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EXCHANGE-RATE ARRANGEMENTS AND FINANCIAL INTEGRATION IN EAST ASIA: ON A COLLISION COURSE?

Hans Genberg

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Exchange-Rate Arrangements and Financial Integration in East Asia: On a Collision Course?

Hans Genberg
Hong Kong Monetary Authority
Hong Kong Institute for Monetary Research

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Abstract

Financial integration in East Asia is actively being pursued and will in due course lead to substantial mobility of capital between economies in the region. Plans for monetary cooperation as a prelude to monetary integration and ultimately monetary unification are also proposed. These plans often suggest that central banks should adopt some form of common exchange rate policy in the transition period towards full monetary union. This paper argues that this is a dangerous path in the context of highly integrated financial markets. An alternative approach is proposed where independent central banks coordinate their monetary policies through the adoption of common objectives and by building an appropriate institutional framework. When this coordination process has progressed to the point where interest rate developments are similar across the region, and if in the meantime the required institutional infrastructure has been build, the next step towards monetary unification can be taken among those central banks that so desire. The claim is that this transition path is likely to be robust and will limit the risk of currency crises.

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1. Introduction

Although economic growth has resumed in East Asia since the crisis and contraction in the late 1990s, the experience of that period is still vividly in the minds of policy makers, and indeed the general public. An important question is therefore whether anything can and should be done to increase the resiliency of the region as a whole to shocks, and especially to shocks originating in international financial markets.

Policy makers in East Asia see economic integration in the region as one way to consolidate growth and to prevent a recurrence of instability due to the perceived stop-go nature of international capital flows. Substantial integration of trade in goods has in fact already occurred as documented in a number of studies.[1] The emergence of Mainland China as a manufacturing hub is significant in this regard, as it imports large quantities of intermediate goods from other economics in the region, transforms them into final goods for exports to the rest of the world.

The increased trade integration among economies in the region has led to calls for coordination of exchange rate policies lest competitive depreciations lead to artificial distortions in competitiveness, disruptions of trade, and dislocation of production. Not infrequently, the experience of Europe is used to argue that such exchange rate cooperation is necessary now that the degree of integration has reached levels close to that in Europe when the ERM was introduced.

The degree of integration of financial markets is distinctly smaller. This is partly due to the controls on capital movements that some jurisdictions have maintained for a long time, but it is partly the result of the perception that the crisis of the late nineties was to some extent due to the vagaries of international capital flows. But at the same time it is of course recognised that international capital flows can bring substantial benefits. A response to this ambiguous attitude towards international capital flows has been to encourage financial integration within the region, although this should not be seen as an alternative to participating in the global financial system, but rather as a way to increase the size of local financial markets and thereby rendering them more resilient to swings in global capital flows.

This paper takes these two developments, towards greater financial integration on the one hand and proposals for exchange rate coordination on the other, as given and asks what they imply for monetary policy regimes in the region. Section 2 briefly reviews some initiatives that are being pursued towards greater financial integration and argues that these initiatives will only achieve their full goal if substantial liberalization of capital flows between countries is undertaken.

After a review of existing exchange rate practices and a characterisation of exchange rate behaviour in the region, Section 3 considers the proposals for exchange rate coordination that have focused on some form of common exchange rate peg. The section emphasizes the difference between pegs that link the currencies to an external anchor and those that are based on an internal unit of account, and sets out the implications of each for the conduct of monetary policy in the countries that join such an exchange rate arrangement.

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[1] See, for example, Cutler et al. (2004) and Zebregs (2004).

Section 4 addresses the question in the title of the paper and argues that the creation of fully integrated financial markets in the region and moving towards monetary unification may lead to undesirable outcomes unless the two processes are sequenced and designed carefully. It is argued that the path towards European monetary union provides useful lessons in this respect. These lessons should not, however, be that Asia should follow the European model of exchange rate stabilization in the context of liberalized international capital flows. The crises in the ERM during the 1990ies were not independent of the choice of this transition path towards the EMU. Instead Asian economies should follow a path where independent central banks coordinate their monetary policies, explicitly through some institutional framework or implicitly through the adoption of common objectives. When this coordination process has progressed to the point where interest rate developments are largely the same across the region, and if in the meantime the required institutional infrastructure has been build, the next step towards monetary unification can be taken among those central banks that so desire. I claim that this transition path is likely to be robust and will limit the risk of currency crises.

The final section of the paper recalls that significant coordination of exchange rate policy requires equally significant coordination of interest rate policies in an environment where capital mobility is substantial. It then discusses the likelihood that individual jurisdictions in East Asia will be able and willing to give up decision-making power over monetary policy to a supranational coordinating institution, and concludes by sketching what the implications for the currency landscape in the region may look like in the medium term horizon.

2. Integration of Financial Markets

The degree of international integration of domestic financial markets varies considerably across the countries that are the focus of this paper. Hong Kong, at one extreme, is completely open to international capital flows. Japan and Singapore are not far behind. At the other end of the spectrum there is Mainland China which has very strict controls de jure. There is some question as to the degree of de facto integration that is present, but it is quite clear from interest differentials that domestic and international financial markets are separated to an important degree. Malaysia imposed controls on capital flows in the aftermath of the Asian financial crisis, and while some of these have been eased, substantial impediments remain to create room for an independent domestic monetary policy.

For the other countries in the region, the de jure degree of capital mobility as measured by looking at the IMF's Annual report on Exchange Arrangements and Exchange Restrictions appears to quite limited, but the de facto mobility is almost certainly considerably larger. The reason for the diversity among the countries can be explained in part by their experiences during the Asian financial crisis and the lessons they drew from these (cf. Malaysia and Thailand), in part by the legacy of a generally closed economy (Mainland China), and in part by a desire to shield domestic financial institutions from external competition.

The Asian financial crisis was a traumatic event in the region and it has spawned a number of initiatives for cooperation among central banks to enhance their ability to cope with volatile capital flows. The best known is perhaps the so-called Chiang Mai initiative. In its current form it consists of a set of bilateral swap agreements between central banks that increases the effective size of international reserves at

the disposal of an individual central bank. While these swap agreements do not have any direct impact on private sector capital mobility, the intention behind them is presumably to make central banks better prepared for such flows.

Another major official financial market project in the region is the development of an integrated Asian bond market.[2] One motivation behind this initiative is to facilitate the intermediation of funds inside the region. It is well documented (e.g. in McCauley (2003)) that much of the large volume of Asian savings is invested in developed-country assets with relatively low rates of return only to come back in the form of FDI and portfolio investments in high-return local assets. It is felt that a more developed regional bond market might allow local investors and savers to benefit more from this intermediation spread.

The Asian bond market initiative is also meant to encourage a broader and more efficient corporate bond market with the ultimate objective to lower the cost of funds for the corporate sector thereby increasing the rate of investment and growth. For this to materialize on a region-wide basis it will be necessary for countries that currently have restrictions on capital flows to remove them to a significant degree. The logic of the bond market initiative therefore implies substantially open capital markets in the region, which in view of the liberal regime in some countries, of course implies openness with respect to the world as a whole. The remainder of the paper thus takes it as given that the countries in the region will move in due course towards a regime of substantially open capital accounts.

3. Exchange Rate Arrangements

3.1 The current situation

The current exchange rate arrangements in East Asia span the entire spectrum from a very hard peg in the case of Hong Kong's currency board arrangement to the floating exchange rate of the Yen. Other jurisdictions in the region operate systems that fall in between with Mainland China and Malaysia being close to the fixed-rate end of the spectrum, South Korea closer to the opposite end and Indonesia, Philippines, Taiwan-China, and Thailand in between.

Hong Kong

Hong Kong operates a currency board system with a commitment to keep the HKD between 7.75 and 7.85 HKD/USD.[3] All movements in the monetary base reflect corresponding movements in the stock of international reserves. Local currency interest rates are therefore closely linked with their US dollar counterparts with very little discretion on the part of the Hong Kong Monetary Authority to influence them independently.

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[2] See Ma and Remolona (2005) for a succinct description.

[3] Before 18 May 2005 the exchange rate system was asymmetric in the sense that there was a firm commitment not to let the Hong Kong dollar depreciate past 7.80 but there was no explicit commitment on the strong side. The so-called three refinements to the currency board system introduced on May 18 established the current symmetric convertibility zone.

Mainland China

On July 21 2006 the Mainland Chinese authorities announced that they would shift from a fixed exchange rate (to the US dollar) to a managed floating system with reference to a basket of currencies. At the same time they announced a one-step initial appreciation of the RMB of 2.1% relative to the USD. The composition of the basket is not made known, but it is said to consist of at least seventeen currencies. While the bilateral RMB/USD exchange rate is much less volatile than most plausible basket rates, it is possible to detect both a weak trend-like appreciation of the renminbi and a tendency to move with a basket.

Malaysia

After having pegged the Ringgit tightly to the US dollar since September 1998, the Malaysian authorities announced a move to a basket peg at the same time as Mainland China changed its system. The basket is not disclosed and the bilateral USD rate is still far less volatile than the effective exchange rate. As in China, controls on capital movements permit local interest rates to deviate from the US counterparts more than can reasonable be attributed to expected exchange rate changes.[4]

Singapore

The Monetary Authority of Singapore is unique among the central banks in the region in that it uses the effective exchange rate actively as an intermediate target to reach an inflation target. In other words, it can be classified as following an inflation targeting regime although it does not describe itself that way. The basket used as the intermediate target is not disclosed.

Indonesia, Philippines, South Korea, Taiwan/China, Thailand

The central banks in these jurisdictions are self-proclaimed inflation targeters using a short-term interest rate as the intermediate target. Of course, inflation targeting does not have to mean that no attention is paid to the exchange rate when interest rate decisions are made, so it is quite possible that the exchange rates of these economies follow systematic patterns in relation to main trading partners. Regression results discussed below illustrate this point.

Japan

As already noted, among the Asian currencies covered in this paper, the Japanese Yen probably comes closest to the traditional definition of a freely floating one. Even so, the results reported in the Appendix show that the movements of the Yen-US dollar exchange rate are systematically related to the USD/EUR rate.

3.2 Characterizing fluctuations in Asian currencies

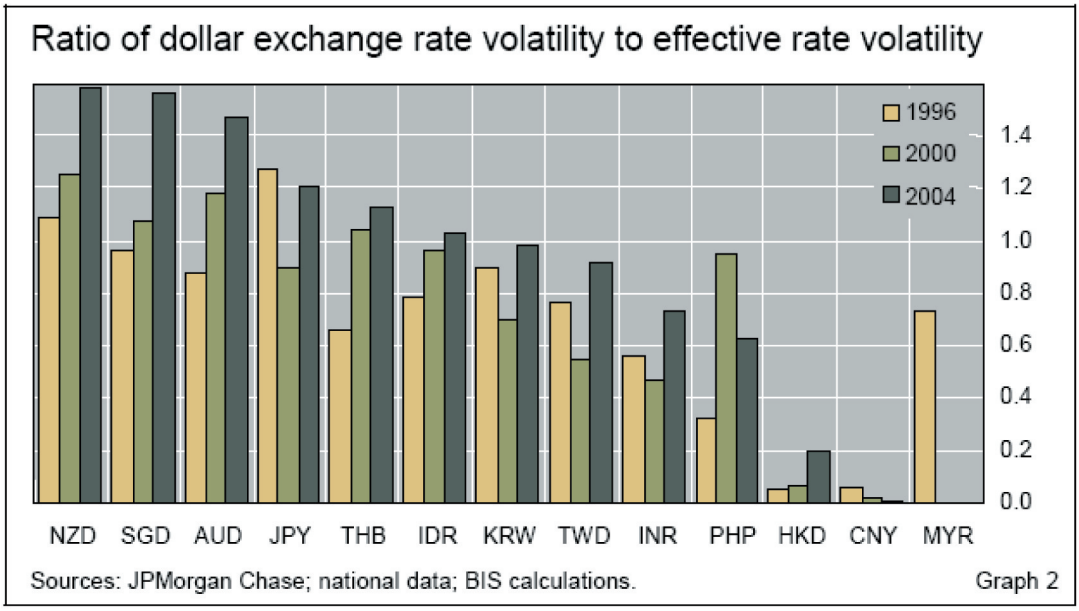
3.2.1 Movements against the UD dollar

Ho, Ma, and McCauley (2005) argue that movements in Asian currencies are increasingly related to those of a wider group of trading partners than just the US dollar. They illustrate this point in two ways,

[4] McCauley (2006).

by calculating the ratio of US dollar exchange rate volatility to effective exchange rate volatility on the one hand, and by regressing movements of individual dollar exchange rates on dollar exchange rates of major local trading partners/competitors on the other.

If Asia were on a strict dollar standard (McKinnon and Schnabel (2004)) the ratio of US dollar volatility to effective rate volatility would be very small. Conversely for a country that stabilizes the effective exchange rate, the ratio would be very large. Graph 2 in Ho, Ma, and McCauley (2005) (reproduced below) shows that - with the notable exception of Hong Kong, Mainland China, and Malaysia - the volatility ratio is far from zero and has typically been increasing over time.



Regressions of the form

$$\Delta S_{i,t} = \alpha_0 + \sum_j \alpha_j \Delta S_{j,t} + u_{i,t} \qquad j \neq i \tag{1}$$

where S_k represents the US dollar exchange rate of currency k, can be used to assess whether a particular currency is more or less rigidly pegged to another. If a coefficient α_j is equal to unity and if $u_{i,t}$ is 'small' for all t then currency i is pegged to currency j. If all α:s are zero and the u_i:s are small, then the currency is pegged to the US dollar. When some α:s are non-zero, then currency i is systematically related to the currencies corresponding to the non-zero coefficients. Such relationship could come about either because the central bank is actively managing the currency or simply because the behaviour of currency traders/investors in the market generates a correlation between particular currencies.[5]

In the Appendix I tabulate the results of regressions of the form (1) using weekly data for the main East Asian currencies for the period since January 1, 2000 and for various sub-periods. The following points can be made on the basis of these results.

[5] An example might be the relationship between the Swiss Frank and the Euro. In a regression of movements of the former on the latter is likely to show a dependence of the CHF/USD rate on the EUR/USD rate even though the Swiss National Bank does not engage in systematic exchange rate management.

- Looking at the results for the full sample period, it is evident that the evolution of the Singapore dollar, the New Taiwanese dollar, and the Thai bhat depend quite strongly on movements in the Euro, the Japanese Yen, and the South Korean Won. For these currencies the effective exchange rate orientation (as opposed to a pure dollar orientation) emphasised by Ho, Ma, and McCauley using daily data is clearly present also in weekly data. Movements in the Indonesian rupee and the Philippines peso on the other hand are quite idiosyncratic.[6] The won reacts systematically to the yen, and changes in the yen correlate positively with those of the euro.

- Comparison of the regression coefficients across different sample periods reveals a certain degree of instability over time. Two possible explanations could account for that. If regression coefficients are capturing deliberate exchange rate management, then instability would indicate changes over time in the composition of the basket that forms the basis of the managed exchange rate policy. On the other hand if significant regression coefficients reflect common underlying shocks, then instability would simply mean that different shocks have been present in different time periods.

- Finally it is noteworthy that there are considerable differences across countries in the way their currencies relate to movements in the euro, yen, and the won. Different trade patterns or differences in economic structure which translates into differences in the reaction to common shocks are potential explanations.

3.2.2 Measures of intra-region exchange rate variability

Intra-regional exchange rate volatility will appear when individual currencies in the region react differently to movements in the dollar, the euro, and the yen. As there is no single perfect measure of the overall degree of intra-regional exchange rate variability, Table 2.1 presents summary statistics based on a very simple construct, the equally-weighted geometric average of all currencies in the region.[7,8]

The figures in the table confirm that there are significant differences in the behaviour of individual currencies in the region. Not surprisingly, the countries whose currencies were shown to have the most systematic effective exchange rate orientation in the regression results also have the smallest deviation from the regional average (Singapore, Taiwan (China) and Thailand).

Whether the size of the deviations shown in the table should be considered large or not is difficult to determine in the absolute. A standard of comparison is given in the last two rows of the table, where figures are given for the percentage deviations of the euro exchange rates of the Swedish krona and the Swiss franc from their respective sample averages. These countries are chosen as they are both small highly open economies that trade intensively with the euro area. It is therefore interesting to note that

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6 Pegging to the US dollar can be ruled out by inspection.

7 'All' currencies should be understood to mean all currencies considered in this paper.

8 The measures are calculated as follows. First all US dollar exchange rates are converted into indices with an average value of 100 for the sample period as a whole. The geometric average of these indices is then calculated using equal weights. Finally percentage deviations of each individual series from the geometric average are calculated. The summary statistics in Table 2.1 are based on these deviations.

the size of the fluctuations of their currencies relative to the euro lies somewhere in the middle of the ranking of East Asian currencies even though they profess to have freely floating exchange rates.

The stylized facts presented in this section describe the environment within which discussions about the desirability of some form of coordinated exchange rate policy in the region take place. In view of the strong degree of trade integration between the countries in the region, there have been proposals for some form of coordinated exchange rate arrangement. The objective seems to be to limit fluctuations in bilateral real exchange in response to external shocks or reduce temptations to resort to competitive devaluations.

3.3 Proposals for coordinated exchange-rate policies and their implications for monetary policy

3.3.1 Alternative currency pegs in Asia

The leading proposal for a coordinated exchange rate arrangement in the region appears to be the so-called BBC (Basket-Band-Crawl) proposal.[9] As the name suggests, this proposal entails defining a currency basket to which each individual currency would be pegged, allowing for a band around the central rate and allowing the central rate to change slowly. The basket would be the same (or at least very similar) across countries in order for the implied bilateral exchange rates to be stable.

The 'band' and 'crawl' aspects of the BBC proposal have important implications for the credibility of the system which will be discussed in the next section. Here I want to focus on the implications for monetary policy of the composition of the basket so I will for simplicity consider the pure case with no bands and zero rate of crawl.

The main issue appears to be the choice of an 'external' reference basket and an 'internal' reference basket. By a pure external basket is meant an arrangement in which each country in the region would peg its currency to a basket made up of currencies not belonging to the region, whereas a pure internal basket implies pegging to a basket made up entirely of currencies of the region itself. While both systems would lead to stability of bilateral exchange rates between the currencies within the region, they have widely different implications for the determinants of monetary conditions.

3.3.2 What determines monetary policy in a pegged exchange rate system?

To appreciate this, consider a stylized case where we only have four countries: two countries (α, β) within the region and two counties (A, B) outside. An outside basket would be a weighted average of the currencies of A and B. In order to avoid fluctuations in the bilateral exchange between α and β due to

[9] See Williamson (2001).

changes in the bilateral exchange rate between A and B, the weights in the baskets to which α and β are pegging must be the same, w_A and 1-w_A.

Suppose now that both α and β peg their respective currencies to this common basket. With internationally integrated financial markets, their interest rates must then be the same and equal to

$$i_\alpha = i_\beta = w_A \cdot i_A + (1\text{-}w_A) \cdot i_B$$

In other words, the monetary conditions in each of the countries, as defined by the rate of interest, will be determined by the monetary conditions in the rest of the world.

Contrast this with the case of pegging to a common internal basket. In this case the common interest rate will be a weighted average of the interest rates of each of the countries in the region (assuming that all of them are included in the currency basket). In other words, pegging the exchange rates of each of the members will not itself determine monetary policy conditions in the region. This is of course nothing else than the familiar n-1 problem in a fixed rate system. If n countries form an internally defined fixed exchange rate zone, there will be 1 degree of freedom which must be used to set the interest rate for the system as a whole. One way to achieve this would be to allow one of the countries in the region to determine the monetary policy of the region as a whole. This was the solution that emerged under the Bretton Woods system and the European ERM system where the United States and Germany, respectively, became the centre countries. The other possible solution would be a common interest rate policy achieved either through strict coordination among the independent central banks or delegation of interest rate policy to a supranational institution.

In the case of East Asia it is frequently suggested that a mixed internal and external basket be used for the region. For example, Williamson (2001) suggests that a weighted average of the US dollar, the Euro and the Yen should be used. In this case, and if Japan is part of the exchange rate arrangement, the interest rate in Japan, which will be the interest rate also in the other countries in the zone, will be defined by

$$i_{Japan} = w_{US} \cdot i_{US} + w_{EURO} \cdot i_{Euro} + (1\text{-}\ w_{US}\ \text{-}\ w_{EURO}) \cdot i_{Japan}$$

i.e.

$$i_{Japan} = \tilde{w}_{US} \cdot i_{US} + \left(1 - \tilde{w}_{US}\right) \cdot i_{EURO}$$

where

$$\tilde{w}_{US} = \frac{w_{US}}{w_{US} + w_{EURO}}$$

In other words, from the point of view of the evolution of interest rates in the exchange rate zone, and hence the control of monetary policy, the mixed basket is like the external basket in that external factors will complete determine monetary conditions in the zone.

4. A Collision Course?

I have argued that the revealed preference of Asian policy makers is to create a financially integrated region. There are also proposals, mostly but not exclusively from academic and policy lobby circles, to introduce cooperation in the area of exchange rate policy that will take the form of a common basket peg in the region. In this section I examine a number of issues that arise from these aims.

It is well-known that free capital mobility and a fixed exchange rate are compatible only if monetary policy (and indeed macroeconomic policy in general) is subordinated to the fixed exchange rate objective. It is not only current policies that matter, but also expectations about how policy makers will react to shocks. In other words, the commitment of the authorities to maintaining the fixed rate must be very strong in order for speculative attacks not to materialize. The European exchange rate experiences in the early 1990s provide pertinent lessons; countries that for many years had made it clear that they had no intention to carry out anything but a DEM based monetary/exchange rate policy were not affected (Austria and the Netherlands are the most clear examples), whereas countries with less strong commitments were.

The idea behind the title of this paper then is that policy initiatives and discussions in Asia with respect to financial market integration and exchange rate policy may be on a collision course in the sense that, if implemented, conditions may be established that will bring about an eventual exchange rate crisis.

4.1 Unstable paths towards monetary integration

Suppose that there is a desire to establish a truly fixed exchange rate zone, i.e. a monetary union, in the region in the long term.[10] One way to do so would be to follow the European model and create a common basket peg among the participating countries and start to work on the establishment of the institutional infrastructure required to operate a monetary union. The common basket system would make allowances for bands around central parities and possibly for rates of crawl of the parities themselves.

If such a system was operating in the context of substantially free capital mobility, the risk of currency speculation and crisis would be present, particularly if the bands around the parities were narrow, and if there were reasons to believe that the commitment to the exchange rate objective was less than absolute. To reduce the risk of speculative attacks one may contemplate making the exchange rate bands rather wide, for example as wide as the ± 15% bands introduced in August 1993 into the ERM in Europe after the turbulence in the system. While this might reduce the likelihood of exchange rate crises it does so at the cost of potentially large fluctuations in exchange rates, exactly what the common peg proposal is intended to eliminate. More fundamentally in my opinion is that a very wide band for the exchange rate all but eliminates it as a nominal anchor in the economy. It is therefore essential in such a system that each country specifies an alternative monetary policy strategy, and that these strategies be mutually consistent. In other words, the monetary policy coordination that is supposed to emerge from the common exchange rate peg must be specified separately.

[10] I am leaving aside the question of the composition of such a zone for the moment, and indeed whether its creation is likely in the foreseeable future. These issues will be discussed in the next section.

Allowing for crawling central parities will not solve the problem. If the rate of crawl is predetermined and fixed, all that is gained is a differenced between the countries in the level of interest rates and the average rates of inflation. There will be no added policy autonomy to deal with short- and medium-term disturbances. The risk of a currency crisis is only altered in so far as allowing for differences in average inflation rates makes the arrangement more credible. In my view this is questionable, although others may think differently. If the rate of crawl is made discretionary, the role of the system as a nominal anchor is again reduced, and as discussed above, some alternative method of monetary policy coordination must be found.

To reduce the risk that a pegged exchange rate arrangement will break down some may suggest that countries should retain, or introduce as the case may be, some controls on international capital movements. Three considerations speak against such an approach. First, it seems to go against the revealed preferences of Asian policy makers who approvingly speak of the creation of an integrated Asian financial market. Second, an presumably not unrelated, maintaining capital controls for extended periods of time would prevent Asian countries from reaping the gains from international capital mobility.[11] Third, and most importantly if the ultimate goal of the common exchange rate policy is monetary unification, capital controls would have to be eliminated some time before exchange rates are permanently locked and a common monetary policy is implemented. The reason is simply that a fully integrated financial market must be in place in order for a centrally determined monetary policy to be transmitted evenly and rapidly to each part of the monetary union. So this approach would imply the coexistence for some period of time of fixed exchange rates, free movements of capital, and potentially different monetary policies, that is the ingredients susceptible of leading to currency crises.

4.2 An alternative Asian path towards monetary stability and, if desired, monetary unification

The model for the creation of a zone of monetary stability that emerged in Europe after the breakdown of the Bretton-Woods system focussed on stabilizing intra-European exchange rates. Formal mechanisms for the coordination of monetary policies were weak. Arguably the objectives of monetary policies across the continent were not even consistent with fixed exchange rates until the goals pursued by the German Bundesbank became the de facto common goals of other future members of the Euro area. In the meantime, and even afterwards since the commitments to follow the lead of the Bundesbank were not always believed, currency realignments were needed and often accompanied by mini crises. As restrictions on capital flows were finally eliminated altogether without full monetary coordination, the maxi crises of the 1990s erupted.

Rather than following the European approach towards the creation of monetary stability in the region, Asian central banks are well advised to adopt their own strategy that will be more robust and that can, if desired, lead to the same ultimate outcome. The approach must be compatible with liberalization of capital flows, possibly at different speeds in different countries but with the ultimate aim of creating a fully integrated market. Furthermore it must recognize that full monetary union requires a single monetary policy determined by a single central bank. It is therefore necessary that the approach leads to an agreement on the form of such an institution and on its mandate. This will not happen unless the objectives

[11] As already noted, there is some dispute as to the size of these gains, but they are presumably positive.

of existing monetary authorities are compatible. Although these requirements may sound daunting, it is possible to sketch the outlines of an evolutionary approach towards the creation of a zone of monetary stability and financial integration in Asia based on these principles. The key is to allow each central bank to implement its own monetary policy during the transition period, but to agree on a consistent objective to be pursued by all.[12] The obvious candidate for such an objective is an inflation target. In the past twenty-odd years inflation targeting has emerged as the dominant paradigm for monetary policy. While there can be many flavours of inflation targeting, the one essential common element is that control of inflation should be the overriding objective of monetary policy.

The first element of an Asian approach towards creating a region of monetary stability should thus be to adopt common objectives for central bank policies in the region, and these should be stated in terms of an inflation target.[13] To be compatible with liberalization of international capital flows, there should be no commitment towards maintaining a particular exchange rate level. Of course, this does not mean that the exchange rate should be ignored in the implementation of the monetary policy strategy. Indeed there is a presumption that attention should be paid to the information contained in exchange rate movements when the inflation targeting strategy is implemented.[14]

As financial markets become fully integrated, and if inflation objectives of the regional central banks are sufficiently similar, interest rates are likely to become highly correlated across the economies. The reason is simply that with common objectives and similarity of cyclical developments, the interest rate decisions of each central bank will be substantially similar.[15]

How stable bilateral exchange rates will be depends on a number of factors. As already noted, in highly open economies a monetary policy strategy that targets inflation will pay attention to exchange rate movements. This will tend to dampen exchange rate fluctuations. However, even if objectives of central banks are similar, it is possible that financial markets will not evaluate economies identically, and therefore it is possible that exchange rates will show some fluctuations. The credibility of each central bank's commitment to the announced objective and its ability to implement the policy are important considerations in this regard. So is the consistency of other macroeconomic policies with the monetary policy objective. Taking these considerations into account one should expect exchange rates to be subjected to some short run fluctuations. For example, Switzerland is highly integrated with economies in the Euro area and the Swiss National Bank has much the same objectives as the European Central Bank, yet the exchange rate between the Swiss Frank and the Euro does display a nontrivial degree of volatility.

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[12] Note that unless such an agreement can be achieved, there is no point in trying to achieve monetary unification in the first place.

[13] For central banks such as the Hong Kong Monetary Authority that have a long-standing successful commitment to a rigidly fixed exchange rate in the context of complete capital mobility, there is no compelling reason to switch to inflation targeting. The following discussion thus refers to central banks that have followed discretionary monetary policies in the past.

[14] It is also quite possible to use the exchange rate rather than some short-term interest rate as the operating target. This is indeed the approach of the Monetary Authority of Singapore.

[15] Some differences may still be observed if the monetary policy transmission mechanism is not exactly the same across countries, because in this case the timing of changes in policy interest rates may vary across jurisdictions. However, even in this case long-term interest rates should still evolve in a rather similar pattern.

Once interest rate policies have converged, countries can formally agree to centralize monetary policy decisions in a common central bank, which has been established in the intervening period, or they can decide to delegate it to an existing central bank.[16] In the first case the delegation of monetary policy will be carried out simultaneously with the introduction of a new common currency, and in the second case with making the currency of the chosen central bank the common currency in the group. Of course, there is no requirement that the last step of the approach – that of adopting a common currency – be implemented by all countries in the region. The benefits from financial integration and monetary stability will be forthcoming anyway even if those of a common currency will not.

The advantages of the approach to monetary integration that I have sketched here over the alternative approach based on the European model of exchange rate stabilization are that it is compatible with increasing integration of financial markets, it naturally evolves from a system where central banks pursue similar objectives in their own self interest which makes it incentive compatible, and it allows for a 'variable geometry' of the final area that adopts a common currency. In the next and final section I examine briefly what this geometry might look like in East Asia.

5. How many currencies in East Asia?[17]

The successful introduction of the euro and the success of the ECB in delivering monetary stability have naturally raised the question whether East Asia might be the next candidate for monetary unification. Academics have had a field-day trying to determine whether on optimum currency area (OCA) considerations such a development would be feasible. Not surprisingly, there is no clear-cut answer, but a number of authors suggest that East Asian economies are no less an OCA than Europe was when it started its process towards unification.[18] In view of the additional real integration that is likely to take place between now and the time the renminbi becomes fully convertible and financial markets in the region fully integrated, it is thus likely that East Asia would pass the OCA criteria as well (or badly depending on one's point of view) as the euro area did in 1998.

But in discussing monetary unification it is essential to keep in mind that a monetary union between a set of economies implies a single common currency which in turn requires a single common central bank. For this reason the decision to establish a monetary union becomes intensely political. Indeed, European monetary integration was as much, if not more, a political process as an economic one. Without strong support from the political leadership in France and Germany it is unlikely to have come about at all. Will the two dominant countries in East Asia, China and Japan, be able to play a similar role? In present circumstances this does not seem likely, but much water can flow under the bridge during a period between the initial proposals for monetary unification and its eventual realization. Judging by the European experience this can take as long as twenty years.

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16 Wyplosz (2004) emphasizes the role of institution building in the process of monetary integration process in Europe.

17 This section draws heavily on Chapter 5 of Genberg, McCauley, Persaud and Park (2005).

18 Park (2004) and Ito and Park (2004) review the empirical literature.

Nevertheless, even though current tensions will surely subside, it is difficult to imagine that the political pendulum will swing so far and so rapidly as to bring about a consensus within the current generation of leaders in favour of a supranational monetary authority in East Asia that would be vested with the same independence as the ECB enjoys in the euro area. Independent monetary policies and a floating exchange rate between China and Japan appear to be the more likely outcome for the foreseeable future.

Where does this leave the other economies in the region? The economies of Hong Kong and Taiwan are likely to integrate more and more comprehensively with the Mainland in the coming years. Economic cycles and price developments will become increasingly similar. On OCA grounds a greater monetary integration would be justified.

For other countries the outcome is less clear. As the third largest, South Korea's economy will have a size of something like a fifth and a third of those of Japan and China respectively. It will increase its trade and financial relations with both of its neighbours. It seems unlikely therefore to link its monetary fortunes completely with either one, especially since it also trades significantly with the US and Europe. In the absence of a region-wide exchange rate agreement it could well therefore also continue to opt for an independent monetary policy based on a domestic objective such as an inflation target.

Four other countries in the region – Indonesia, the Philippines, Thailand, and Singapore - are also inflation targeters.[19] As argued above, this strategy is likely to be robust both as a transition arrangement towards monetary integration should this be deemed desirable and as an arrangement that will promote monetary stability among increasingly integrated independent monetary jurisdictions. The experiences of other small highly open economies support this claim. Canada, Norway, Sweden, and Switzerland are examples of economies that are highly integrated with neighbouring large currency areas and yet they are quite successfully pursuing independent monetary policies based on inflation targets.

What do these arguments imply for the 'currency map' of East Asia in a ten to twenty year horizon, assuming the renminbi will then be convertible? The discussion suggests that the renminbi, the won, and the yen will remain independent currencies and the corresponding central banks would gear monetary policy towards achieving internal stability objectives. The Hong Kong and the New Taiwanese dollars might become tightly linked to the renminbi. Further south and east there are two main scenarios. One is that countries such as Indonesia, Malaysia, Philippines, Singapore, and Thailand follow the successful inflation targeting model of many other countries in the world and retain independence of monetary policy with exchange rates that adjust (freely or in a managed fashion like Singapore is currently doing) as needed to achieve domestic goals.

The other model is that the smaller countries in the region will have decided that monetary unification is in their best common interest. After transiting through a period with independent but increasingly similar

[19] While the first three countries use a short-term interest rate as the operating target, Singapore has developed a strategy of targeting inflation based on using the effective exchange rate as the operating target. It has enjoyed considerable success in doing so. For recent discussions of monetary policy strategies in East Asian countries see the papers presented at the BIS/ HKIMR conference on "Monetary Policy Approaches and Implementation in Asia" available at https://www.hkimr.org/conferences_detail.asp?id=20&callfrom=previous&page=1

monetary policies as suggested in Section 4.2, they will have established a common central bank, the SEAMA (South East Asian Monetary Authority) and introduced a common currency, the SEAMU (South East Asian Monetary Unit).

Whether one or the other of scenarios is played out, the region will be one with substantially integrated financial markets and with interest rate policies that are set independently by several central banks pursuing price stability as their principal objective. Interest rate movements are nevertheless likely to be quite similar across the monetary areas because of the similarity in policy objectives and the high degree of real economic integration in the region. In jurisdictions that have retained their currencies exchange rates will be allowed to vary, but in view of the importance of exchange rate movements for inflation, monetary policy will pay close attention to such movements and de facto limit their size. Central banks that can agree to delegate their monetary policy to a supranational agency or a foreign central bank may form a currency union. The transition to such a union will be based on a common vision of the objectives of monetary policy and not on a straightjacket based on an exchange rate peg. For this reason it will not be plagued by currency crises. The collision between financial integration and exchange rate arrangements will have been avoided.

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Table 2.1. Deviations from 10-country regional geometric average[1] (Percent)

	Average absolute value	Standard deviation	Maximum	Minimum
Singapore	1.7	2.3	7.0	-3.3
Taiwan, China	2.0	2.4	4.5	-6.4
Thailand	2.1	2.6	6.6	-4.6
Hong Kong SAR	2.4	3.2	8.7	-5.9
Malaysia	2.4	3.2	8.9	-6.0
China, Mainland	2.5	3.3	9.1	-5.9
Japan	3.7	4.4	11.3	-8.1
South Korea	4.6	5.9	10.0	-13.2
Indonesia	6.1	7.3	22.0	-15.9
Philippines	6.7	7.7	11.5	-16.1
For reference:				
Sweden	2.5	3.5	9.4	-10.4
Switzerland	2.1	2.6	5.8	-5.3

[1] For the exact method of calculation, see footnote 8 in the text.

Appendix

Regression results using weekly data from 2000 to 2005. The estimated equation has the log-change in the US dollar value of the currency in the first column as the dependent variable and the log-change in the euro, the yen, and the won as the dependent variable (except as noted in the table).

Full Sample

	EUR	JPY	KRW	R^2
IDR	0.079	0.082	0.371	0.050
	(0.297)	(0.368)	(0.006)	
JPY	0.342	n.a.	n.a.	0.140
	(0.000)	n.a.	n.a.	
KRW	-0.008	0.269	n.a.	0.176
	(0.805)	(0.000)	n.a.	
PHP	0.017	0.065	0.117	0.039
	(0.631)	(0.115)	(0.056)	
SGD	0.146	0.180	0.165	0.519
	(0.000)	(0.000)	(0.000)	
THB	0.115	0.191	0.232	0.332
	(0.000)	(0.000)	(0.000)	
TWD	0.059	0.089	0.248	0.350
	(0.001)	(0.000)	(0.000)	

Year 2000

	EUR	JPY	KRW	R^2
IDR	0.019	0.012	0.169	0.004
	(0.918)	(0.967)	(0.692)	
JPY	-0.012	n.a.	n.a.	0.000
	(0.904)	n.a.	n.a.	
KRW	-0.104	0.182	n.a.	0.127
	(0.096)	(0.051)	n.a.	
PHP	-0.031	-0.188	0.153	0.047
	(0.732)	(0.175)	(0.467)	
SGD	0.143	0.160	0.052	0.286
	(0.001)	(0.016)	(0.597)	
THB	0.129	0.193	0.099	0.106
	(0.122)	(0.124)	(0.603)	
TWD	0.030	0.062	0.248	0.284
	(0.329)	(0.179)	(0.001)	

Year 2001

	EUR	JPY	KRW	R^2
IDR	0.111	0.066	0.991	0.088
	(0.735)	(0.844)	(0.057)	
JPY	0.259	n.a.	n.a.	0.067
	(0.062)	n.a.	n.a.	
KRW	-0.163	0.236	n.a.	0.150
	(0.068)	(0.009)	n.a.	
PHP	-0.128	0.270	0.049	0.109
	(0.305)	(0.039)	(0.802)	
SGD	0.120	0.105	0.221	0.295
	(0.037)	(0.075)	(0.015)	
THB	-0.016	0.145	0.372	0.340
	(0.816)	(0.043)	(0.001)	
TWD	0.143	-0.061	0.124	0.150
	(0.007)	(0.247)	(0.126)	

Year 2002

	EUR	JPY	KRW	R^2
IDR	0.265	0.140	0.037	0.130
	(0.196)	(0.475)	(0.889)	
JPY	0.780	n.a.	n.a.	0.442
	(0.000)	n.a.	n.a.	
KRW	0.041	0.337	n.a.	0.359
	(0.703)	(0.001)	n.a.	
PHP	0.189	0.118	-0.107	0.242
	(0.041)	(0.179)	(0.374)	
SGD	0.094	0.269	0.030	0.671
	(0.084)	(0.000)	(0.667)	
THB	0.189	0.254	0.106	0.493
	(0.055)	(0.008)	(0.404)	
TWD	0.069	0.127	0.205	0.465
	(0.286)	(0.042)	(0.018)	

Year 2003

	EUR	JPY	KRW	R^2
IDR	-0.038	0.159	0.306	0.222
	(0.627)	(0.143)	(0.012)	
JPY	0.341	n.a.	n.a.	0.192
	(0.001)	n.a.	n.a.	
KRW	0.061	0.306	n.a.	0.170
	(0.518)	(0.015)	n.a.	
PHP	0.028	0.080	0.123	0.091
	(0.684)	(0.388)	(0.227)	
SGD	0.130	0.221	0.221	0.632
	(0.003)	(0.000)	(0.001)	
THB	0.035	0.233	0.183	0.375
	(0.540)	(0.004)	(0.033)	
TWD	0.000	0.151	0.082	0.357
	(0.992)	(0.001)	(0.091)	

Year 2004

	EUR	JPY	KRW	R^2
IDR	0.079	0.162	0.231	0.118
	(0.525)	(0.228)	(0.339)	
JPY	0.385	n.a.	n.a.	0.141
	(0.005)	n.a.	n.a.	
KRW	0.053	0.244	n.a.	0.252
	(0.462)	(0.001)	n.a.	
PHP	0.081	-0.001	-0.005	0.088
	(0.045)	(0.980)	(0.948)	
SGD	0.169	0.260	0.022	0.684
	(0.000)	(0.000)	(0.770)	
THB	0.104	0.139	0.374	0.489
	(0.067)	(0.024)	(0.001)	
TWD	0.019	0.096	0.477	0.627
	(0.623)	(0.027)	(0.000)	

Year 2005

	EUR	JPY	KRW	R^2
IDR	0.091	-0.139	0.306	0.047
	(0.529)	(0.377)	(0.187)	
JPY	0.544	n.a.	n.a.	0.321
	(0.000)	n.a.	n.a.	
KRW	0.078	0.225	n.a.	0.215
	(0.381)	(0.017)	n.a.	
PHP	0.081	0.047	0.061	0.100
	(0.247)	(0.535)	(0.587)	
SGD	0.153	0.158	0.305	0.701
	(0.001)	(0.002)	(0.000)	
THB	0.104	0.161	0.314	0.532
	(0.079)	(0.014)	(0.001)	
TWD	0.019	0.169	0.397	0.477
	(0.767)	(0.018)	(0.000)	