral Exchange Rate Pegs", mimeo, Princeton University.

Romer, David (1993), "Openness and Inflation: Theory and Evidence", Quarterly Journal of Economics.

Sachs, Jeffrey M. and Andrew M. Warner (1995), "Economic Reform and the Process of Global Integration," *Brookings Papers on Economic Activity* 1995-1, pp. 1-118.

Sapir, A., K. Sekkat and A. Weber (1994), "The Impact of Exchange Rate Fluctuations on European Union Trade", *CEPR Discussion Paper* No. 1041.

Sekkat, K. (1998), "Exchange Rate Variability and EU Trade" *European Commission Economic Paper* No. 127, February. //europa.eu.int/comm/dg02/document/ecopap/ecp127en.htm

Temprano-Arroyo, H. and R.A. Feldman (1998), "Selected Transition and Meditteranean Countries: An Institutional Primer on EMU and EU Relations", International Monetary Fund, WP/98/82.

von Hagen, J. and R. Süppel (1994), "Central Bank Constitutions for Monetary Unions", *CEPR Discussion Paper* No. 919.

Williamson, J. (1985), *The Exchange Rate System* (Washington DC: Institute of International Economics).

Table 1. *Dollar Trackers: Summary table of core characteristics*

Country	*GNP per capita (US $)*	*Population (millions)*	*Total GNP (US $ millions)*	*Fiscal Balance*	*Trade/GDP ratio*
Hong Kong	22,290	6.19	137,975		151.52
Indonesia	980	193.28	189,414	-0.23	26.98
Korea	9,700	44.85	435,045	0.79	33.59
Malaysia	3,890	20.14	174,466	-0.26	102.70
Philippines	1,050	68.60	72,030	-0.91	40.26
Singapore	26,730	2.99	78,846	12.87	170.50
Taiwan	12,395	21.30	262,978	3.22	81.84
Thailand	2,740	58.24	159,578	0.433	44.54

Note: GNP, population and trade/GDP ratios are based on 1995 data. Fiscal balance (as a ratio to GDP) is average over 1990-96. Macroeconomic data were obtained from the World Bank's *World Development Indicators* CD-ROM. Taiwanese macroeconomic data came from Taiwan's *Monthly Bulletin of Statistics*.

Table 4. *EU trade with likely trackers, 1995*

	Imports		*Exports*	
	ECU million	% of EU total	ECU million	% of EU total
Iceland	920	0.17	793	0.14
Norway	25442	5.26	17330	3.13
Malta	1077	0.14	2015	0.3
Cyprus	737	0.1	2013	0.3
Czech Republic	8992	1.68	11653	2.24
Hungary	9611	1.52	8728	1.6
Poland	12251	2.11	15294	3.18
Slovenia	4245	0.74	5178	0.86
Slovakia	3091	0.59	3192	0.64
Estonia	889	0.19	1348	0.27
Latvia	1126	0.19	940	0.18
Lithuania	970	0.19	1016	0.23
Tunisia	3352	0.63	4153	0.69
Morocco	4017	0.73	4728	0.75
CFA				
Cape Verde				
Mauritius	1020	0.19	651	0.09

Source: *Eurostat*.

Table 2. *Macroeconomic Characteristics of Likely Trackers*

	GDP (US$bn)	*Population (millions)*	*GDP per capita (US$000)*	*Openness*	*EU Openness*	*Fiscal Balance*	*Current Account a*
Iceland ①	7.1	0.3	23.5	69.6	31.8	-0.3**	0.7
Norway	146.0	4.4	33.2	70.7	38.3	0.7**	7.5
Malta ①	3.4	0.4	8.3	197.7	101.4	-0.5**	-0.1
Cyprus ①	8.9	0.7	12.7	99.3	35.4	0.1**	-0.1
Czech Republic	44.8	10.3	4.4	107.8	60.3	-2.1	-6.3
Hungary	43.7	10.2	4.3	67.2	54.9	-4.6	-3.9
Poland	117.7	28.6	4.1	53.4	30.6	-1.7	-2.8
Slovenia	18.5	1.9	9.8	112.6	66.4	-1.2	0.2
Slovakia ①	17.4	5.4	3.2	123.8	47.2	-4.9	-12.0
Estonia	3.8	1.5	2.5	159.8	76.9	2.4	-5.1
Latvia	5.7	2.5	2.3	90.8	47.5	1.4	-6.9
Lithuania	7.1	3.7	1.9	107.8	36.6	-1.9	-10.2
Tunisia	18.0	8.9	2.0	93.3	54.4	0.5**	-3.4
Morocco	32.4	27.6	1.2	62.2	35.3	0.2**	-1.7
CFA*	42.8	91.9	0.5	55.6	26.1	NA	-0.1
Cape Verde*	0.4	0.4	1.0	43.3	37.4	NA	-7.7
Mauritius*	4.3	1.1	3.8	78.8	55.8	NA	0.01

Sources: GDP and population from World Bank database, 1995. Openness is the sum of exports and imports as a % of
EU openness is the sum of exports to and imports from the EU as a % of GDP calculated from Eurostat and IM
Fiscal balance data refers to 1997. Source: IMF, except **1995: Source: World Bank
Current account and inflation data from IMF website, and refers to 1997; except ① 1996: Source World Bank
Fiscal balance and current account data expressed as ratios to GDP . External debt data from the Bank for Inter
*All CFA, Mauritius and Cape Verde data from IMF International Financial Statistics, March 1998.

Table 3. *Current exchange rate regimes of likely trackers*

Country	*Exchange rate regime*	*Basket/Target*	*Fluctuation Band*	*Remarks*
Iceland	Pegged to basket	Basket of 16 countries, 10 of which are EU members.	+/-6%	
Norway	Managed floating			Determined by market forces b During 1998 authorities annou
Malta	Fixed peg	Basket: ECU (67%) , US$ (21%), £ (12%)	+/-0.25%	
Cyprus	Fixed peg	ECU	+/-2.25%	
Czech Republic	Managed float			On May 27, 1997, the central b band against a basket including
Hungary	Crawling peg	Basket: DM (70%), US$ (30%)	+/-2.25%	Mid-point of the band is devalu
Poland	Crawling peg	Basket: US$ (45%), DM (35%), £ (10%), CHF (5%), FRF (5%)	+/-10%	Mid-point of the band is devalu
Slovenia	Managed float	De facto shadowing of DM, combined with real exchange rate rule		
Slovakia	Fixed peg	Basket: DM(60%), US$ (40%)	+/-7%	Crown has remained stable aga July 1995.
Estonia	Currency board type	DM	+/-3%	Current regime was introduced represents a deviation from str
Latvia	Fixed peg	SDR		The exchange rate has been pe
Lithuania	Currency board	US$	0%	Currency board was introduce
Tunisia	Managed floating			Determined in interbank mark
Morocco	Pegged to basket	Basket based on main trade partners		Rates for most currencies base
CFA	Pegged to French franc			
Cape Verde	Pegged to basket			
Mauritius	Managed floating			

Source: Temprano-Arroyo and Feldman, 1998.