Do Currency Regimes Matter in the 21st Century? An Overview

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This paper selectively reviews the recent literature on currency regimes in Europe, the Americas, and East Asia. We argue that, given the global interdependence among today's economies, currency regimes should always be evaluated in relation to monetary policy, fiscal policy, structural policies, and the working of financial markets. Thus, currency regimes do matter and are a relevant concern for policymakers.

Key words: Bipolar view; Euro; Dollarization; Regional currency area

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I. Introduction

Aliber (2000) summarizes the major questions regarding world currency regimes as "to fix or not to fix" and "optimum currency areas or not." The classical answer by modern industrial economies to both these questions since the late 19th century has been to fix currencies to gold. Keynes (1923) made the crucial distinction between "internal stability (a stable price level)" and "external stability (a stable exchange rate and equilibrium in the balance of payments)." He favored the former in the presence of nominal rigidity in domestic prices and thus argued in favor of a flexible exchange rate.[1] Many economists at the time were skeptical about a free-floating exchange rate. Most prominently, Nurkse (1944) regarded the experience of European currencies, such as that of the French franc from 1922 to 1926, as evidence that speculators are in general destabilizing under a floating exchange rate.[2] At the launch of the Bretton Woods system in 1944, major economies chose an adjustable fixed exchange rate to the dollar backed by the gold reserve in the United States.

During the operation of the Bretton Woods system, two distinct views that became the foundations of the analysis of exchange rate regimes appeared. Friedman (1953) eloquently stated the possible merits of a floating exchange rate for the sake of absorbing external shocks.[3] Mundell (1961) and McKinnon (1963) responded that, depending on the economic conditions, some economies would be better off if they retained a fixed exchange rate.[4] Their contributions are well known as the theory of optimum currency areas.[5] They also stressed that the economically desirable extent of common currency areas might not coincide with national borders.

After the collapse of the Bretton Woods system, many industrial economies chose to float, except for the notable exception of the European Monetary System (EMS). Emerging market economies have gradually shifted from a fixed exchange rate system toward a floating exchange rate system, often after experiencing currency

1. Note that whether a country chooses a fixed or floating exchange rate, the real exchange rate has to adjust. Thus, the main choice is whether the cost of adjustment is lower if a country chooses to deflate (a choice with which Keynes disagrees) or depreciates.
2. He points out that the system of flexible exchanges in the 1930s uses gold as a vehicle for "hot money" transfer. He concludes, "If there is anything that inter-war experience has clearly demonstrated, it is that paper currency exchanges cannot be left free to fluctuate from day to day under the influence of market supply and demand" (Nurkse [1944, p. 137]).
3. He says, "Changes in internal prices and incomes are undesirable because of rigidities in internal prices, especially wages, and the emergence of full employment—or independence of internal monetary policy—as a major goal of policy" (Friedman [1953, pp. 172–173]). He argues that the floating exchange rate would be stabilizing thanks to speculative transactions. Bordo and James (2001) point out that Gottfried Haberler made a strong intellectual case for floating exchange rates as a mechanism to insulate economies from the transmissions of booms and depressions in his book published in 1937.
4. For example, if factor mobility could be high enough to smooth out divergent shocks across regions, those regions could adjust for the relative wage discrepancies induced by adverse shocks without adjusting the nominal exchange rate. In a region whose external openness is high, the fluctuations in nominal exchange rate under a floating exchange rate arrangement would have an influence not only on the prices of tradable goods, but also on the wages and the prices of non-tradable goods. Thus, a floating exchange rate may not be helpful.
5. Recent studies such as Frankel and Rose (1998) demonstrate that optimal currency area criteria are endogenous, i.e., although these criteria may not be satisfied before the introduction of a common currency, these same criteria might be satisfied once the regions form a common currency area. The sources of endogeneity of country characteristics on its choice of currency regimes are not only economic conditions, but also cultural, historical, and political conditions. Glick (2002) also stresses that how quickly such endogenous changes in country characteristics occur is open to question.

crises. Against this background, Krugman (1979) proposes a model of a balance of payments crisis that focuses on inadequate government policy.

In the 1990s, many economies moved in the direction of free capital mobility. Many crises in the 1990s seem to be correlated with large capital inflows and outflows, and economists have proposed new ways to analyze these new experiences. Motivated by the EMS crisis in 1992, Obstfeld (1994) conjectured that the costs incurred by the authorities in maintaining the pegged exchange rate regime depended on public expectations. In other words, the cost of resisting a currency attack depends on endogenous variables. If governments determine the extent of their resistance through a cost-benefit analysis, however, self-fulfilling crises become likely in situations where economic distress already places the government under pressure. If some exogenous events change the public's expectation regarding the future exchange rate regime, it might lead to self-fulfilling crises among possible multiple equilibria. This could happen even if the authorities have committed themselves to maintaining a fixed exchange rate regime, thus the authorities' commitment is not time-consistent. Morris and Shin (1998) proposed a way to pin down a unique equilibrium by adding a small amount of noise in speculators' signals regarding the fundamentals.

Observing currency crises in the emerging market economies, such as Mexico in 1994, East Asia in 1997, Russia in 1998, and Brazil in 1999, Summers (2000) states that the sources of those currency crises are serious banking and financial-sector weakness, and short-term capital flows.[6] Those episodes remind us of the argument of the *impossible trinity*: economies cannot have capital mobility, an independent monetary policy, and a fixed exchange rate simultaneously, which leads to the "bipolar view." This view suggests that hard pegs and floating exchange rates are good candidates for currency regimes for emerging market economies under conditions of free capital mobility.[7]

This paper has two objectives. It first reviews some debates on the choice of exchange rate regime with special attention to examples of hard pegs, the EMS, the euro, and currency boards, to evaluate to what extent the bipolar view is useful. Second, it explores the possibility of future regional currencies in Europe, the Americas, and East Asia. The rest of this paper is organized as follows.

Section II reviews the definition of and trends in exchange rate regimes, and introduces the bipolar view.[8] Section III examines the experience of European economies. It discusses lessons from the EMS crisis, issues for monetary policy after the launch of the euro, and the possibility of expansion of the euro area. Section IV

6. This paper focuses on the theoretical literature. Thus, we do not discuss studies on contagion motivated by the episodes of the Tequila crisis, the Asian flu, or the Russian virus. Recent examples include Kaminsky and Reinhart (2000, 2001).
7. Even under the surge of global capital flows during the 1990s, the "original sin hypothesis" (Eichengreen and Hausmann [1999]) forces most emerging market economies to rely on short-term bank lending denominated in dollars, rather than their own national currency. Other economists wonder if capital account liberalization during the 1990s was helpful or not (see Rodrik [1998]). Thus, the term "free capital mobility" here is used for the sake of a conceptual framework. Indeed, capital account liberalization remains one of the most controversial policy issues (see Eichengreen [2001] for a recent review).
8. One may argue that the choice of exchange rate regime *per se* does not provide any useful lesson, because "no single currency regime is right for all countries or at all times" (Frankel [1999]). A lesson from his point of view is that the issue of an exchange rate regime cannot be settled definitively, but must be continually kept in mind.

first reviews the debate over unilateral dollarization in Latin America as a notable example of a hard peg, then turns to the possibility of a common currency area in the Americas. Section V reviews the twin-crisis models motivated by the East Asian crisis, then discusses the possibility of an Asian common currency. Section VI summarizes the observations made in this paper and topics for future study.

Note that illustrations for recent theoretical contributions in this paper show that the traditional Mundell-Fleming model may not be the sole theoretical reference point for policymaking. However, space limitations did not allow us to discuss any alternative theoretical building block in the main text. The appendix reviews promising theoretical alternative literature following a consideration of the international transmission of monetary policy and exchange rate regimes under conditions of uncertainty. An important policy implication obtained from those literatures is that market structure and the parameters of the production function can affect the transmission process of monetary policy.[9] Consistent with this view, recent empirical studies point out the interaction between real factors and monetary regime. For example, Rose (2000) uses five-year bilateral trade data from 1970 to 1995 for 186 countries. He regresses these data on real GDP, distance, dummy variables for a common language, a common border, a common trade agreement, whether the country is a colony or not, as well as the volatility of nominal exchange rates and the dummy variables for using the same currency. His results show that the effects of currency union on bilateral trade are positive and statistically significant. Two economies that share the same currency trade three times as much as they would with different currencies. Glick and Rose (2001) estimate the same equation as Rose (2000) using panel data methods, and find that two countries which share the same currency trade twice as much as they would with different currencies. Rose and van Wincoop (2001) find modest but still significant effects of a currency union on the increase in the bilateral trade compared with the evidence reported by Rose (2000). However, the inherent endogeneity problem in the choice of currency regimes and economic performance still poses a difficult empirical problem in these up-to-date studies.

In this paper, the terms "exchange rate regime" and "currency regime" are sometimes used interchangeably; however, currency regimes could refer to broader issues that improve the working of exchange rate regimes. For example, the gold standard is a currency regime that consists of a fixed exchange rate regime and a fiscal policy that consists of a balanced-budget discipline. Similarly, a floating exchange rate *per se* does not imply particular monetary rules, such as inflation targeting or monetary targeting.

9. Cooper (1999) states that traditional analysis of exchange rate regime is not adequate due to the division of the real factor and the monetary factor, and that the new approach summarized in the appendix breaks with part of its tradition.

II. Exchange Rate Regimes: Definitions and Current Trends

Regarding the definition of exchange rate regimes, the International Monetary Fund (IMF) reports the exchange rate classification system among its members either in its *Exchange Rate Arrangements and Exchange Restrictions* or in its *International Financial Statistics* based on the member economies' own assessments. The classifications of exchange rate arrangements reported in those publications are summarized in Table 1. There are eight categories: (1) exchange arrangements with no separate legal tender, (2) currency board arrangements, (3) other conventional fixed-peg arrangements, (4) pegged exchange rates within horizontal bands, (5) crawling pegs, (6) exchange rates within crawling bands, (7) managed floating with no preannounced path for the exchange rate, and (8) independent floating.

Fischer (2001) classifies those arrangements into three groups: hard pegs (categories [1] and [2], 47 economies in Table 1), intermediate group (categories [3] through [6], 59 economies), and float (categories [7] and [8], 80 economies). As of the end of March 2001, approximately one-third of the world's economies, presumably developing economies, belonged to the intermediate group, as can be seen in Table 1.

Summers (2000) observes that the sources of recent currency crises are not fiscal deficit and current account crises, but serious banking and financial-sector weakness and short-term capital flows. He points out that fixed exchange rates work poorly under conditions of financial deregulation and free capital mobility. He states the choice of appropriate exchange rate regime means "a move away from the middle ground of pegged but adjustable exchange rates toward the two corner regimes of either flexible exchange rates or a fixed exchange rate supported, if necessary, by a commitment to give up altogether an independent monetary policy" (Summers [2000, p. 8]). Is the bipolar view (also referred to as the "hollowing-out hypothesis" by Eichengreen [1994]) the answer to the choice of exchange rate regime? In the remaining part of this section, we will discuss the pros and cons of this idea.

Fischer (2001) argues that in the last decade there has been a hollowing out of the middle of the distribution of exchange rate regimes, with the share of both hard pegs and floating gaining at the expense of soft pegs (Figure 1). He expects the bipolar view will apply to the emerging market economies. The choice between hard peg and floating depends on the characteristics of the economies, in particular on their inflation history. Hard pegs make sense for economies with a long history of monetary instability or for an economy closely integrated in both capital and current account transactions with another economy.[10] Fischer's view is clear-cut in theory, but what about empirical evidence for the bipolar view?

One may object to the bipolar view based on the classification published by the IMF, especially before 1998, because those classifications might simply reflect legal (*de jure*) institutional frameworks in the reporting economies.[11] Thus, *de facto*

10. Glick (2001) also shows that capital controls were more frequently employed by economies with intermediate regimes than with either hard pegs or independently floating regimes in 1999. Those economies experiencing greater integration with international capital markets tend to find it difficult to commit to intermediate regimes.
11. The classification system since January 1999 is based on the members' actual regimes, which may differ from their officially announced arrangements.

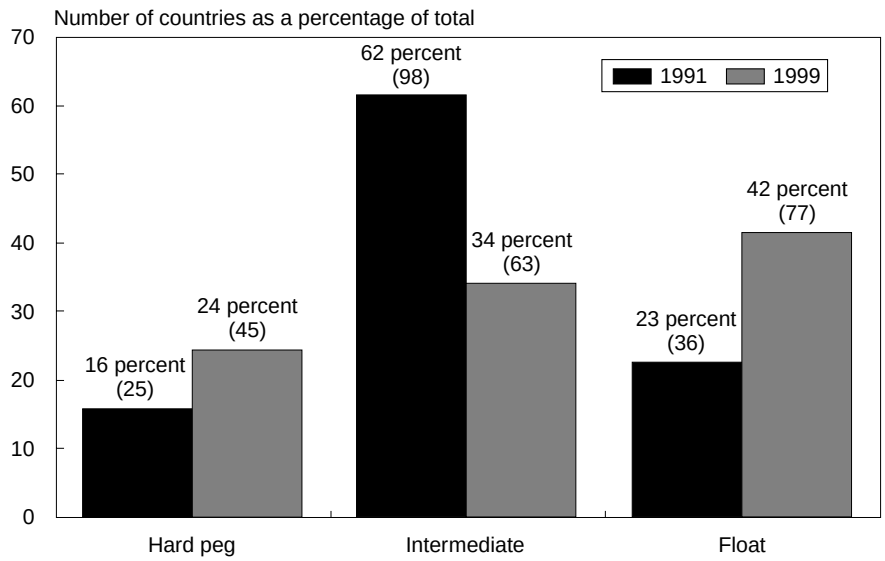
Table 1 Exchange Rate Arrangements

Exchange rate regime as of March 31, 2001	Number of countries	
(1) Exchange arrangements with no separate legal tender: The currency of another country circulates as the sole legal tender or the member belongs to a monetary or currency union in which the same legal tender is shared by the members of the union.	39	OECD members (euro area 12) Latin America (8) Europe* (1) Oceania (4) Africa (14)
(2) Currency board arrangements: A monetary regime based on an implicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure the fulfillment of its legal obligation.	8	Latin America (1) Europe* (4) East Asia (1) Southeast Asia (1) Africa (1)
(3) Other conventional fixed-peg arrangements: The country pegs its currency (formally or *de facto*) at a fixed rate to a major currency or a basket of currencies where the exchange rate fluctuates within a narrow margin of at most ±1 percent around a central rate.	44	Latin America (6) Europe* (5) East Asia (1) Southeast Asia (2) South Asia (4) Middle East (11) Oceania (5) Africa (10)
(4) Pegged exchange rates within horizontal bands: The value of the currency is maintained within margins of fluctuation around a formal or *de facto* fixed peg that are wider than ±1 percent around a central rate.	6	OECD member (Denmark) Latin America (1) Europe* (1) Southeast Asia (1) Africa (1)
(5) Crawling pegs: The currency is adjusted periodically in small amounts at a fixed preannounced rate or in response to changes in selective quantitative indicators.	4	Latin America (3) Africa (1)
(6) Exchange rates within crawling bands: The currency is maintained within certain fluctuation margins around a central rate that is adjusted periodically at a fixed preannounced rate or in response to changes in selective quantitative indicators.	5	OECD member (Hungary) Latin America (3) Middle East (1)
(7) Managed floating with no preannounced path for the exchange rate: The monetary authority influences the movements of the exchange rate through active intervention in the foreign exchange market without specifying, or precommitting to, a preannounced path for the exchange rate.	33	OECD members (Czech Republic, Norway, Slovak Republic) Latin America (4) Europe* (11) South Asia (3) Southeast Asia (3) Africa (9)
(8) Independent floating: The exchange rate is market determined, with any foreign exchange intervention aimed at moderating the rate of change and preventing undue fluctuations in the exchange rate rather than at establishing a level for it.	47	OECD members (Australia, Canada, Iceland, Japan, Korea, Mexico, New Zealand, Poland, Sweden, Switzerland, Turkey, United Kingdom, United States) Latin America (6) Europe* (5) East Asia (1) Southeast Asia (3) Middle East (2) Oceania (1) Africa (16)

Note: Europe* includes the newly independent states (NIS) composed of the former Soviet Union countries.

Source: International Monetary Fund, *International Financial Statistics,* 2001, pp. 124–125.

Figure 1 Exchange Rate Regimes in 1991 and 1999



Note: Parentheses indicate the number of countries.

Source: Fischer (2001), figure 1.

exchange rate regimes based on the working of financial markets or macroeconomic variables might be more appropriate. Studies based on a *de facto* exchange rate regime give a mixed answer to the bipolar view. Levy-Yeyati and Sturzenegger (2000, 2001) classify economies into four exchange rate regimes using cluster analysis based on three macroeconomic variables.[12] According to their analysis, the number of economies classified as "intermediate group" still accounts for more than one-fourth of all economies. Masson (2001) also shows that the intermediate cases will continue to constitute a sizable fraction of actual exchange rate regimes.[13] On the other hand, Frankel *et al.* (2000) add an argument against intermediate regimes based on Chile's data and on the results of Monte Carlo simulation.

In our view, a weak point of the bipolar view is that there are few economies with hard pegs, especially large ones.[14] Exceptions include the euro-area economies, the CFA Franc zone economies, Ecuador, Panama, and Hong Kong, at the time this paper was written. Thus, the next three sections first review a few debates on the management of exchange rate regimes with special attention to examples of the hard pegs listed above to evaluate the bipolar view. Then those sections explore the possibility of future regional currencies in each area.

12. They use monthly percentage changes in the nominal exchange rate, the standard deviation of monthly percentage changes in the exchange rate, and the volatility of reserves. Shambaugh (2001) discusses the problems of coding method by Levy-Yeyati and Sturzenegger (2000) and proposes a new approach of *de facto* two-way coding system between pegs and non-pegs focusing on the volatility of exchange rates.
13. He computes a transition matrix across exchange rate regimes from the data published by Ghosh *et al.* (1997) and Levy-Yeyati and Sturzenegger (2000) to obtain his conclusion.
14. Glick (2002) nicely states that "the hard peg pole is narrower than we thought."

III. The European Experience

It is well known that one of the economic backgrounds of the European Monetary Union (EMU) was the theory of optimum currency areas. However, according to Dellas and Tavlas (2001), the European Union (EU) economies do not satisfy optimum currency area criteria sufficiently.[15]

So what lesson about exchange rate regimes in the 21st century can we learn from the European experience? Note that behind the bipolar view lie successive speculative attacks against economies with pegged exchange rates since the EMS crisis in 1992–93. Thus, in this section, we will review the lessons from the EMS that may apply to future exchange rate regimes. We then move on to problems faced by policymakers in the euro area following the euro's establishment. Finally, we will discuss the possibility of a future expansion of the euro area.

A. The Way toward the Euro: Past and Present

1. Lessons from the EMS

After the collapse of the Bretton Woods system, European economies moved to develop their own arrangements for exchange rate stability. These started with the "snake in the tunnel" and moved on to a more structured EMS in 1979. The EMS was *de facto* a system in which "capital controls were permitted to allow governments to negotiate realignment while providing them a degree of policy autonomy" (Aldcroft and Oliver [1998]). It experienced 11 episodes of realignment between 1979 and 1987. However, over the years, a code of conduct had been built up as the EMS developed from a mere exchange rate arrangement into a powerful convergence instrument, such as the Basle-Nyborg Agreement, which strengthened intervention in the foreign exchange market. It implied the acceptance of the deutschemark as the anchor of the system (Braga de Macedo *et al.* [2001]). Differentials in rates of inflation in the EMS economies converged remarkably during the late 1980s, which could be explained by the "credibility hypothesis." According to this, economies such as those of France, Italy, or the United Kingdom could increase the credibility of their national monetary policies and lower their national expected rates of inflation by pegging their currencies to the deutschemark, which usually recorded a low rate of inflation under a credible monetary policy.

These successful periods did not last long. By July 1990, most EMS member economies had removed capital controls, which had been one of the most important methods of successful monetary management under the EMS.[16] The removal of capital controls seemed to be one of the key factors behind the EMS crisis in

15. According to Dellas and Tavlas (2001), among the optimal currency area criteria, the EU economies satisfy only the criteria of openness and trade integration. Note that EMU is just a factor of European integration, which includes European economic integration and European political integration. Thus, the economic and political integration in the EU economies could allow those economies to satisfy the optimum currency area criteria in the future.
16. Wyplosz (2001a) mentions that the conflict between fixed exchange rates and the active use of monetary policy was reconciled through internal financial repression such as quantitative limits on bank credit and ceilings on interest rates in addition to capital controls.

1992–93, consistent with the bipolar view. Of course, free capital mobility does not always mean that the peg is subject to attack, as can be seen in the experience of the EMS after the crisis. The acceptance of a stability-oriented policy by member economies that essentially meant mutual regional surveillance, together with central parity within a large band, seemed to improve the credibility of the peg under the single European capital market (Braga de Macedo *et al.* [2001]).

Moreover, free capital mobility is not the only problem in the EMS. Let us briefly summarize two other internal problems that made it difficult for the EMS economies to defend their band, following Dellas and Tavlas (2001).

First, suppose that a shock occurs in the central economy (Germany) and that the currency of the central economy appreciates against a currency outside the EMS (say, the dollar). Within the EMS, the currencies of the other member economies (such as France or Italy) also must be made to appreciate against the dollar to defend the EMS band, although they have been hit by no shock at all. Dellas and Tavlas (2001) call such a process of transmitting shocks within the central economies to the other member economies the "magnification effect."[17]

Second, member economies with relatively high inflation and high nominal interest rates experienced capital inflows and their nominal exchange rates become overvalued against the currencies of low-inflation economies. Such overvaluation encourages more production of non-traded goods, and leads to current account deficits in relatively high-inflation economies. This episode demonstrates that the pegged system has a transition problem.[18]

Based on those arguments, Dellas and Tavlas (2001) conclude that the experience of the EMS provides evidence that an exchange rate peg nominal anchor contains internal dynamics which make such a regime especially fragile.

2. Issues relevant to a successful single monetary policy

The launch of the euro on January 1, 1999 and the circulation of euro-denominated banknotes and coins in January 2002 are two important events demonstrating that the European economies have finally completed the formation of a single currency. However, a number of "flaws" or "hazards" have been pointed out in the construction or in the working of EMU. Among these problems, Bordo and Jonung (1999) highlight three: (1) the absence of a central lender-of-last-resort (LLR) function and the lack of supervisory authority of the EMU-wide financial system, (2) the absence of central coordination of fiscal policy within EMU, and (3) weak democratic control (accountability) of the European Central Bank (ECB). We will discuss these problems in turn.

17. This process illustrates the overall appreciation of European currencies during German reunification. At that time, the Bundesbank tightened monetary policy during the massive fiscal investment that occurred in the former East Germany, and that policy mix led to the appreciation of the deutschemark. Other member economies maintained exchange rate stability against the deutschemark by tightening their monetary policies at the cost of accepting appreciation against the dollar and the yen.
18. This phenomenon is consistent with the many episodes of realignment in the early 1980s. At that time, rates of inflation in the other EMS economies were higher than that in Germany. But the nominal exchange rates of those other economies' currencies did not depreciate much within the EMS. As a result, appreciated real exchange rates led to subsequent realignments.

a. Maintaining the financial stability of EMU

In EMU, it is not the ECB but national central banks (NCBs) that primarily have LLR functions. Bank supervising authorities (NCBs or government agencies), rather than the ECB, are primarily responsible for bank supervision.

The advent of the euro has stimulated the integration of financial markets of member economies. An integrated financial market might spread a large negative shock in one member economy into area-wide financial instability. Obstfeld (1998) pointed out two problems regarding the Maastricht Treaty's blueprint for safeguarding financial stability.

First, regarding the structure of euro zone prudential supervision, Obstfeld (1998) wondered whether the division of regulatory responsibility among national regulators might be a misguided application of the principle of subsidiarity, because the optimal domain of regulation in an integrated financial market would not be smaller than the market itself. For example, the national regulators may not fully internalize the adverse repercussions of a financial crisis, particularly when the bill for containment arrives at the EMU or EU level. Another concern is that national regulators might favor national institutions or financial centers through lax application of the rules.

Second, regarding the lack of a statutory mandate for the ECB to act as an LLR, Obstfeld (1998) argues that such an arrangement is only consistent with the special features of the German financial system. Those include a relatively low degree of securitization, the dominant position of large universal banks; the high levels of reserves and collateralizable securities that German banks hold, and other features of the domestic payments system.[19] However, the euro financial system does not share these structural features of the German system.[20]

Against this criticism, Padoa-Schioppa (1999) claims that many bank supervision procedures have been harmonized within EMU, and that "there are neither legal-cum-institutional, nor organizational, nor intellectual impediments" to operating LLR when an EMU-wide crisis occurs. He concludes, "There is no expectation, at least to my mind, that the division of responsibility . . . should be abandoned."[21]

b. The central coordination of fiscal policy within EMU

Is a harmonized single fiscal policy necessary for a monetary union?[22] In Europe, the *Delors Report* of the Committee for the Study of Economic and Monetary Union (1989) emphasizes the necessity of harmonized fiscal policy in EMU.

19. As for the reasoning of this argument, Folkerts-Landau and Garber (1992) state, "Financial systems with a limited extent of securitization have in practice a small number of large universal banks in the market for wholesale funds. Wholesale payments and securities transactions are cleared internally in these organizations. The risk of nonsettlement is low due to the lack of significant exposure to non-bank financial institutions and an increased ability to work out unexpected problems quickly among the small number of players. Hence, although the clearing banks ultimately clear on the books of the central bank, there is little need for the central bank to provide intra-day credit or stand ready to act as lender-of-last-resort to the clearinghouse to ensure the payments settlements."
20. Parti and Schinasi (1999) also insist that the absence of the central LLR and supervising arrangement may undermine the existence of EMU in the face of area-wide financial crises.
21. Buiter (2000a) also states that LLR actions should be left at the national level, subject to ECB oversight and coordination, since the capital of the ECB is limited and it is not backed, either formally or informally, by the deep pockets of a ministry of finance.
22. Optimum currency area criteria suggest the necessity of fiscal transfer within monetary union. If one region suffers from high unemployment due to a region-specific negative shock, fiscal transfers from low-unemployment regions to high-unemployment regions can smooth out the shock without adjusting nominal exchange rates.

Many economists have conducted empirical analyses regarding the necessity of central fiscal policy to guard against asymmetric shocks. For the United States, von Hagen (1992) estimated that 47 cents of net federal transfers would be made in response to a US$1 difference in the level or change in state income compared to U.S. average income. However, for economies other than the United States, such as Canada, many research findings have shown different estimates of the transfer in a range from more than 10 to more than 50 cents (see Kletzer and von Hagen [2000] for a recent review). These studies indicate that fiscal transfer may be significant in some existing monetary unions, but it is difficult to answer the question of how important it is in practice for the stabilization of the regional economies.

Another reason for the need of central coordination of fiscal policy within the EMU could be the possibility of the dynamic inconsistency problem. One may well wonder whether fiscal authorities would expect the EMU to accept discretionary fiscal policies that are slightly inconsistent with the Maastricht Treaty, because a single monetary policy cannot emphasize a particular economic situation of member economies.[23] Von Hagen *et al.* (2001) argue that the EU surveillance of public finance should focus on the content of consolidation efforts, as well as the ceiling on the gross government debt to GDP ratio and general government deficit to GDP ratio to achieve prudent fiscal policies in monetary union.

c. Democratic control (accountability) of the ECB

Some economists are concerned about issues relating to democratic control of the ECB, such as its independence and accountability. First, concerning the independence issue, Feldstein (1997) argues that pressure from governments on the ECB would bias monetary policy.[24] The decision-making body of the ECB, the Governing Council, consists of six Executive Board Members, appointed by the European Council, and the central bank governors of the EMU member economies. Monetary policy is decided by simple majority in the Governing Council. Therefore, the representatives on the ECB Governing Council might reflect their national attitudes and face political pressure to represent what domestic governments perceive to be their national interests.[25] Second, concerning the accountability issues, Buiter (2000a) states that the U.K. arrangements, with an operationally independent central bank pursuing a politically mandated set of objectives, are superior to the current EMU arrangements in a democratic economy. Regarding the procedural openness and transparency of monetary policy, he also suggests that the individual voting records of the members of the Governing Council and its minutes should be in the public domain.

Hämäläinen (2001) opposes these criticisms. First, the Maastricht Treaty prohibits the ECB and NCBs from taking instructions from any external bodies; therefore, the

23. Von Hagen *et al.* (2001) show the empirical evidence that the pressure of the Maastricht Treaty might have resulted in some short-lived and revenue-based consolidation efforts during the recession years of the early 1990s. The policy implication of their evidence could be that the pressure from the Maastricht Treaty should not be underestimated.
24. Feldstein (1997) suggests that the future average rate of inflation would rise and that the net economic effect of EMU would be negative, based on the above argument.
25. The future expansion of EMU means an increase in membership of the Governing Council. If Feldstein (1997) is right, in our interpretation, the future expansion of EMU members might also increase the risk that the ECB will receive greater pressure from governments and that its monetary policy will be biased.

independence of the ECB is firmly safeguarded by the treaty. Second, if the minutes and voting record of the Governing Council were published, there would be a risk that the individual members of the council might be subject to pressure from their domestic publics, which could discourage their necessary euro area-wide thinking.

B. Expansion of EMU in the Future

The discussion so far shows that the introduction of a common currency is not a panacea, and unsolved problems remain with regard to EMU. Thus, it is understandable that some EU economies had still not joined the euro at the time this paper was written.

However, the euro area has its own frontier: with East European, Mediterranean, and African economies. Currently, many East European transition economies are applying for EU accession, and trade and financial links, as well as political dialog, between these economies and the EU have been deepening.[26] Noyer (2000) expects the future expansion of the euro area, stating, "The more a process of regional integration moves beyond a free trade area toward a single market, or even an economic union, the stronger the need for intra-area exchange rate stability, and eventually, irrevocably fixed exchange rates." Are there any pitfalls during the accession process?

To analyze this question, we should take care to distinguish EU membership from EMU membership. EMU candidates must meet both the exchange rate criterion[27] and the inflation rate criterion[28] in addition to the fiscal deficit criterion. Buiter and Grafe (2001) suppose that the productivity growth differential between the traded and the non-traded sectors is larger in the accession economies than EMU member economies. This means that the relative price of non-traded goods to traded goods is higher in the accession economies and their overall inflation rate will be higher at a given exchange rate—the Balassa-Samuelson effect. Then, the introduction of the euro in accession economies would lead to a period of declining prices and large costs of adjustment to meet the Maastricht ceiling under sticky prices. Buiter and Grafe (2001) suggest that the inflation rate criterion should be specified more concretely in terms of traded good prices to resolve this conflict. Noyer (2001) responded to such a concern on the consistency of nominal and real convergence during the accession

26. Regarding the choice of exchange rate regimes in the accession economies, at the beginning of the 1990s, conventional fixed pegs (intermediate based on Fischer [2001]) were the most common type among those economies. As of the year 2000, except for Hungary and Slovenia, accession economies employed either hard pegs (a currency board in Estonia, Lithuania, Bulgaria, and Latvia) or a float (the Czech Republic, Poland, Romania, and the Slovak Republic). Thus, Begg *et al.* (2001) report that after the liberalization of short-term capital flows in the accession economies, the bipolar view applies to these economies. See von Hagen and Zhou (2002a) for an empirical explanation of the choice of rate regimes that seems to be consistent with the openness criterion of the optimum currency area in transition economies. Von Hagen and Zhou (2002b) compare *de facto* exchange rate regime classification based on methods by Levy-Yeyati and Sturzenegger (2000) and official classification by the IMF. Von Hagen and Zhou (2002c) show that the exchange rate regime choice affects capital controls, while feedback effects from capital controls on the choice of exchange rate regime are absent. We omit the discussion on two small economies negotiating entry into the EU (Cyprus and Malta) as well as Turkey.
27. The exchange rate criterion requires EMU candidates to stabilize their exchange rates within a ±15 percent band for two years before joining EMU without capital or exchange controls.
28. The inflation criterion requires that the inflation rate must not exceed the average of the three lowest-performing economies by more than 1.5 percentage points.

process as follows. First, most empirical studies estimate the Balassa-Samuelson effect within a range of 1 to 2 percentage points. Second, the Maastricht inflation criterion, which will not be revised to take into account any possible Balassa-Samuelson effect, should not be seen as an immediate requirement for these countries, but rather as a medium-term objective for central banks.

IV. The Experience of the Americas

In the Americas, following the large currency crises, such as those in Argentina (2002), Brazil (1999), and Mexico (1994), large economies have moved toward floating exchange rate regimes. Canada, which has sometimes been advised by economists to join the U.S. currency union, remains under a floating exchange rate regime.

However, several small economies are officially dollarized, such as Panama, and some economies have opened the way to unilateral dollarization, such as Ecuador or El Salvador.

In this section, following Edwards and Magendzo (2001), we define "dollarization" as a policy proposal that emerging market nations should give up their national currencies and adopt advanced nations' currency as legal tender. We identify the dollarization proposal as one of two poles.[29] We will first discuss the pros and cons of dollarization relative to clean floating in detail in the context of Latin American economies. Note that the current choice of a floating exchange rate in many American economies does not necessarily mean that there is no possibility of a regional currency area in the Americas in the future. Thus, we will discuss this issue in the latter part of this section.[30]

A. The Pros and Cons of Unilateral Dollarization

1. The case for dollarization

Calvo (2000) points out compelling reasons for emerging market economies to avoid exchange rate flexibility. Dollarization may be costly, but it may put emerging markets on the first stage of the track leading toward monetary and financial stability. He observes that the heart of the problem may lie in imperfect information, inexperience in handling sudden large capital inflows, and shaky political equilibrium, especially in Latin America.

Calvo (2000) summarizes Mundell's condition regarding the choice of exchange rate regime. Consider a simple model, $y = \alpha e + g + u$ and $m = y + v$. Here, y, e, g, and

29. Broader definition of dollarization would include the holdings by residents of a significant share of their assets in the form of foreign currency-denominated assets and the use of foreign currency-denominated assets for transaction (see Baliño *et al.* [1999]). It is well known that in high-inflation economies, citizens abandon the local currencies and choose to use the dollar as the medium of exchange, and this reduces the base for inflation tax and introduces a parallel currency. Needless to say, the allocation of seigniorage between the United States and a dollarized economy depends on the nature of the legal framework proposed in the dollarized economies.
30. This paper does not attempt to list desirable monetary policy strategies for all economies in the Americas. Mishkin and Savastano (2001) regard hard pegs and constrained discretion based on inflation targeting as two promising strategies. They conclude that the choice between the two depends on political and institutional factors which constrain monetary policy.

m denote the logs of output, the nominal exchange rate, the shift parameter of an external factor such as U.S. demand, and money supply. The first equation is an open-economy IS curve, and the second equation is an LM curve. u and v show random shocks, and α is a positive constant. The existence of a fixed exchange rate means e is constant and m is endogenous. The floating exchange rate means m is constant and e is market determined. Hence, under the fixed exchange rate regime, var(y) = var($u + g$), and var(e) = 0, while under the float, var(y) = var(v), and var(e) = $(1/\alpha^2)$var($u + g + v$). If we worry about the var(y), a fixed exchange rate is better if var(v) is larger than var(u), abstracting momentarily from g.

In practice, policymakers do not know the size of var(v) and var(u). It would be better to have a discretionary exchange rate policy depending on the shock, but for most emerging market economies it would be impossible. More seriously, if most bank lending is dollarized, an unexpected devaluation of the nominal exchange rate could lead to debt deflation, hence it may make more sense to pay attention to var(e), rather than var(y). In addition, if the markets of emerging economies are subject to asymmetric information in financial markets, it makes sense to offset var(v) by just pegging the nominal exchange rate.[31] By means of dollarization, an economy's monetary policy obtains credibility, lowers the information cost, and moderates relative price changes compared with floating.

Calvo (2000) also points out that dollarization provides a cushion for sharp relative price changes in comparison with a flexible exchange rate. If prices and wages are sticky, the nominal profit of firms will change slowly. Thus, firms would be more willing to repay debt and might facilitate a more orderly recontracting of debt under Keynesian-type recession. Calvo (2000) admits the cost of losing the LLR function. However, adding international banking, as can be seen in Panama, would be a solution.[32] An alternative to dollarization is not a textbook-style free flexible exchange rate system but a closely managed flexible rate system, because the lack of credibility of central banks would mean a managed float with a lot of intervention, or inflation targeting with less credibility.[33] If this regime is a realistic alternative, dollarization might make sense.

2. Is unilateral dollarization the solution?

Corbo (2001) discusses the advantages and disadvantages of dollarization in the Americas. He points out that potential benefits of dollarization are low inflation, the elimination of currency risk and its associated risk premium, low transaction costs of using the currency, lower relative price volatility of tradable goods with dollarized economies and thus a larger amount of foreign trade with those economies, and the

31. Calvo and Reinhart (2000) illustrate why large exchange rate swings are feared when access to international credit may be lost.
32. Calvo (2000) evaluates Panama's system as follows: "In Panama, banks are subject to minimal reserve requirements and there is no institution in charge of LOLR operations. Seemingly, the *de facto* LOLR has been a large American bank . . . . . The country has suffered only minor tremors from Tequila and other recent financial crises."
33. Calvo and Reinhart (2002) find that economies that say they allow their exchange rate to float mostly do not do so. Relative to committed floaters such as Japan, the United States, and Australia, observed exchange rate volatility is small.

elimination of currency mismatch in foreign liabilities. He suggests the main cost is that, in the presence of nominal rigidity in the labor market, real depreciation is hard to achieve, and thus a real negative shock, such as a terms of trade shock, would lead to serious unemployment.

Consider economies with poor records of monetary stability, in which currency substitution is high, or economies in which a substantial part of trade in goods and capital flows occurs with the United States. Corbo (2001) suggests that the benefit of dollarization would outweigh the cost of dollarization in such economies, if labor markets are flexible and the appropriate institutions support the financial system. He suggests that many Central American economies satisfy this condition, while in large economies, except for Argentina, their choices are not clear.

Edwards (2001a) admits that the argument made by Calvo and others in favor of dollarization goes beyond the scope of the static theory of optimum currency areas. However, he warns that their policy recommendations are based on very limited empirical and historical evidence in very small economies. He examines a small group of economies that live under a so-called dollarized monetary system,[34] and finds that those nations have (1) had significantly lower inflation, (2) grown at a significantly lower rate, and (3) had similar fiscal deficits and current account balances compared with non-dollarized economies. In the case of Panama, he points out its success in achieving lower inflation, but behind these achievements it has failed to maintain fiscal discipline and has been helped by the IMF programs quite often. He also shows that external shocks in the form of terms of trade disturbances and current account balance reversals have had larger negative effects on Panama than on non-dollarized economies.

Edwards (2001b) stresses that the credibility of hard pegs is not automatic. At a minimum, an economy needs to address key structural issues such as fiscal solvency, appropriate preparation for exercising the LLR function,[35] a solid banking sector, and a sufficiently high quantity of dollar reserves in the case of a currency board. Based on the information available while this paper was written, the experience in Argentina suggests that even a currency board cannot work if the economy does not follow a prudent fiscal policy. Another lesson is that an economy's choice of currency regime should take into account those of their key trading partners.[36] The combination of low inflation and market liberalization in the early 1990s did not result in fast and sustained productivity growth that exceeded the rise in real wages, which could have preserved Argentina's competitiveness under the currency board (Feldstein [2002]).

34. These economies are the following very small economies: Andorra, Kiribati, Liberia, Liechtenstein, the Marshall Islands, Micronesia, Monaco, Nauru, Palau, Panama, San Marino, and Tuvalu.
35. For example, one may wonder if the private banks alone could adequately handle a sudden increase in demand for dollars by citizens in a dollarized economy. Such a demand shock, if large enough, could be transmitted to the U.S. financial market.
36. Given the devaluation of the peso, Hausmann (2002) recommends establishing an independent central bank with a price stability mandate, to increase the jobs in agriculture, industry, and tourism, stimulate foreign demand, lower tariffs, and reestablish financial stability. Sachs (2002) wonders if Argentina's history of monetary instability makes the benefit from devaluation questionable, and thus dollarization would still be preferable.

B. A Common Currency Area for the Americas in the Future

The recent movement toward a floating exchange rate may not be the end of the discussion on the currency regime in the Americas. For example, Dornbusch (2001) argues that Mexico would benefit from the immediate introduction of a currency board to deepen economic integration with the United States. Corbo (2001) states that the type of monetary arrangement which would be more appropriate for the Southern Cone Common Market (MERCOSUR) as a whole is an open question.

However, in the long run, Corbo (2001) states that interest in moving toward currency areas in Latin America will increase, as the experience of the euro becomes clear. In this case, as Salvatore (2001) suggests, the United States might have a negative interest in the expansion of the dollar area. Suppose many Latin American economies succeed in reducing the rate of inflation to a level as low as that of the United States in the future. In such a situation, the U.S. government might benefit from dollarization in the Americas because of the increases in seigniorage and trade flows. At the same time, massive use of the dollar in the Americas, especially in large economies, might make the monetary management task of the Federal Reserve Board (FRB) harder in terms of gearing its policy exclusively toward the U.S. economy. And if this difficulty were to raise doubts regarding the credibility of the dollar, it could well result in a sudden shift from the dollar to the euro, producing large-scale financial turmoil (Salvatore [2001]).[37]

V. The East Asian Experience

At the beginning of the 1990s, many East Asian economies experienced high-speed economic growth. There were many economic discussions regarding the keys of success in the East Asian economies, such as World Bank (1993). Krugman (1994) was a notable critic of this success, although what he expected was a slowdown of Asian growth based on lower estimates of total factor productivity growth in this region computed by Young (1995), rather than a meltdown of the financial system in some economies in this area.

Since the East Asian crisis, a large amount of literature has been published on this topic (see, for example, Corsetti *et al.* [1999a] for an overview of economic fundamentals and the debate regarding this experience). Economists started to complain about many features of the economic environment in this region, for example, crony capitalism, weak banking sectors, inadequate sequencing of capital account liberalization, the lack of a legal basis in these economies, and so on, as well as about the *de facto* dollar peg employed in some economies. Since the bipolar view in the Asian context is motivated by the twin crises, in this section we will review a variety of models of the twin crises and policy debates. We will then move on to the issue of an Asian currency area.

37. One may object to this view because U.S. monetary policy did not show so much external concern during the dollar-standard era. An important assumption here is that the euro becomes another important international currency and the use of the dollar prevails throughout the Americas.

A. Twin Crises and Policy Debates: What's New?

A variety of research papers have tried to explain the twin crises and subsequent policy debates following the East Asian crisis.

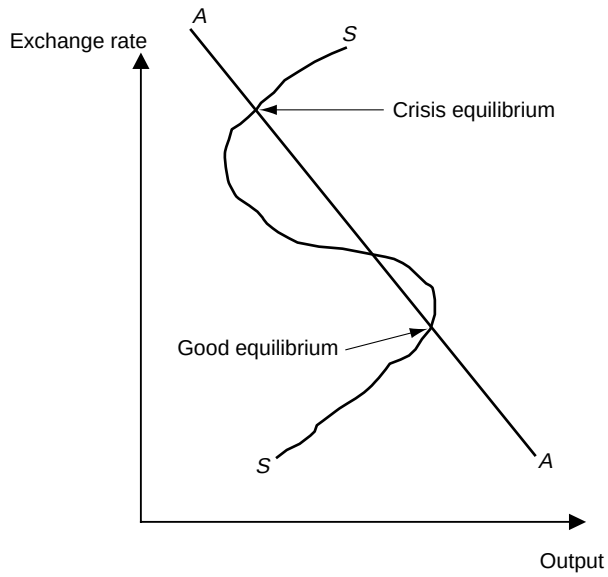
Many economists have focused on moral hazard as the common source of the over-investment, excessive external borrowing, and current account deficits that led to the twin crises (see, for example, Corsetti *et al.* [1999b], Krugman [1998], and Schneider and Tornell [2000]). Among the sources of moral hazard, some economists complain that the involvement of the IMF in Mexico might have allowed foreign investors in East Asian economies to expect that the Fund would help them. Such concerns led to extensive discussions regarding the role of the IMF (see, for example, Meltzer Commission [2000]).

Excessive investment based on bank lending requires a new way of thinking about the policy response to a crisis. The IMF often suggests a temporary sharp tightening of monetary policy to support the exchange rate, followed by gradual loosening once confidence seems to have been restored. Does this cure make the disease worse?

Furman and Stiglitz (1998) argue that high interest rates in highly leveraged economies can drive the exchange rate in an unintended direction. This is because such an operation would put local banks in jeopardy and make the economic situation worse.

Krugman (2000) gives an intuitive explanation why a low interest rate policy may not help such a crisis-hit economy using a slightly modified Mundell-Fleming framework (Figure 2). In the commodity market, a currency depreciation will increase net exports and domestic output in the ordinary case. Suppose that the

Figure 2 Krugman (2000) Model



Source: Krugman (2000).

adverse balance-sheet effects, for example, an increase in the domestic value of debt denominated in foreign currency due to depreciation, were to be sufficiently strong in the crisis. Then, the negative wealth effect due to the balance-sheet problem would generate a commodity market equilibrium condition S-shaped curve (the *SS* curve in the figure) against the nominal exchange rate. The asset market equilibrium condition would be the downward-sloping *AA* curve in the figure. Given the domestic GDP, if the monetary authority leans against the exchange rate movement, we can suppose *AA* is downward sloping. Thus, there are two locally stable equilibria.

Suppose a lower interest rate policy and a depreciation of nominal exchange rate were made. If this were done at around the good equilibrium in Figure 2, then the standard remedy would work. However, consider a situation where self-fulfilling capital flight or a political crisis occurs. Then, the economy might jump toward the crisis equilibrium, rather than the good equilibrium in the figure. Facing the risk of moving toward the crisis equilibrium, the central bank would be reluctant to loosen monetary policy because such a decision would only ensure that the crisis equilibrium materializes. Alternatively, if the central bank tightened, at least temporally, to persuade the market that the currency was strong, a sufficiently severe short-run shock would produce lasting effects, as in the Indonesian experience. Thus, the traditional policy response in a recession would reach a dead-end.

Another group of economists considers the role of liquidity during a banking crisis and its relationship with exchange rate regimes (see, for example, Chang and Velasco [2000, 2001]). Caballero and Krishnamurthy (2001) make an important distinction between domestic liquidity constraint and international liquidity constraint. The standard Mundell-Fleming model approximates an external shock either as a rise in the country premium or international interest rates based on interest parity condition. In other words, it assumes that unlimited funds are available from abroad at a high but fixed price. Thus, distressed firms with good collateral would be helped by foreign funds at constant but high interest rates. Reductions in the domestic liquidity constraint due to a lower interest rate policy would also be helpful for these distressed firms. However, Caballero and Krishnamurthy (2001) argue that if the international liquidity constraint and domestic liquidity constraint are simultaneously binding, a domestic low interest rate policy would mainly affect the domestic relative price of the limited amount of international liquidity within this crisis-hit economy. Thus, a low interest rate policy during the crisis might bring about a sharp overshoot in the exchange rate depreciation without substantial gain in terms of real activity.

B. A Common Currency Area in Asia in the Future

In East Asia, based on the IMF classification as of March 31, 2001, we see hard-peg economies (Hong Kong), conventional fixed exchange rate economies (Malaysia), managed floating with preannounced exchange rate target economies (Singapore), and independent float economies (Korea, Indonesia, the Philippines, and Thailand). Before the East Asian crisis, most of these were *de facto* dollar-peg economies. Currently, exchange arrangements in the East Asian economies are diversifying. However, it still makes sense to pose the following question: what is a desirable exchange rate regime for the Asian economies, including a common currency area?

Japanese government officials have expressed views in support of the yen's internationalization, as well as of basket pegs for Asian economies as a first step.[38] In our view, academic opinion regarding a future Asian regional currency is mixed. However, many Japanese economists are sympathetic to arguments in favor of the internationalization of the yen. We will examine several opinions below.

Kawai and Akiyama (2000) observe that the role of the dollar as the dominant anchor currency in East Asia was reduced during the crisis period, but that its prominence has been restored. They suggest that Asian economies are likely to maintain more flexible exchange rate arrangements, at least officially, but would prefer exchange rate stability without fixed-rate commitments. They expect to choose a balanced currency basket system in which the yen and the euro play a more important role. Moreover, given the strong degree of intra-regional trade and investment interdependence, East Asian economies have incentives to avoid harmful, large exchange rate fluctuations within this region, hence it would be useful for those economies to choose similar currency baskets.

McKinnon (2001) objects to the proposal of Kawai and Akiyama (2000) and suggests that the simplest conceptual framework is to fix the yen to the dollar, rather than worrying about the empirical difficulty inherent in the measurement of a currency basket.[39] Glick (2001) also points out that the virtues of simplicity, transparency, and observability are lost if the weights used in the basket are not public information and need to be adjusted over time in a timely manner. He argues that for most emerging market economies in East Asia, floating is a plausible choice, although it might accompany discretionary use of intervention.

Ogawa (2001) reports that the exchange rate of some East Asian economies against the dollar has stabilized, while the exchange rate against the yen has fluctuated since the crisis. His evidence suggests that some East Asian economies have returned to a *de facto* dollar peg.[40]

Why is the basket peg not a widespread exchange rate regime in East Asian economies so far? Bénassy-Quéré (1999) points out that the mismatch between the country distribution of trade (high weight of the dollar) and the currency distribution of their external debt (high weight of the yen) could be the reason that Asian economies prefer a low weight for the yen.

38. See for example, the Council on Foreign Exchange and Other Transactions at the Japanese Ministry of Finance (1999), which pointed out the need for internationalization of the yen for the 21st century on April 20, 1999. (Official statements on this matter by the Japanese Ministry of Finance can be downloaded from http://www.mof.go.jp.) Japanese Vice Minister of Finance for International Affairs Haruhiko Kuroda stated, "It would be difficult for the yen on its own to play a role similar to that of the euro and the dollar; however, the region could start with a basket composed of the yen, the euro, and the dollar before imagining a common currency for Asia" (Kuroda [2000]).
39. Note that a high level of economic integration is possible without a common currency or currency pegs (for example, Canada, the United States, Switzerland, and Germany). If this is the case, then floating currencies with some leaning against the wind would be of considerable appeal for ASEAN economies as an intermediate transition stage. For example, Williamson (2000) regards East Asian economies as "reluctant floaters," and recommends that they introduce publicly announced monitoring bands as a viable intermediate regime. The authorities would not be asked to defend a particular rate, and they would announce the rate consistent with long-term fundamentals to enhance the transparency and credibility of the exchange rate regime.
40. Consistent with his finding, the Study Group for the Promotion of the Internationalization of the Yen (2001) concluded that the internationalization of the yen was not so advanced, and thus it should be an item on the long-term agenda for Japan.

In our view, the lessons from the EMS suggest that arrangements promoting a stable exchange rate in Asia should accompany a blueprint for the regional safety net of financial stability and a guideline on mutual surveillance on the fiscal and structural policies for all member economies including Japan, together with peer pressure created by such an initiative.[41] In this context, the Chiang Mai Initiative, which consists of bilateral swap agreements among the ASEAN economies, Japan, Korea, and China, could be an important first step, and there is no prior reason why regional integration in Asia should take more or less time compared with the European experience.[42] Similarly, the initiatives toward a regional free trade area among these economies are also important conditions for deepening regional integration. In particular, the rapid growth in trade with China,[43] if continued, would increase the benefit of using a common currency in Asia, although one cannot be sure as to which currency will play a pivotal role.[44]

One may interpret the current Asian arrangement as a commitment to multilateral integration with the minimum set of regional agreements reflecting the Asian political environment. For example, Mundell (2000) points out that an Asian common currency without the involvement of Japan and China is unrealistic. However, given the differences in the political regimes of the two economies, he expects that it is unrealistic to consider a common central bank that issues a single Asian currency. Based on such reasoning, he suggests that the Japanese government should not create an Asian currency zone based on the yen for the sake of achieving exchange rate stability in Asia, and that a better alternative is for Japan to stabilize the yen-dollar exchange rate and the yen-euro exchange rate.

If one believes that the stability of the current account is the major and most pressing concern for the Asian economies, a currency basket proposal without a deep commitment would be a good starting point.[45] However, as Wyplosz (2001b) states, even if such a practical but piecemeal approach achieved exchange rate stability, it might be subject to a currency attack without a well-designed commitment device to make the peg sufficiently credible.

41. For example, such a guideline could require changes in the current Japanese financial regulatory policies.
42. As of March 28, 2002, Japan has swap agreements with China, Korea, Thailand, Malaysia, and the Philippines.
43. For an impressive example, according to Japanese balance of payments statistics, Japanese imports from China exceeded those from the United States in August 2001. However, Young (2000) estimates that China's per capita output growth rate from 1978 to 1998 was 6.1 percent, rather than the officially reported 7.8 percent, because of underestimation of the official deflator. He estimates total factor productivity growth in the non-agricultural sector as only 1.4 percent rather than 3.0 percent, using official data.
44. However, regarding the possible future role of China, Cohen (2000) suggests that even though the yuan's transactional network may eventually become large, the currency's prospects suffer from the backwardness of China's financial markets and lingering uncertainty over domestic political stability—to say nothing of the fact that use of the yuan continues to be inhibited by cumbersome exchange and capital controls.
45. Ogawa and Ito (2000) propose an optimal exchange rate regime that minimizes the fluctuation of trade balances in emerging market economies using a two-country model. Without coordination, a Nash equilibrium with higher dollar weight would be chosen. They suggest that a common currency unit in Asia will resolve such coordination failure, because two economies would be better off moving to the basket peg.

VI. Tentative Conclusion and Challenges for Central Banks

A. Tentative Conclusions

The main observations in this paper are summarized as follows.

First, regarding the bipolar view, the logic behind it is clear. It is true that many currency and banking crises in the 1990s were related to massive capital inflows and outflows. However, in particular in East Asia, many economies do not allow a free float even after the Asian crisis. A clean float without capital controls might be too costly for these economies, perhaps reflecting the lack of deep and liquid financial markets, which makes the economies vulnerable to speculative attacks. Moreover, so far only a few large economies have successfully committed themselves to hard pegs except for the euro-area economies.[46]

Second, the experience of the EMS and the recent history of the currency board in Argentina show that even a strong fixed exchange rate regime may be subject to pressure from financial markets. Such pressure may stem from rapid capital inflows and outflows that induce dynamic inconsistency on the part of policymakers in defending the peg in the case of the EMS, or to political and institutional factors that do not support an exchange rate peg. The experience of Argentina suggests that even a currency board cannot work if the economy does not follow a prudent fiscal policy. In addition, policymakers should address structural issues, such as inflexible labor markets, which make adjustment under hard pegs too costly, or dependence on dollar borrowing, which might make policymakers reluctant to revise apparently overvalued parity. These risks could undermine the achievement of price stability either through a political or currency crisis.

Third, the currency crises in the 1990s suggest that economists should prepare analytical tools that go beyond the Mundell-Fleming model, in terms of analysis of financial market imperfections, and general treatment of asset prices. A currency crisis model may in the future be part of an asset pricing model. Indeed, Figure 2 does not look like the traditional model of a currency crisis that focuses on the balance of payments. Krugman (2001) argues, "A fourth-generation crisis model may not be a currency crisis model at all; it may be a more general financial crisis model in which other asset prices play the starring role."

Fourth, the criticism made by Frankel and Rose (1998) and the European experience suggest that the static version of optimum currency area criteria should be evaluated carefully to make inferences regarding the pros and cons of a common currency.

46. One may argue that the relevant question for these economies is "how to float." In this context, temporary capital controls to discourage excessive short-term capital inflows while posing little barrier to capital outflows, which were employed in Latin American economies such as Chile, Brazil, and Colombia in the 1990s, may be worth mentioning. However, Ariyoshi *et al.* (2000) conclude that capital controls cannot substitute for sound macroeconomic policies. Edwards (2001b) concludes that Chile's experience was successful in changing the maturity profile of capital inflow, and of the country's debt. However, the effect would be short term and not very important quantitatively. Reinhart and Smith (2001) calibrate the potential effectiveness and welfare implication of temporary capital inflow controls. They find that reducing foreign debt by 5 percent of GDP requires 88.9 percent of an inflow tax under their reasonable parametric setup. They also find that the economic benefit of taxing capital inflows is quite small.

Fifth, the prospects for regional currencies are very unclear. In particular, currently it is very difficult to predict the development of an Asian currency area.

In sum, we argue that, given the global interdependence among economies that exists today, currency regimes should be always evaluated in terms of their relationship to monetary policy, fiscal policy, structural policies, and the working of financial markets. Thus, a currency regime does matter, and is a relevant concern for policymakers. However, it should be noted that the currency regime is only one element of national economic policymaking, and thus a broader perspective is always needed.

B. Challenges for Central Banks

This paper has not been able to discuss many important issues because of space limitations. Let us touch on some of these issues for the sake of further discussions.

First, we did not discuss the debate regarding the appropriate policy response to be made by emerging market economies and international organs. Although economists disagree about the role of the IMF and the appropriate response to be made by emerging market economies, the bottom line of the debate seems to be clear. Policymakers need detailed knowledge about the structures of their economies to analyze currency crises and the resolution of such crises, and central banks are no exception. The knowledge required is broad indeed. For example, Mishkin (2001) lists 12 issues for crisis prevention. These include prudential supervision, accounting and disclosure requirements, legal and judicial systems, market-based disciplines, the entry of foreign banks, capital controls, reduction of the role of state-owned financial institutions, restrictions on foreign currency-denominated debt, elimination of "too-big-to-fail" in the corporate sector, the sequencing of financial liberalization, monetary policy and price stability, and exchange rate regimes and foreign exchange reserves. Thus, the exchange rate regime is just one factor among many.

Second, this paper did not make explicit any consideration of the relationship between exchange rate stability and domestic price stability among the three major currencies. Standard macroeconomic econometric models (such as Taylor [1993]) suggest that the international spillover effect of domestic monetary policy is small. Therefore, an optimal domestic monetary policy framework would achieve both domestic stability and international stability. Obstfeld and Rogoff (2001) showed that when monetary policy is governed by a rule-based policy, the gains from international policy coordination are not necessarily very large within the framework of the "new open-economy macroeconomics" discussed in the appendix. Thus, Rogoff (2001) suggests that at least three or four currencies are preferable in the foreseeable future. Meltzer (1996) suggests the United States, Germany, and Japan should follow an adaptive monetary rule to achieve zero expected inflation. Very small economies should eliminate the monetary operations of their central banks by establishing a currency board or a permanently fixed exchange rate. Those economies should permit their citizens to use foreign currency in a low-inflation economy as a medium of exchange to enforce commitment. This proposal shows that the best policy for a small economy to follow depends on the policies followed by the major currencies. Under this proposal, all small economies gain by pegging to the currency of large economies or the basket. They import low inflation and gain from a fixed

exchange rate. Moreover, large economies gain too, since they have stable prices at home and for imports from the small economies. But they also buffer real shocks by floating their currencies, facilitating adjustment to real shocks. Are those proposals robust in the world of currency competition among a few currencies? Could currency substitution be a destabilizing factor in such an era?

Third, although this paper implicitly assumes that the major currencies will be the dollar, euro, and yen, should we take this limitation for granted in the long run? For example, Buiter (2000b) expects that "within a decade or two, the advanced industrial countries will have 2.5 currencies among them: the Euro, the US$, and something around the Yen or the Yuan." Those opinions pose another important question: how many central banks will survive in the long run? Alesina and Barro (2002) examine the optimal number of currencies that would balance the gains from more international trade due to the existence of a single currency and the cost of losing an independent monetary policy. Regions joining the same currency area will experience reduced trading costs. Hence, without the cost of integration, regions are better off having a single currency. However, the political costs of integration rise as the size of the economy increases, hence single currency equilibrium does not occur. Their model shows that as the number of economies increases, the average size of the economy decreases, and the volume of international transaction expands. Hence, an increasing number of economies will find it profitable to relinquish independent currencies, possibly even faster than the number of economies. Although it is unclear whether the prediction is correct, central banks should be ready to answer these theoretical questions within a decade or so.

APPENDIX: NEW OPEN-ECONOMY MACROECONOMICS AND EXCHANGE RATE REGIMES

Obstfeld and Rogoff (1995) presented the dynamic general equilibrium model (O-R model), which incorporated price rigidities—a traditional feature of Keynesian economics—and imperfect competition. The model features at least two advantages that suggest it as a "superior alternative to the Mundell-Fleming model" (Lane [2001]). First, the classic IS-LM approach may not be useful for the sake of future policy recommendations, since it relies on reduced-form macroeconomic models whose parameters can vary under alternative policy regimes. However, "new open-economy macroeconomics" allows a researcher to form a detailed analysis of the effect of internal and external shocks on the choice of labor, leisure, and consumption made by a representative agent and the profits of representative firms under the assumption of optimization behavior. Second, new open-economy macroeconomics summarizes such effects on the maximum level of utility for a representative agent; thus, a researcher does not need to use *ad hoc* welfare criteria to evaluate the effectiveness of economic policies and exchange rate regimes. In this appendix, we will review some new open-economy macroeconomics models that incorporate uncertainty and the choice of exchange rate regime.

A. Models with Uncertainty in the Spirit of the O-R Model

Many researchers have recently tried to build stochastic versions of new open-economy macroeconomics models with monetary policy shocks or productivity shocks.

For example, Obstfeld and Rogoff (1998) add uncertainty concerning changes in money supply to their original O-R model. They show that the variability of money supply influences not only the variance of consumption and production but also the expected level of those two variables. The reasons are as follows. Suppose firms risk-averse to changes in profit levels face uncertainty in foreign money supply. They charge higher export prices than they would do without uncertainty, because they add a risk premium to compensate for uncertain changes in foreign monetary policy. Higher export prices decrease the expected level of production. They also improve the terms of trade and change the expected level of consumption. Note that the traditional Mundell-Fleming approach focuses only on changes in the variance of macroeconomic variables across policy regimes. However, the O-R approach suggests that the evaluation of the choice of exchange rate regimes and alternative monetary policy rules would be better compared by means of the maximum attainable utility that reflects both the levels and variances of relevant macroeconomic variables under alternative policy regimes.

B. Choice of Exchange Rate Regime Based on the O-R Model

Recent studies examine the optimal exchange rate regime taking into account three different macroeconomic environments. First, alternative price-setting behaviors of firms (producer's currency pricing [PCP] or local currency pricing [LCP]). Second, different types of uncertainty (such as monetary shock or productivity shock). Third, whether an economy should accommodate external shocks or not (that is, whether it is insulated from the foreign shock or else imports a foreign discipline in the presence

of domestic monetary shock). We will review three recent theoretical contributions to the choice of exchange rate regime, based on new open-economy macroeconomics in turn.

1. Devereux and Engel (1998)

Devereux and Engel compared fixed versus floating exchange rate regimes based on their usefulness in insulating an economy from foreign monetary shock.[47] They showed that the optimal exchange rate regime depends on whether prices are set in the producer's currency or the local (buyer's) currency.

First, under symmetric LCP, variability in the exchange rate does not influence import prices in the home economy, thus the economy is completely insulated against external shocks. Therefore, the ranking in the variance of the relevant macroeconomic variables satisfies the following inequality:

> Floating exchange rate regime under LCP < floating exchange rate regime under PCP < fixed exchange rate regime.[48]

The latter part of inequality in this result is consistent with Friedman (1953), who assumed PCP and concluded that a floating exchange rate regime was superior to a fixed exchange rate regime.

Second, let us see the effects on the expected levels of key macroeconomic variables. Since firms add a risk premium to local currency-denominated export prices taking into account exchange rate volatility under PCP, the expected level of consumption will decrease. However, under LCP, firms do not change their local currency-denominated export prices to compensate for changes in the exchange rate, thus an external monetary shock does not influence the expected level of consumption at home. After estimating changes in overall welfare, they conclude that a floating exchange rate regime is desirable under LCP, since it can insulate the economy completely from an external monetary shock. However, they also show that a floating exchange rate regime is not always desirable under PCP, because it cannot completely prevent an external shock from affecting the home economy.

2. Engel (2001)

Engel investigates the welfare effects of fixed and floating exchange rate regimes under PCP and LCP when a domestic monetary shock is not negligible, and on this basis he proposes an optimal exchange rate regime between the United States and Mexico.[49] He assumes that the monetary policy in each country is independent of the other and that the money supply in each country follows a random-walk process.

According to his analysis, if foreign firms set export prices in local (home) currency (LCP), a fixed exchange rate regime is superior to a floating exchange rate regime, provided that the variance of the domestic money supply is larger than that

47. Devereux and Engel (1998) assume foreign monetary shock not as the change in the average of foreign money supply but the rise in its variance.
48. When the fixed exchange rate regime is adopted, choice of currency is irrelevant.
49. He also analyzes the asymmetric case where a domestic firm's price-setting behavior is LCP and a foreign firm's behavior is PCP.

of the foreign money supply. In other words, the credibility of domestic monetary policy is lower than that of the foreign economy. Intuitively, the home economy can eliminate domestic monetary shock through the import of a credible foreign monetary policy.

Consider the case where foreign firms set export prices in the home currency (PCP). Engel shows that a floating exchange rate regime could be desirable even if the variance of the domestic money supply is to some extent larger than that of the foreign money supply. This may be puzzling, because fixed exchange rates eliminate idiosyncratic risk. The answer to this puzzle is that, for a certain value of the variances of home and foreign money supply, floating exchange rates can reduce aggregate risk at the risk of increasing idiosyncratic risk. Intuitively, under a floating exchange rate regime, real money supply (or real consumption in his specification) is less volatile than the nominal money supply if there is any pass-through of the exchange rate price to prices. More specifically, he proves that under a floating exchange rate regime, the variance of consumption is $\mathrm{var}(c) = n^2\sigma_m^2 + (1-n)^2\sigma_{m^*}^2$, where σ_m^2 is the variance of the home money supply, $\sigma_{m^*}^2$ is that of the foreign money supply, and n is the relative country size. On the other hand, under a fixed exchange rate regime, $\mathrm{var}(c) = \sigma_{m^*}^2$. Therefore, even if σ_m^2 is larger than $\sigma_{m^*}^2$, the variance of consumption under a floating exchange rate regime could be smaller than under a fixed exchange rate regime, depending on the value of σ_m^2, $\sigma_{m^*}^2$, and n.

3. Obstfeld and Rogoff (2000)

Obstfeld and Rogoff construct a stochastic model with productivity shock and examine the optimal exchange rate regime under the assumption that firms set their export prices in producers' currency (PCP).

First, they investigate "constrained-efficient" monetary policy rules, in the sense of maximizing an average of home and foreign expected utilities subject to the optimal wage-setting behavior of workers and optimal price-setting behavior of monopolistically competing firms. Then they show that, under their parameterization, if policymakers can absorb the productivity shock, by suitably adjusting home and foreign monetary policy rules, this behavior replicates an efficient resource allocation under flexible price-setting, and those rules are optimal from the viewpoint of an economy's individual perspectives.[50] This policy rule is procyclical with regard to productivity shock. For example, a positive productivity shock under conditions of flexible prices increases the wage level, labor supply, and production. Under the predetermined wage, "constrained-efficient" monetary policy requires an increase in money supply in responding to a positive productivity shock, thus the response is inherently procyclical. Since the nominal exchange rate is determined by both domestic and foreign money supply, "constrained-efficient" monetary policy allows the exchange rate to fluctuate in response to cross-country differences in productivity shocks under a floating exchange rate regime.

Second, Obstfeld and Rogoff calculate the expected utility for three alternative monetary regimes—a fixed exchange rate regime, a floating exchange rate regime,

50. The monetary policy rules discussed here cannot offset the monopoly distortions; they merely bring the economy to flexible price equilibrium with the monopoly distortions.

and world monetarism[51]—to compare the performance of mitigating the effects of uncertainty in productivity. They conclude that a floating exchange rate regime can realize the highest welfare, since exchange rate moves respond to differences in productivity shocks between the home economy and a foreign economy under the optimal monetary policy.

4. Summary

We may well consider that the choice of optimal exchange rate regime with productivity shock and foreign monetary shock is relevant to the choice of exchange rate regime between developed economies if we assume that monetary disturbances in developed economies are negligible enough to ignore. On the other hand, we may also regard models with home monetary shock as approximating an optimal exchange rate regime between developed economies and emerging economies under the assumption that domestic monetary shocks in developing economies are large.

Based on those assumptions, we summarize tentative conclusions obtained from these recent studies in the Appendix Table 1. This shows, first, that the welfare-based approach is a promising way to consider the choice of optimal exchange rate regime. The welfare-based approach requires us to examine not only changes in variance of macroeconomic variables but also changes in their expected level. The latter effect is ignored in the traditional Mundell-Fleming approach. Second, regardless of firms' price-setting behavior, when domestic central banks do not have sufficient credibility, a fixed exchange rate regime would be desirable as a way to eliminate home idiosyncratic shocks.[52] However, if the credibility of the home central bank is not so low, there might be some cases where a floating exchange rate regime would be better. Third, the choice of optimal exchange rate regime between advanced economies depends on firms' price-setting behavior and the nature of the shocks (monetary shock or productivity shock). To the best of our knowledge, little research using the

Appendix Table 1 Optimal Exchange Rate Regime Based on New Open-Economy Macroeconomics

	Producer's currency pricing (PCP)	Local currency pricing (LCP)
Monetary shock		
Foreign monetary shock (exchange rate regime between developed economies)	Trade-off between variance and expected level	Floating
Home monetary shock (exchange rate regime between developed economies and emerging economies)	Floating— fixed regime might be better when home shock is far larger than foreign shock	Fixed
Productivity shock	Floating	—

51. This regime considers a case where both home and foreign economies fix not only the exchange rate but also an exchange rate weighted average of world money supply.
52. Shioji (2001) builds a three-country model of Japan, the United States, and East Asian economies, extending Corsetti *et al.* (2000), and examines the choice of optimal exchange rate regime in East Asia. He shows that switching from a fixed exchange rate regime to a floating regime or basket regime, which makes it possible to allow a depreciation of the domestic currency, is theoretically beneficial when the yen depreciates as a result of an increase in money supply or a negative productivity shock in Japan. However, he also concludes that the theoretical model which induces the above result is not supported empirically.

framework of new open-economy macroeconomics shows that a fixed exchange rate regime is desirable. Much research demonstrates that a floating regime is better.

C. Reservations

We conclude this appendix by pointing out some reservations about these recent intensive analyses.

First, recent researches focusing on firms' price-setting behavior can be divided into the symmetric PCP approach and the symmetric LCP approach, in the sense that there is a globally unique price-setting strategy. Therefore, under PCP, purchasing power parity (PPP) holds both in the short run and in the long run, and the exchange rate pass-through is always 100 percent. On the other hand, under LCP, the exchange rate pass-through is zero and the depreciation of the home currency leads to an improvement in terms of trade in the home economy (Obstfeld and Rogoff [2000]). However, empirical studies (such as Marston [1990] or Knetter [1993]) indicate that exchange rate pass-through lies in the range of zero to 100 percent, and that a depreciation of the home currency causes a deterioration in domestic terms of trade. To resolve this problem, a mixed PCP/LCP approach holds promise. This approach assumes that some firms set their export prices in producers' currency and that others set theirs in local currency in an open economy, and that the ratio of PCP/LCP is asymmetric. For example, the ECU Institute (1995), cited in Obstfeld and Rogoff (2000), shows that the percentages of exports and imports which are denominated in the home currency in developed economies are relatively low, except in the United States.[53] Such evidence may justify the usefulness of a mixed PCP/LCP approach (see Otani [2002] for an example).[54]

Second, to the best of our knowledge, studies based on the O-R model assume that the choice of currency in which prices are set is exogenous. However, the exporter's choice of currency may well be endogenous. Devereux and Engel (2001) analyze this point using the framework of new open-economy macroeconomics. They show that exporters generally set prices in the currency of the economy with the most credible monetary policy. Thus, the interaction between price-setting behavior and monetary policy might be a promising topic for future research.

Finally, the O-R model has its own limitations. Many central banks consider that the omission of political and strategic factors would in practice complicate the choice of currency regime and the credibility of monetary policy rules. And some might argue that the assumption of perfect capital markets[55] and the omission of the accumulation of physical capital[56] are appropriate for only a few economies.

53. As for the United States, 92 percent of exports and 80 percent of imports are denominated in dollars. For Japan, the percentage of exports and imports, respectively, denominated in the home currency are 40 percent and 17 percent. For Germany, the respective totals are 77 percent and 56 percent (Obstfeld and Rogoff [2000, p. 123]).
54. Otani (2002) explicitly incorporates asymmetric price-setting behavior into Betts and Devereux (2000) and shows that the international transmission effect of monetary policy is not symmetric, depending on the difference of price-setting behavior between the home economy and the foreign economy.
55. For example, Devereux (2001) assumes that economies cannot access international financial markets and concludes that a fixed exchange rate regime is superior to a floating exchange rate regime based on the maximum attainable welfare level. However, in practice, emerging market economies can access international financial markets subject to the "original sin hypothesis" (Eichengreen and Hausmann [1999]). Therefore, research on the optimal currency regime under incomplete international financial markets would be desirable.
56. Recently, a number of researchers have tried to incorporate capital accumulation into "new open-economy macroeconomics." For example, see Kollmann (2001) and Chari *et al.* (2000).

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Comment

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I am delighted to have this opportunity to comment on the paper by Hiroshi Fujiki and Akira Otani. It is always a difficult task to write an overview paper, particularly so on a broad and highly controversial topic such as the choice of exchange rate regime. However, it is a task the authors handle very well. They cover a wide range of topics—from what lesson we can draw from the process of European monetary unification, the issues that arise in the context of the widely expected enlargement of the European Monetary Union (EMU), the costs and benefits of dollarization, to the prospects for currency unification in Asia and in the Americas, and so on—and do so in a balanced way. Overall, there is little I take issue with.

As with any broad and careful paper, this is not one that it is easy to comment on. However, the authors would like to draw our attention to an underlying issue concerning the choice of theoretical framework in which to analyze the choice of exchange rate regime. While historically that analysis has been conducted within the framework of the Mundell-Fleming model, the paper suggests that this is not a good starting point. Rather, as they make clear in their appendix, their preference is to start from the recent literature on the "new open-economy macroeconomics," which was initiated by Obstfeld and Rogoff (1995) and which is nicely summarized by Lane (2001). In my discussion, I will therefore focus on what that literature has to say about the central issue policymakers face, that is, whether and under what circumstances they should adopt a fixed or a floating exchange rate regime.

Before doing so, it is useful to briefly outline the most important features of the new literature. Its defining characteristic is the incorporation of Keynesian features in a dynamic general equilibrium model of the open economy. Two aspects of the models are particularly important. First, there is imperfect competition in goods markets and prices are sticky. This implies that there is a serious price-setting decision to be modeled. Moreover, with prices above marginal costs, firms would like to expand production at the current level of prices. Thus, output is in this sense demand determined. Finally, activity is below the level that would arise if goods markets were competitive. This implies that monetary policy could potentially raise welfare by expanding output. Second, firms maximize profits and consumers maximize utility. That is important because it provides a natural metric, the level of utility, which can be used to compare and rank exchange rate regimes.

It deserves to be noted that, as is the case with all economic theory, the conclusions we draw depend on the assumptions made. One particularly important assumption concerns the nature of the price-setting process. In contrast to utility functions that

57. I am grateful to Mick Devereux for useful discussion regarding the literature on the new open-economy macroeconomics. The views expressed here are solely my own and not necessarily those of the HKMA and the HKIMR.

presumably are given exogenously, the way in which firms set prices is likely to depend on economic factors. As the authors emphasize, this feature of the economy is therefore likely to be endogenous. In turn, this suggests that any conclusions that hinge strongly on the nature of the price-setting process should be taken with a grain of salt.

Turning to the question of what main conclusion we can draw from this literature for the choice of the exchange rate regime, the authors emphasize that a positive, but finite, degree of exchange rate flexibility is often preferable to perfect exchange rate flexibility or fixity. Thus, central banks should avoid corner solutions and instead go for the middle ground. "Float, but pay attention to the exchange rate" is the message.

From this perspective it is a striking fact that many economies, particularly in Asia, have expressed a clear preference for fixing the nominal exchange rate. Moreover, it is noteworthy that the literature on the economic effects of currency unions, the ultimate fixed exchange rate regime, suggests that irrevocably fixing the exchange rate is associated with greater trade and increased economic growth.[58] There thus seems to be a tension between what theory suggests is a desirable policy framework and what regime countries choose in practice. This naturally leads to the question why this is so.

At a fundamental level, there are two main sets of explanations. The first is that policymakers may for some reason have adopted the "wrong" policy framework. The second is that the current state of theory disregards some aspect(s) of the economy that policymakers attach great weight to in selecting an appropriate exchange rate system. While doubtless there are cases of policymakers selecting an incorrect exchange rate regime, to my mind it seems more plausible that the literature on the new open-economy macroeconomics, which is developing rapidly, has still not captured all the mechanisms that may make economies prefer fixed exchange rate regimes. This is the view the authors take, and they point to imperfections in capital markets and to the absence of physical capital as potential missing factors. I find their arguments persuasive. My own view is that capital market imperfections are likely to be the more important explanation.

In particular, most economists think that floating exchange rates tend to be excessively volatile, and that the market itself generates this volatility. As argued by Jeanne and Rose (2002), the impact of such "noise traders" on the economy can be removed by fixing the exchange rate. It is easy to see that endogenous exchange rate volatility may be a particular concern for policymakers in economies in which the foreign exchange market is thin and where small economic disturbances can lead to large exchange rate movements and associated economic dislocation.

It is also worthwhile noting that a fixed exchange rate regime may be particularly attractive to policymakers in economies with limited capital markets, since it is difficult for firms in these countries to borrow in domestic currency. If the borrowing is in foreign currency, exchange rate movements can have a large impact on firms' net worth and therefore, through the familiar credit channel, on the level of economic activity. In this case, a fixed exchange rate may reduce economic fluctuations. However,

58. See Rose (2000) or Frankel and Rose (2002).

it should be remembered that such regimes entail a fixed exchange rate typically only for a limited period of time, as speculative forces all too frequently overwhelm soft pegs if capital mobility is high. Since the combination of depreciation and large foreign currency-denominated borrowing can have an extraordinarily negative effect on economic activity, it is important that a fixed exchange rate in this case be very hard indeed.

In sum, I share the authors' view that the new open-economy macroeconomics constitutes a very fruitful area for research. Moreover, future extensions of the theory will ultimately conclude that fixing the exchange rate may be a good option if there is endogenous exchange rate volatility, which is particularly likely if foreign exchange markets are thin and if incomplete capital markets cause firms to borrow in foreign currency. Finally, as is suggested by recent theoretical research, a fixed exchange rate is a desirable exchange rate arrangement in economies that are so open that exchange rate changes have little impact on relative prices.

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Comment

REUVEN GLICK

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The goal of a conference overview paper is to highlight the major issues and summarize the relevant literature. The paper by Hiroshi Fujiki and Akira Otani achieves this goal very well, with a wide-ranging and well-balanced coverage of the issues on future currency arrangements.

I will focus my comments on the paper in three areas. First, I will provide a brief overview of the authors' overview. Second, I will offer some specific comments on the bipolar debate, where I think the authors could have gone into more depth. Lastly, since the authors by and large avoided taking strong positions on any of the issues, I will give my views on prospects for regional currency arrangements, particularly in Asia. Before proceeding, let me inoculate myself by saying that I will be expressing my personal views, not those of the Federal Reserve Bank of San Francisco or of the Federal Reserve System.

I. Overview

The paper begins with a review of facts underlying the "bipolar view" of currency arrangements, also known as the "hollowing out" or "corner solutions" hypothesis. It makes three empirical observations based on Fischer (2001): first, the frequency of regimes at the poles—hard pegs and floating exchange rate regimes—has risen over time, at the expense of soft pegs and other intermediate regimes in the middle. Second, a lot of countries still maintain intermediate regimes—30 to 40 percent, depending on how such regimes are classified. Third, the distribution of regimes at the poles is not symmetric: more countries have moved toward greater exchange rate flexibility than toward hard pegs, the adoption of the euro in Europe notwithstanding. The authors then ask why there are relatively few hard peggers, and in the bulk of the paper they discuss the pros and cons for the emergence of more hard peggers in Europe, the Americas, and Asia. Specifically, will peripheral and transition countries in Europe adopt the euro? Will more Latin American countries dollarize? Will countries in East Asia adopt some common exchange rate arrangement that ends with a form of currency union?

II. Questions in the Bipolar Debate

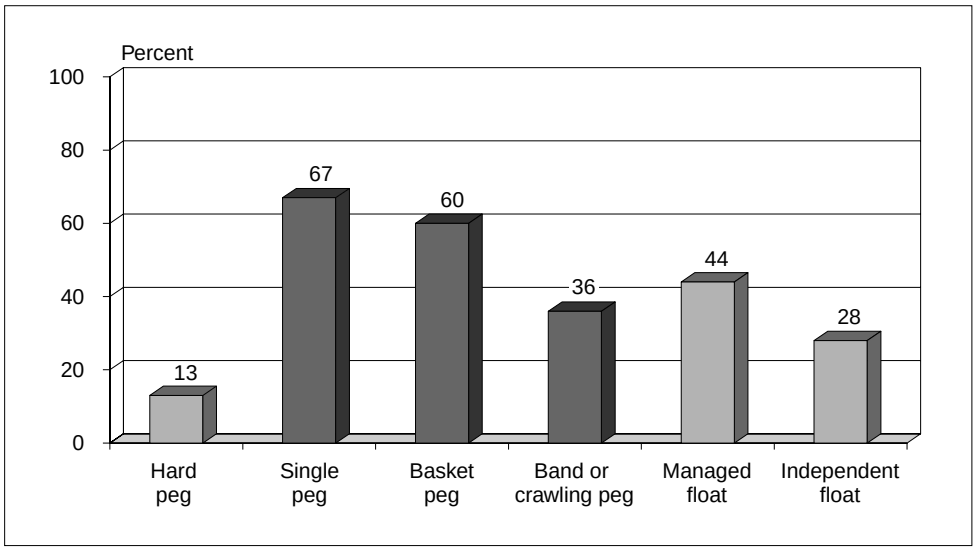
Let me turn now to some questions related to the bipolar debate that the authors did not fully address, but warrant further discussion. First, how viable is the middle ground of intermediate currency regimes? Second, if intermediate regimes are becoming increasingly unviable, how wide are the poles? Third, what kinds of criteria should be considered in determining regime choice?

How viable is the middle? It is well understood that intermediate regimes are potentially more viable for countries that do not have to worry much about large, sudden shifts in private capital flows. It is worth emphasizing the obvious point that one way to preserve the viability of an intermediate regime is to maintain balance of payments (BOP) controls, which a great many countries still do.

Figure 1 illustrates this point nicely. It updates Glick (2001) using International Monetary Fund (IMF) regime classifications to year-end 2001 (and reclassifies Argentina and Uruguay as managed floaters), disaggregates the floating regime category into managed floats and independent floats, and also disaggregates the intermediate regime category into single currency pegs, basket pegs, and bands and crawling pegs. Hard pegs consist of both currency boards and dollarized regimes.

The figure shows the percentage of countries in each regime category that employ significant BOP controls, where I use as the measure of controls surrender requirements for export proceeds at the end of 2000. (In the case of countries with pegged regimes, they are classified according to whether surrender requirements apply to trade with the anchor currency country.) As is well known, measuring the breadth and intensity of controls is problematic. Export proceed surrender requirements are narrow enough in their focus to overcome some of these limitations by providing a minimum condition for the existence of widespread controls on external transactions: countries

Figure 1 Percentage of Countries in Regime with BOP Controls



that employ surrender requirements are likely to impose controls on capital flows as well. Of course, this measure does not catch countries without surrender requirements that still limit capital movements.

Observe that for countries with intermediate regimes the percentage with controls is relatively high: 67 percent of countries with single currency pegs and 60 percent with basket pegs employ controls. (With a more comprehensive measure of controls, the figures would likely be even higher.) In contrast, for countries at the extreme poles, the percentage with controls is much lower: only 13 percent of countries with hard pegs and 28 percent of countries labeled as independent floaters imposed controls. For countries with band/crawls and managed floats, somewhat more impose controls—36 percent for the former and 44 percent for the latter—but not as much as in the case of those with single and basket pegs. (Excluding industrial countries, the percentage with controls is 17 percent for hard peggers, 38 percent for band/crawl regimes, and 37 percent for independent floaters; the figures for countries with single peg, basket peg, and managed float regimes are unaffected, as they do not include any industrial countries.)

This picture is consistent with the view that countries with intermediate regimes generally must resort to capital controls. Without controls, the logic of the bipolar view implies they will be forced eventually to move to one pole or the other. I think it is pretty clear that intermediate regimes in countries with open capital markets generally fail, sooner or later. Mexico, Thailand, Indonesia, Korea, Russia, Brazil, and Turkey all followed some form of intermediate regime, at least *de facto*, before crashing. In other cases where countries operated crawling band arrangements, like Chile, Colombia, and most recently Uruguay, the intervention bands were successively widened before being abandoned altogether. So the message is that countries with intermediate regimes that loosen or remove their controls need to have an exit strategy.

How wide are the poles? Recent experience suggests that the hard peg pole is narrow, while the flexible rate pole is relatively wide. Specifically, the experience of Argentina demonstrated that hard pegs in the form of currency boards may not always survive. This suggests that the hard peg pole is narrower than we thought, i.e., the range of viable hard pegs is limited. In contrast, the number of countries with flexible-style arrangements, but that still intervene in some manner because of "fear of floating" concerns, demonstrates that the flexible rate pole may be relatively wide; i.e., the viable range of flexible rate arrangements is broad and can include both so-called managed and independent floaters. In other words, the nature of a viable flexible regime is "flexible."

What makes a flexible regime more viable than traditional intermediate regimes is that policymakers do not make explicit or implicit commitments to keep the exchange rate within some target range for an extended period of time. As long as policymakers are not perceived as trying to defend a particular rate, the exchange rate avoids becoming a lightning rod for speculators, and the regime is less susceptible to the one-way bets that have often characterized the demise of soft peg or soft band regimes once the rate nears the edge of the band. As a result, policymakers in a more flexible regime, even those that intervene sometimes, have more room than in an intermediate regime to deal with large and sudden shifts in capital flows. A basket band crawling (BBC) regime is more adjustable than an adjustable peg, but it is still not generally flexible enough to handle large and abrupt shifts in private capital flows.

Of course, the absence of an exchange rate target requires an alternative nominal anchor, such as an inflation target, in its place. Inflation targeting is still compatible with some concern for behavior of the exchange rate.

What criteria are relevant for determining which currency regime works best for a particular country? One obvious place to start is how the currency regime affects economic performance, specifically inflation and economic growth. Here is an area in which the scope of the paper could be expanded. Though it does discuss how the currency regime matters for the conduct of monetary policy and for vulnerability to crises, the paper does not say much about how the currency regime matters for economic performance. Indeed, there is a substantial empirical literature that attempts to assess the implications of the currency regime for inflation and economic growth, though the results tend to be ambiguous.

Some discussion of this literature in the paper might have been useful. Some studies find no differences in growth rates across regimes. Others find that countries with pegged rates are more likely to have lower growth. However, the paper on the program here by Edwards and Magendzo (2002) finds that countries with independent currency unions, such as the those in the CFA Franc zone and the Eastern Caribbean Currency Union (ECCU), experienced higher growth.

To resolve such differences in results, it is essential to address a number of methodological issues. What is the appropriate methodology to classify countries by their exchange rate regime? There are a number of different approaches to regime classification. Some classify countries according to *de jure* self-descriptions given to the IMF. Others look at *de facto* behavior as evidenced by observed variations in

exchange rates. Others take into account movements of other related variables, such as international reserves, interest rates, and parallel rates. None of these approaches is without problems, however. In particular, even if a country's *de facto* preferences differ from its officially announced designation, this difference may not be revealed unless the shocks it faces are sufficiently large.

Other methodological issues include: how should one handle possible simultaneity problems—i.e., the possibility that the choice of regime, such as a currency union, may depend endogenously on the expected economic performance. How should one handle the contamination effects of regime collapses on performance comparisons? In other words, when a pegged regime collapses and a country adopts a floating rate regime, one would like to avoid inappropriately attributing the economic performance effects of the pegged regime in the period after the collapse to the floating regime. How useful are the results for larger countries, since much of the test power in some studies typically comes from small countries in the sample? These issues all need to be addressed when making cross-regime comparisons.

What other criteria are relevant in making regime choices? The optimum currency area (OCA) literature provides a long list of well-known criteria for evaluating the relative desirability of fixed versus flexible exchange rate regimes. It is generally accepted that a country is more likely to benefit, on net, from establishing a hard peg with an anchor country if it trades a lot with the anchor, the economic shocks they face are highly correlated, there is a high degree of labor mobility among them, there exists a federal fiscal mechanism to transfer funds to regions that suffer adverse shocks, and if the exchange rate is needed as a nominal anchor.

Here I would like to make two points: first, as the authors recognize, some country characteristics may be endogenous to the exchange rate regime. For example, the act of fixing to a particular currency may promote greater trade with the anchor country and a greater correlation of shocks over time. This implies that a country that does not initially satisfy OCA criteria when adopting a hard peg may come to do so over time. That is, a country may grow into being a good candidate for a hard peg *ex post*.

But how quickly such endogenous changes in country characteristics occur is open to question. Much of the evidence of endogeneity between regimes and economic integration is based on cross-section evidence, not time-series evidence. Consequently, we do not know how long it may take for a currency union to generate large trade effects. It may be quick: trade between West and East Germany grew fourfold within five years of reunification. It may be slow: 10 years after Argentina's adoption of a currency board with the United States its bilateral trade with that nation was little changed; indeed, the proportion of Argentina's trade with the United States—less than 15 percent—was little different from New Zealand's.

Second, the decision to enter into a hard peg is ultimately as much political as it is economic. Clearly, political factors sped up the economic integration of East and West Germany. Clearly, politics played a key role in the formation of the European Monetary Union (EMU). Many would argue that EMU was feasible only as part of a larger political goal of integrating Germany with the rest of Europe. Moreover, the hard pegs of the CFA, ECCU, and Pacific Island countries—which account for

almost two-thirds of the current hard pegs among developing countries—are essentially artifacts of colonial or trustee political relationships. So, if we are looking for criteria to guide us about which countries are the best candidates for hard pegs and currency unions, the role of political factors should not be underestimated.

III. Outlook for Regional Currency Arrangements

Let me conclude with my own views of where things are headed. As I said earlier, in my opinion intermediate regimes are not viable in the long run without capital controls. Without capital controls, few developing countries have the prerequisites of strong banking systems, flexible economies, and political stability to sustain an intermediate regime successfully even in the short run.

So, as countries open their capital accounts, most will choose—voluntarily in some cases, involuntarily in others—to move to harder pegs or greater exchange rate flexibility. But I have my doubts about how many hard pegs will emerge outside of Europe. In Europe, harder pegs will be attractive for some Central European countries, as much for political reasons as for economic reasons, particularly if they have a voice in the formulation of monetary policy once they join Europe's monetary union. In the Americas, harder pegs may be attractive for small economies that trade heavily with the United States, following the example of Ecuador and El Salvador, but I do not see hard pegs in the future of the larger countries.

As for Asia, I also do not see hard pegs as desirable for most countries in the region. A lot of people, including some at this conference, still urge some form of intermediate regime in Asia, involving a common peg to a basket of the dollar, yen, and euro. But I think such a regime would be neither in the interests of most countries in the region, nor would it be easy to implement. Differences in trade patterns across the region complicate agreement on the composition of the basket. Such a basket, even with a band, would face speculative pressures. There is no natural focal country for the convergence of policies, at least not until Japan escapes from its current economic stagnation. Moreover, there does not yet appear to be the strong political will for deeper economic integration as was the case in Europe. Consequently, a more flexible rate regime is likely to perform better for most countries in the region.

That is not to say there are no reasons to have less formal kinds of coordination of exchange rate policies among countries in the region, particularly to deal with contagion episodes. In this regard, I recognize that progress in Asia has been made through, for example, the Chiang Mai currency swaps agreement. But the funds potentially available under these arrangements are still small relative to the liquidity of international financial markets. Hence, they represent only one step on what is likely to be a long path if the goal of greater cooperation in the region is to be achieved.

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General Discussion

Responding to the comments of the discussants, Hiroshi Fujiki addressed the question of the relation between the choice of exchange rate regimes and capital mobility, and agreed that Reuven Glick's position was consistent with the experiences of the 1992–93 European Monetary System (EMS) crisis. Fujiki also stated that endogenous factors needed to be taken into consideration in the empirical studies on the choice of appropriate exchange rate regimes, and that this would be a subject for future study. Regarding the choice of exchange rate regimes from the perspective of economic welfare criteria, Akira Otani reiterated the promising aspects of the new open-economy macroeconomics and agreed with Stefan Gerlach's comment that it would be necessary to expand this approach in the direction of incorporating imperfections in international financial markets.

Following this discussion, a wide range of general comments were made by other participants concerning such matters as specific regional currency areas and desirable exchange rate regimes.

Regarding the European experience, Fujiki and Otani, and Glick took the position that the elimination of capital controls contributed to the EMS crisis. Jorge A. Braga de Macedo (OECD Development Centre) and Pierre van der Haegen (European Central Bank) expressed doubts that the removal of capital controls constituted a fundamental cause of the currency crisis, for the following reasons. (1) The crisis was triggered by a major shock generated by German reunification; and (2) after the crisis, in compliance with the convergence criteria and requirements of the Maastricht Treaty, the countries concerned adopted policies that were consistent with stabilizing the exchange rate of the deutschemark. Subsequently, exchange rates among member countries were extremely stable under conditions of free capital movement.[59] Glick responded to these comments as

59. Braga de Macedo stated that, in compliance with the Maastricht Treaty, member countries adopted policies consistent with future monetary union under the provisions of the "Exchange Rate Mechanism (ERM) code of conduct," and that this contributed to exchange rate stability. For details, see Jorge A. Braga de Macedo, Daniel Cohen, and Helmut Reisen, *Don't Fix, Don't Float: The Exchange Rate in Emerging Markets, Transition Economies and Developing Countries*, Development Centre Studies, Paris: Organisation for Economic Co-operation and Development, 2001. This publication states that the "ERM code of conduct" meant that, in the event of interest rate changes and in crisis management, the fiscal and monetary authorities of the member countries would work in close coordination under the leadership of the Bundesbank, using the deutschemark as the anchor currency for the EMS.

follows. While agreeing that a negative shock affecting the anchor country provided the immediate cause for the EMS crisis, Glick argued that the elimination of capital controls prompted the markets to test the appropriateness of the policy mix adopted by the policy authorities.

Regarding the Asian region, Ismail Alowi (Central Bank of Malaysia) motioned that the global experience showed that when fixed exchange rate regime collapsed, it was not due to the regime itself, but to weaknesses in the economy such as large fiscal and current account deficits and the fragility of the financial and banking systems, concluding that pursuit of an appropriate and consistent policy mix was essential under any exchange rate regime. Han Ming Zhi (The People's Bank of China) commented that while the Chiang Mai Initiative was a worthy first step, various problems remained to be addressed in the Asian region, including the development and improvement of financial markets. Responding to this statement, Braga de Macedo commented that, in light of the experience of the European Monetary Union (EMU), the Asian countries would need to develop close cooperation and peer pressure in order to advance toward a regional currency area.

Commenting on the impact of hypothetical widespread dollarization in the Americas on the anchor country, Roger W. Ferguson, Jr. (Board of Governors of the Federal Reserve System) noted that explicit institutional requirements for dollarization should be considered.

Responding to the comments of Gerlach on the new open-economy macroeconomics, Maurice Obstfeld noted that future research in this area should be directed toward developing models which incorporate incomplete capital markets. While agreeing with Glick concerning the endogeneity of optimal currency-area criteria and economic performance, Obstfeld went a step further to note that assessments based on welfare criteria are indispensable when attempting to determine whether it is more desirable for business cycles for a set of countries to be synchronized under a common currency, or for them not to be synchronized by instead adopting floating exchange rate regimes. He emphasized that the new open-economy macroeconomics was useful in comparing maximum attainable utilities of different types of exchange rate regimes.

Regarding large exchange rate fluctuations, Allan H. Meltzer commented that transitory and permanent fluctuations should be treated separately, because only permanent fluctuations have a major impact on terms of trade and resource allocation. Malcolm D. Knight (Bank of Canada) stated that inflation targeting was effective in restraining excessive exchange rate volatility, because fluctuations resulting from an unanticipated shift in monetary policy would be constrained. Responding to these views, Glick explained that emerging economies were fearful of large exchange rate fluctuations because of the "original sin" of being unable to borrow in their own currencies.[60]

60. The "original-sin hypothesis" describes a situation faced by most emerging market economies, in which they cannot borrow funds from abroad in their own currency but remain dependent on dollar-denominated short-term bank loans, as occurred even during the period of rapid and global capital movement liberalization of the 1990s. For the original presentation of this hypothesis, see Barry Eichengreen and Ricardo Hausmann, "Exchange Rates and Financial Fragility," *New Challenges for Monetary Policy*, a symposium sponsored by the Federal Reserve Bank of Kansas City, 1999, pp. 329–368.

Hence, he asserted, when adopting floating exchange rates, in addition to adopting inflation targeting, it is necessary to take steps to resolve "currency mismatches."[61]

Knight commented that the choice of exchange rate regimes cannot be made in isolation and must be consistent with other macroeconomic policies. Robert W. Rankin (Reserve Bank of Australia) commented that when examining the relation between desirable exchange rate regimes and the depth of market liquidity, as well as the degree of sophistication of domestic financial markets, it is necessary to pay due attention to the fact that both are endogenously determined.

The chairperson of the session, Miyako Suda (Bank of Japan), closed the session with the following observations. As a result of growing global interdependence and recent developments in economic theory, a far more complex series of factors must be considered in evaluating exchange rate regimes. It was hoped that this matter would be discussed further in the following sessions.

61. This argument is patterned after Morris Goldstein's "managed floating plus" position, which calls for the combination of inflation targeting and aggressive measures to reduce currency mismatches (Morris Goldstein, *Managed Floating Plus*, Washington, D.C.: Institute for International Economics, 2002). Goldstein proposes a variety of measures to limit currency mismatches; these include periodic announcements of the ratio of short-term foreign debt to foreign reserves, the development of deeper capital markets that allow better hedging mechanisms, and a prohibition against government borrowing in foreign currencies.