

**Toward Greater Financial Stability in the Asian Region:
Exploring Steps to Create Regional Monetary Units**

Final Report

Prepared for the ASEAN+3 Secretariat

By

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EXECUTIVE SUMMARY

Part I

The following policy recommendations concern the creation and development of regional monetary units (RMU)-based financial instruments and markets. We highlight mechanisms that will promote the use of RMU in official transactions, facilitate the growth of RMU instruments by the public sector, incentivise the use of RMU for commercial transactions, and deepen the participation in and innovation of RMU instruments in the private sector. We summarise our policy recommendations by nature of monetary policy commitment to RMU: weak and strong.

A. Weak Commitment of Monetary Policy to RMU

1. Prioritise the design of incentives for building out a liquid RMU yield curve, reducing risk premia in RMU instruments, encouraging RMU product innovation & customisation, and growing opportunities for institutional investors, traders, risk managers and arbitrageurs.
2. Sequence RMU-Market Development
 - a. Phase I: Set the Stage
 - i. End preferential treatment of sovereign currency products
 - ii. Make the RMU an official currency and promote its use in the official transactions of regional governments and multilateral institutions
 - iii. Permit convertibility (particularly the Dong & Yuan) to RMU
 - b. Phase II: Commit
 - i. Make the RMU a parallel currency with rights of legal tender
 - ii. Provide preferential treatment for RMU instruments and exempting RMU products from capital controls
 - iii. Grow a Critical Mass of Traders and Users of RMU products
 - iv. Ensure seamless movement of capital between RMU and domestic currencies by investing in accounting and tax systems, harmonising RMU products and eliminating tax differentials
 - v. Incentivise trade & accounting in RMU through subsidies, investments in a new payments and settlement system, and educational campaigns
 - vi. Establish benchmark issuances
 - vii. Expand use of private RMU in international reserves
 - c. Phase III: Deepen & Broaden
 - i. Build out a deep & liquid yield curve, particularly on the short end
 - ii. Broaden institutional involvement by encouraging product innovation and customisation.
 - iii. Grow product flow and expand participation of traders, risk managers and arbitrageurs by developing active secondary and derivative markets.
 - d. Phase IV: Address Cooperation & Coordination
 - i. Set credible expectations for RMU role in Monetary Policy Cooperation
3. Accelerate deepening of domestic institutional reforms, trade & financial integration, and macroeconomic policy cooperation. This programme should be supported by prudential financial liberalisation and compensation for seignorage losses arising from growing the share of RMU instruments.

B. Strong Commitment of Monetary Policy to RMU

1. Commit credibly and clearly to future monetary coordination.
2. Seek consistency between the component currencies of the RMU and the countries which will engage in monetary policy cooperation
3. Maintain the RMU as an independent instrument for purposes of political neutrality and to understand how markets will trade the RMU as a *de facto* regional currency.
4. Establish three classes of frequencies for divergence indicators, one for each policy mandate: long-term equilibrium, policy-cycle, and financial divergence.

Part II

This part studies alternative structures of the regional monetary units with regard to the composition, weights and the procedure for their revision as well as data and statistics prerequisites for the creation of an effective RMU.

A. Alternative Options For the Basket Structure

We highlight four broad issues that must be addressed regarding the structure of a regional monetary unit (RMU) based on a currency basket.

1. ***Basket Composition:*** the RMU should initially feature a subset of regional currencies which reflect similarity in trade flows. We recommend that the RMU should initially be made up of the currencies of the ASEAN5 plus three countries, namely, China, Indonesia, Japan, South Korea, Malaysia, Philippines, Singapore and Thailand. Other currencies can be added in future.
2. ***Weighting Schemes:*** We consider alternative weighting schemes for the RMU particularly to take into account (i) the size and economic importance of each country; (ii) strength of regional trading relations; (iii) extent of capital account liberalization; and (iv) monetary stability. To reflect these qualities, the weights in the currency basket are computed from the respective variables: nominal GDP, regional trade share, Chinn and Ito financial openness index, and inflation measure based on the GDP deflator. To reduce the asymmetry, we recommend that the replacement of nominal GDP by PPP-based GDP in the computation of basket weights as this will lower the combined weight on the plus three countries from over 70% to around 60%.
3. ***Revisions:*** to circumvent the buildup of a situation where a component currency becomes significantly over-represented (under-represented) as it appreciates (depreciates) over time, there is a need to have a procedure for regularly revising the composition of the basket.
4. ***Data & Statistics:*** Importantly, data on the variables used for computation of weights need to be collected for countries that have been omitted from the initial construction of the RMU, namely Brunei, Cambodia, Laos, Myanmar and Vietnam. The availability of such information would allow the assessment of when the respective currencies are ready for incorporation into the RMU. As East Asia integrates, regionalism increases and deeper capital markets demand more accountability, the data requirements for the successful design, implementation, and maintenance of the RMU will need to progress as well. In particular, we think the multiple deviation indicators are required to identify risks that are imminent and to build trust amongst the regional countries. The important issue of how to incorporate divergence indicators based on the RMU into an early warning system for the region would be an interesting topic for future research.

Part I

Development of RMU Markets

I.1 Introduction

In our previous research papers to the ASEAN+3 Secretariat (Chow, et al, 2005 & 2006), we proposed a road map for regional coordination of monetary policy. We emphasized that policymakers should place primary focus on sovereign reforms and robust institutional development before increasing emphasis on informal modes of cooperation, i.e. the development of common approaches to monetary policy and the convergence of key macroeconomic variables. We argued that only when sovereign and informal cooperation have sufficiently deepened domestic economies, improved internal risk management, and harmonised macroeconomic performance and policies should policymakers then transition to formal modes of regional monetary coordination. We proposed this roadmap to reflect the substantial diversity and asymmetry within ASEAN+3 economies in terms of both institutional architecture and monetary policy regimes.

For this year's research paper, the design of a regional monetary unit (RMU) and the development of RMU-based markets, we are proposing a similarly-inspired road map, one that embodies the same spirit of realism toward institutional requirements and the incentives of economic and political agents. In this first of three parts, we seek to answer three key questions. One, how can RMU markets develop if the RMU is not (yet) an explicit concern of monetary policy? Two, how should policymakers sequence the development of RMU markets? Three, if the RMU does in fact become an explicit concern of monetary policy via either informal monetary cooperation or formal monetary policy coordination, how best can policymakers continue the momentum of RMU market development?

In addressing these questions, we emphasise the important role to be played by the public support for seeding and growing robust RMU markets. We highlight mechanisms and

policies that will promote the use of RMU in official transactions, facilitate the growth of RMU instruments by the public sector, incentivise the use of RMU for commercial transactions and deepen the participation in and innovation of RMU instruments in the private sector. In doing so, we suggest a sequencing strategy for RMU-market development that takes into account the nature of monetary policy commitment to RMU markets. We stress the importance of market-based incentives and the design of institutional mechanisms that can overcome sovereign biases and the predominance of domestic and US Dollar instruments. We also call upon support from a sound macroeconomic environment and the continuation of economic and financial reforms on both a sovereign and regional level.

Our analysis draws heavily from the European experience with the development of ECU-based markets and with the ECU as a central design feature for the European Monetary System (EMS).¹ However, while the history of the ECU markets provides natural experiments in the development of regional monetary policies, RMU market development and Asian monetary policy cooperation must interpret the ECU experience with due caution and sensitivity to differences in economic, political, and institutional context.

I.1.1 Conceptual Framework

We base our approach to the development of robust RMU markets according to three fundamental forms of monetary policy commitment the RMU: weak, strong, and institutional. These elements correspond loosely to the modes of monetary cooperation we developed in our previous work for the ASEAN+3 Secretariat. Our conceptual framework provides both a blueprint for the complete build-out of RMU-markets and a timeline for the sequencing of requisite reforms.

Weak-form monetary policy commitment represents a functional commitment to govern the market-based approach to RMU market development. The tasks of weak-form commitment range from the creation and seeding of markets, to the guarantee and management of RMU

¹ The authors would like to give special thanks to Commissioner Joaquin Almuñia and Director General Klaus Regling of the European Commission for Economic and Financial Affairs for their timely cooperation and generous supply of hard-to-find EC documents in the preparation of this section.

markets, and ultimately to the build-out of RMU markets. Its actions focus primarily on the design of rules regarding market entry & exit and the incentives of market participants.

Strong-form monetary policy commitment is a commitment to the future value of the RMU. Strong-form commitment is concerned with the stability of RMU markets and the valuation accorded to the RMU vis-à-vis its underlying component currencies. Its actions focus on the structure of the RMU, its currencies, its weights and how these factors might correspond to where the RMU should trade or how monetary policy should be set. Part II of this study addresses some of these strong-form design issues. Strong-form policy commitment corresponds to using the RMU markets in informal modes of monetary cooperation, where the primary goals are to harmonise monetary and macroeconomic policies and to achieve convergence of macroeconomic indicators.

Institutional-form monetary policy commitment develops the formal linkage between the movement of the RMU and the component currencies. This strongest form of commitment requires that the RMU reflect regional monetary policy. Institutional-form policy commitment corresponds to role of the RMU in a monetary policy system. One can think of institutional-form policy commitment has encompassing monetary arrangements ranging from an Asian Bretton Woods to an Asian Monetary System or to Asian Monetary Union.

I.1.2 General Findings

Our findings correspond to the form of monetary policy commitment that prevails.

Assuming the predominance of weak-form policy commitment, we find throughout that primacy rests with designing incentives for building out a robust and liquid RMU yield curve. Policymakers should focus on providing sufficient liquidity over the entire length of the yield curve, reducing risk premia associated with uncertainty and risk differentials across RMU instruments, encouraging organic RMU product innovation and customization, and growing opportunities for institutional investors, traders, risk managers and arbitrageurs.

In order to build a successful programme under weak-form policy commitment that would actively encourage financial firms and institutional investors to broaden and deepen the market for RMU instruments, regional policymakers should adopt a sequencing strategy for RMU-market development in four phases. During Phase I, policymakers should take actions that will set the stage for future RMU market development. For one, policymakers should end preferential treatment of sovereign currency instruments. This will require significant political commitment to growing RMU markets. Second, policymakers should make the RMU an official currency and promote its use in the official transactions of regional governments and multilateral institutions. Doing so would send a powerful signal to the private sector that Asian governments are committed to making the RMU a permanent part of the official landscape. Three, Asian central banks should permit convertibility of participating currencies to RMU. This recommendation applies in particular to the Chinese Yuan and Vietnamese Dong.

During Phase II, policymakers must commit credibly and aggressively to seeding and growing the primary markets for private RMU instruments. One, policymakers should make the RMU a parallel currency with rights of legal tender. Without legally-backed parallel currency status, it is doubtful whether robust RMU markets would develop in the context of weak-form monetary policy commitment. Two, policymakers should provide preferential treatment for RMU instruments and exempt RMU products from capital controls. An Asian RMU will require considerable help to overcome incumbent sovereign markets, the predominance of US Dollar markets, and the lack of a role for the RMU in monetary policy cooperation. Three, policymakers must ensure seamless movement of capital between RMU and domestic currencies by harmonising accounting and tax systems, harmonising RMU products and eliminating tax differentials. The burden of transaction and logistical costs are great disincentives to convincing agents to participate in RMU markets in any meaningful volume. Four, policymakers should incentivise trade & accounting in RMU through subsidies, public investments in a new payments and settlement system, tax & accounting systems, investments in human capital, and educational & marketing campaigns. Uncovering the tipping points that prompt agents to adopt RMU-based strategies and practices are essential if RMU instruments are to be attractive to market players. Five, policymakers need to establish

benchmark issuances. These bellwether products will provide anchorage for the RMU yield curve. Finally, central banks should expand the use of private RMU in international reserves. Doing so will increase the profile of the public commit to RMU market development.

During Phase III, policymakers need to deepen and broaden the markets for RMU-based instruments. Importantly, policymakers must take actions to build out a deep & liquid yield curve, particularly on the short end. Doing so will increase the attractiveness of RMU markets to both buy and sell side agents. In addition, policymakers will need to broaden institutional involvement by encouraging product innovation and customisation. Static markets may cause demand for RMU products and strategies to stagnate. Finally, policymakers must commit to growing product flow and expanding participation of traders, risk managers and arbitrageurs by developing active secondary and derivative markets. Markets need trading volume, volatility and risk if they are to be attractive to market participants.

The successful completion of Phases I-III should be sufficient to growing robust and sustained markets for RMU products. However, by this stage it is inevitable that markets will already be pricing in expectations for the future of the RMU in Asia. Therefore, Phase IV must set credible expectations for RMU role in monetary policy cooperation. If RMU markets are going to remain stable or continue to grow and deepen, policymakers will need to clearly communicate the path going forward, whether it is informal monetary cooperation, formal monetary coordination, monetary union or simply the status quo.

If sequenced properly, the successful implementation of these policy recommendations would in turn convince the corporate sector to make the necessary investments in RMU-based trading and accounting systems. These actions would help commercial operations realise the potential benefits of RMU instruments for purposes of financing, contractual payments and settlements, invoicing, and day-to-day transactions. These recommendations can and should be implemented regardless whether there is strong or institutional policy commitment to the RMU in regional monetary policy. Implementation of these recommendations would establish ideal conditions for the growth and development of

financial innovation in RMU instruments. While there is no doubt that more profound forms of policy commitment to the RMU would contribute to the development of RMU markets, they are not necessary to create deep and robust markets for RMU instruments.

Note that while the sequencing of RMU market development takes place under weak-form policy commitment, it is imperative that policymakers accelerate deepening of domestic institutional reforms, trade & financial integration, and macroeconomic policy cooperation. Not only should these policies actions be welcomed by all countries for purely sovereign objectives, they are necessary if deeper regional cooperation is desired. Such a programme should be supported by prudential financial liberalisation and compensation for seignorage losses arising from growing the share of RMU instruments. The former will ensure that financial stability and minimise the spectre of contagion while the latter will help distribute the burdens associated with losses to domestic revenue generation by growing the RMU markets.

While a reasonably robust market for RMU-instruments can be developed without the RMU playing a major role in regional monetary policy, the European experience suggests that the true potential of an RMU will be unlocked when it becomes more closely aligned with the monetary policy of its underlying currencies. Market participants will gain confidence when the potential conflicts between the RMU and underlying sovereign currencies are resolved under stronger forms of monetary policy commitment to the RMU. RMU markets will become more efficiently anchored when intermediate and long-term forecasting of the RMU can be better tied to underlying monetary policies.

Therefore, under strong-form commitment of monetary policy to RMU, we suggest that policymakers commit credibly and clearly to future monetary coordination in order to expand and deepen RMU markets. Doing so will not only validate building expectations for formal monetary coordination but will also spur into action market participants who might otherwise remain on the sidelines. Two, policymakers should also seek consistency between the component currencies of the RMU and the countries which will engage in monetary policy cooperation. Doing so will increase the credibility of the RMU as a monetary unit for Asia

and will reduce any inefficiencies arising from the absence of one or more major currencies. Three, policymakers should maintain the RMU as an independent instrument. With independence from the weighted average of component currencies, the RMU can be considered politically neutral. In addition, an independent RMU will allow markets to learn about the extent to which the RMU can trade as a *de facto* regional currency. Finally, policymakers should establish three classes of frequencies for divergence indicators, one for each policy mandate. Traditional macroeconomic divergence indicators that look at GDP and trade will provide perspective on the extent to which the RMU trades according to long-term equilibria. Policy response indicators that model optimal responses to shocks will provide information on how an RMU consistent with optimal monetary policy trades during the policy cycle (i.e. typically four to twelve quarters) for a given policy rule. Finally, financial divergence indicators, such as early warning indicators and balance sheet stress tests, help provide information on both how the RMU will behave under speculative pressure as well as how financial integrity in the very short run might be affected by movements in the RMU markets.

Confidence and credibility of RMU markets would be further enhanced by institutional-form policy commitment. The strengthening of RMU markets under this deepest form of monetary policy commitment will likely be a function of both the technical role of the RMU in a formalized monetary arrangement as well as expectations of the RMU as a potential single currency for Asia. Of course, the theoretical maximum development of RMU markets would be realised with the adoption of the RMU as the single currency for ASEAN+3.

Since the development of RMU markets is more concerned with the difference between weak and strong form commitment than with strong versus institutional form commitment, we focus the remainder of Part I on weak and strong form commitment.

1.2 Weak-Form Monetary Policy Commitment

An Asian RMU under weak-form monetary policy commitment faces four formidable and immediate challenges. One, the RMU is not anchored by monetary policy, as the ECU was

under the EMS. Although the consensus view is that the ECU did not end up playing a central role in the Exchange Rate Mechanism (ERM) (Gros & Thygesen, 1992), the development of ECU markets did reflect path toward European monetary integration, particularly during the early years. During the years of the Snake in the Tunnel, no markets emerged for the European Unit of Account (EUA), the progenitor of the ECU. After the launch of the EMS in 1979, the first ECU issuance was launched in 1981. By 1985, the ECU bond market had increased 60 fold (Gros & Thygesen, 1992). From 1985 until the creation of the Euro, the growth ECU markets followed a pattern that mirrored expectations for the ECU as the currency for Europe. ECU markets stagnated in the mid to late 1980s with the emergence of the Deutschmark zone, gained strength in 1988-1991 when the DM weakened in and the Delors report set the ground rules for monetary union, slowed down considerably during and after the ERM crisis in 1992-93, and picked up steam after 1994-95, when Eurozone policymakers rededicated themselves to policies that would ensure monetary union (Gros & Thygesen, 1992). Under the assumption of weak-form political commitment, an Asian RMU will not be able to draw on institutionalized commitments to the RMU from the private and public sector and must therefore rely on its attractiveness as a market instrument.

Two, an Asian RMU will face steep competition from the *de facto* common currency in the region: the US Dollar. The predominance of US Dollar invoicing in the region (McKinnon & Schnabl, 2004) and the Bretton Woods II phenomenon (Dooley, et al, 2003), also ready provides Asia with what is effectively a common regional currency (Eichengreen, 2005). Some economists, including Robert Mundell (2002), have even gone so as far as suggesting that Asia should proactively use the US dollar as the basis of financial and monetary integration. Without question, an Asian RMU will have to compete directly with the US Dollar and USD-based products. Such a competition will entail competing on the basis of liquidity, credibility, trading facilities, product-family offerings, and hedging instruments.

Three, an Asian RMU will also have to compete directly with Asian currency instruments along the same lines of competition with the USD, though with two additional layers of complication. For one, Asian governments will lose some degree of sovereignty in helping developing RMU instruments if the RMU circulates as a foreign currency with full rights to

legal tender. Secondly, Asian governments will lose some fraction of proceeds from issuances as well as seignorage revenues from the direct competition with RMU products.

Four, the creation of healthy RMU markets requires to reduction or removal of a considerable number of legal, administrative, technological, and cultural obstacles. Removing these obstacles require a comprehensive set of reforms that go beyond evening the playing field. In order to grow the RMU market to a critical mass sufficient to build out a robust and liquid RMU yield curve, Asian policymakers will need to actively incentivise the development of RMU-instruments.

I.2.1 Getting the Objectives Straight

In the face of these four challenges, it is imperative that Asian policymakers have clear and realistic objectives before launching into RMU market development. With clear objectives in mind, policymakers should prioritise the design of market-based incentives to help realise these objectives. At maturity, RMU markets should function in accordance with a robust and liquid RMU yield curve that operates with minimal risk premia. Following the initial development of the RMU bond market from 1981-1985 and the growing of the RMU money markets particularly after the mid-80s, the consensus among ECU market experts called for building out the yield curve, increasing liquidity all along the curve, reducing risk premia associated with uncertainty and risk differentials across RMU instruments, and increasing trading in primary and secondary markets in a wider range of maturities particularly in ECU money markets.

At maturity, RMU markets should also encourage organic RMU product innovation and customization. With liquidity and depth all along the yield curve, RMU market participants will either seek new products or the opportunity to custom design products to offer their clients.

Finally, RMU markets should be dynamic and participatory by growing opportunities for institutional investors, traders, risk managers and arbitrageurs. In the ECU markets, three

factors were most commonly referenced: continual flow, regular issuances and sufficient volatility.

I.2.2 Sequencing RMU-Market Development

To realise the primary focus of (a) building out the RMU yield curve of sufficient liquidity, (b) providing opportunities to reduce risk premia across RMU instruments, and (c) encouraging transactions, trade, hedging, and arbitrage in RMU instruments, regional policymakers should adopt a sequencing strategy for RMU-market development in distinct phases. To be successful, this sequencing strategy must implicitly recognize the twin challenges of unseating the predominance of the USD as the *de facto* regional currency and overcoming sovereign control over debt markets. Regional policymakers must signal unequivocal political commitment to a process that will lead to robust RMU markets and an acceleration of regional integration.

I.2.2.1 Phase I: Setting the Stage for Robust RMU Markets

During Phase I, policymakers should take actions that will set the stage for future RMU market development. Three actions in particular stand apart. One, policymakers should end preferential treatment of sovereign currency instruments with respect to RMU. The ECU faced legal obstacles that inhibited the full maturation of ECU-based markets. Four are worth noting. The movement of ECU instruments within the EU was subject to all restrictions pertaining to a foreign currency, thus inhibiting the free movement of capital and financial services and subjecting the ECU to capital controls. The lack of legal standing for ECU instruments also increased the burden of signing legal contracts in ECU in both European and global transactions. Lomax (1992) pointed out that cross-border transactions were much higher in ECU than in USD. The lack of legal status for the ECU shifted additional cost burden onto firms who wished to conduct business in ECU. Moreover, without legal status for the ECU, firms were prohibited from using the ECU in official accounts. Therefore, in reporting, auditing and fiscal matters, firms had to replicate efforts. Not until the French Law No. 92666 of 16 July 1992, were residents of any member country permitted to settle debts in

ECU (European Commission 1992; Vissol, 1992b). Finally, as a foreign currency, the ECU faced punitive tax treatment. During this initial phase, Asian governments should eliminate tax premia on RMU products. Removing these legal obstacles to RMU will signal to markets that policymakers are politically committed to developing RMU-markets.

Note that if these obstacles were formidable in a Europe which pursued an institutional approach to monetary integration and which featured the ECU as part of a regional monetary system, they will be far more challenging to an Asian RMU that in addition, must compete heavily with the US dollar in an age of capital mobility. Permitting the signing of contracts within Asia and between Asia and global countries and firms will help promote RMU. Enabling firms to use RMU in official accounts would not only help firms who wish to market themselves as pan-Asian, but would increase visibility and deepen financial education on RMU.

Two, policymakers should make the RMU an official currency. Regional authorities should use the official RMU in official transactions as a unit of account between central banks, with the Asian Development Bank and other Development Institutions, and with regional institutions, including ASEAN. These government and multilateral institutions should exclusively transact in RMU. Doing so would send a powerful signal to the private sector that Asian governments are committed to making the RMU a permanent part of the official landscape. In addition, Asian policymakers should use RMU in official lending programs to accelerate the development and integration of lesser developed countries in ASEAN+3, in particular Mekong countries and Myanmar. These official flows in RMU will also have the added benefit of providing a rather innocuous opportunity to learn about the logistics of RMU. Not only will these official transactions in RMU begin educating ASEAN+3 on the realities of an RMU, such actions will send a strong signal to markets of a formalised political commitment to the RMU.

Three and perhaps most importantly, Asian central banks should permit convertibility of participating currencies to RMU. As soon as it is feasible to do so, inconvertible currencies, in particular the Chinese Yuan and Vietnamese Dong, should be made convertible to RMU.

Given the large weight that will be accorded to China in any Asian basket arrangement, convertibility of the yuan to RMU would profoundly expand the scope and potential of the RMU market. Moreover, the formation of an RMU without Chinese participation would immediately call into question the viability of an RMU with claims to Asia. Furthermore, given the growing influence of Vietnam amongst the Mekong countries, Vietnam should also permit convertibility of the dong to RMU. Doing so would also help accelerate integration of Lao and Cambodia into the RMU zone. To maximize the benefits of RMU convertibility, both China and Vietnam must accelerate domestic institutional arrangements to permit convertibility of the yuan to RMU.

During this initial phase, policymakers should push for convertibility of nonconvertible currencies into RMU into official RMU. Convertibility to private RMU can follow in phase II. Convertibility of the yuan and dong to official RMU will prove to be a key step in unlocking the full potential of an RMU for Asia. Phase I convertibility policies would commit a central role to the RMU in the undergoing process of financial and monetary integration in Asia. Though on a much smaller scale, it is worth noting that the ECU played a similar role in Eastern Europe (Agnelli, 1990).

1.2.2.2 Phase II: Committing to RMU Market Development

Phase II will represent the initial challenge to the USD, as well as the first test of political will to make RMU markets viable and something more than token. Phase II will also represent both a challenge to full sovereignty and an opportunity to anchor a market-based regional approach to monetary integration. This second stage must exploit the gains from Phase I or risk the success of the RMU.

During Phase II, policymakers must commit credible and aggressively to seeding and growing the primary markets for private RMU instruments. One, policymakers should make the RMU a parallel currency with rights of legal tender. Such a reform is perhaps both the most challenging and potentially the most rewarding. Granting the RMU status as an official

currency with full rights as legal tender² extends the parallel currency idea of Eichengreen (2005) and others to its logical end. Without legally-backed parallel currency status, it is doubtful whether robust private RMU markets would develop in the context of weak-form monetary policy commitment. In Europe, the reluctance to allow the ECU legal status as an official currency was among the most formidable obstacles to the expansion of ECU markets, particularly among commercial firms. Most member states granted the ECU status only as a foreign currency.³ The two largest European economies, Germany and the UK, were reluctant to grant even foreign currency status and only accorded the ECU the status of a unit of account (European Commission, 1992). Throughout most of its tenure, the ECU was the currency of choice in only 1% of commercial transactions (Leyten & Rossignon, 1992). While Europe was able to grow the ECU markets substantially without granting the ECU official currency status, reluctance of making the ECU legal tender was perhaps the most important of numerous other legal and administrative obstacles faced by ECU products (European Commission, 1992). Ernst & Young (1990), (Leyten & Rossignon, 1992), Vissol (1992a, 1992b), Lomax (1992), Angelli (1990), and Pons (1992) were among a host of European voices who cited the lack of legal tender status of the ECU as a major impediment to the complete development of RMU markets. In particular, Ernst & Young (1990) pointed out that the removal of administrative barriers would be insufficient without this change in legal status.

Two, policymakers should provide preferential treatment for RMU instruments and exempt RMU products from capital controls. An Asian RMU must overcome incumbent sovereign markets, the predominance of US Dollar markets, and the lack of a role for the RMU in monetary policy cooperation. While eliminating the preferential treatment for sovereign issuances will increase interest in private RMU markets, the preeminence of the US dollar and the potentially large circulation of the two largest regional currencies, the Japanese yen and Chinese yuan (when convertible) suggest that the initial phases in the development of RMU markets will need to actively promote preferential treatment of RMU instruments.

² By *legal tender*, we refer to the Oxford Dictionary definition, “currency that cannot legally be refused in payment of debt...” We do not imply the circulation of notes and coins.

³ As a foreign currency, the ECU was subject to various capital market restrictions accorded to foreign currencies. See Vissol (1992b).

Leveling the playing field is unlikely to be sufficient to kick start the development of highly-liquid and thick RMU markets. Favorable treatment of RMU instruments must be promoted. Of course, these preferential treatments can be gradually phased out once RMU markets reflect critical mass and sufficient liquidity.

To give RMU instruments the best shot at surviving in a crowded field, preferential incentives should be given to borrowers and investors to adopt RMU-based strategies, such as was the case in both France and Italy with respect to transactions in ECU (Gros & Thygesen, 1992). Key firms in key sectors with multiple forward linkages should be given special incentives to use RMU instruments. Market-Makers should be given protected market share for a limited time to help develop RMU markets. Direct market subsidies (e.g. favourable spreads and tax withholding) would help develop critical market mass. Changes to tax codes that permit more turnover and reduce costs of debt finance will help increase the attractiveness of RMU markets to traders, hedging operators, and arbitrageurs. Finally, preferential incentives should be given for non-ASEAN+3 issuers, particular in the US and EU, to offer RMU products.

Without ending preferences for sovereign issuances, removing key obstacles, and providing preferential treatment to RMU-denominated instruments, it is difficult to envision RMU markets getting off of the ground in any meaningful way in the context of weak-form policy commitment. However, with a front-loaded strategy that can aggressively generate critical mass and signal credible political commitment, robust development of RMU markets without the stronger forms of monetary policy cooperation should be possible.

Two additional policies would help boost RMU markets in Asia. RMU instruments should be exempted from most intraregional capital controls. Unfettered movement of RMU within Asia would reduce the risk that flight from sovereign markets to RMU markets would result in regional instability. The region would also have a better opportunity to support weaker currencies. In addition, the cascading process of financial liberalisation would be less risky if capital flows were first permitted in RMU. Economies with fragile banking systems would

face less risk and currency mismatch of assets and liabilities if capital mobility is permitted between sovereign currencies and RMU.

Three, policymakers must ensure seamless movement of capital between RMU and domestic currencies by harmonising accounting and tax systems, harmonising RMU products and eliminating tax differentials. Even if legal status is granted, the RMU will face significant obstacles. The burden of transaction and logistical costs are great disincentives to convincing agents to participate in RMU markets in any meaningful volume. New taxation and accounting procedures will need to be developed to handle RMU contracts. If the RMU is to have any chance of going beyond a mere accounting convenience, domestic and regional institutional arrangements will need to facilitate the seamless movement of RMU into and out of component currencies and do so with a minimum of costs and risk.

Four, policymakers should incentivise trade & accounting in RMU through subsidies, public investments in a new payments and settlement system, new tax & accounting systems, investments in human capital, and educational & marketing campaigns. Regional governments would do well to invest in public and private accounting and tax systems that can reduce or remove these implementation barriers to firms. Uncovering the tipping points that prompt agents to adopt RMU-based strategies and practices are essential if RMU instruments are to be attractive to market players. The European experience suggests that the lack of such public investments were real impediments to the adoption of the ECU. The general reluctance to use ECU tended to feed on itself and increased the costs and risk of being a pioneer. Ernst & Young (1990) and Vissol (1992a) pointed out that few firms wanted to make the first move when there lacked a critical mass of ECU users and when the future of the ECU was in doubt. This lack of critical mass made the ECU unattractive as a means of payment. Vissol (1992b) noted how the combination of legal and technical obstacles led to a lack of liquidity in certain markets. As Lomax (1992) pointed out, even the most pro-European firms could not justify use of the ECU when there were clear efficiency and cost advantages to using the USD in transactions and invoicing.

Asian countries must go beyond removing barriers to RMU and implement proactive measures to encourage firms to adopt new RMU-based systems. Permanent traction for the RMU requires the ability of firms to make clear determination positive benefit-cost profile of RMU adoption. Firms should be encouraged to publish accounts in RMU. These changes will require considerable investments in financial and human capital. The existence of a private RMU will also present nontrivial technological challenges. New quotation and clearing systems will need to be developed to handle payments and settlements in an out of RMU. Accounting and tax software must be modified. Exchanges will need to accommodate RMU-instruments. Adoption of the RMU must justify abandonment of status quo operations, investments into new accounting and tax systems, investments into new in-house training programs, and the design of new marketing and advertising strategies and systems. Presently, all would be effective barriers to an Asian RMU. From the firm perspective, the costs of these investments increase the reluctance to transact in RMU and reduce the net benefit of adopting the RMU for hedging purposes. Once again, the European experience suggests that the issue of capital investment was a real impediment to the adoption of the ECU.⁴

To successfully overcome these barriers, policymakers should encourage a critical mass of key firms and sectors to switch to RMU-based operations. Increased public investments and subsidies will reduce the infrastructure and human capital costs of entry into RMU markets but won't necessarily attract much needed market players to participate in the early phases of RMU-market development. Therefore, policymakers should also launch incentives and preferential enticements to market-makers, institutional investors, MNCs, key industry leaders, and large commercial trading operations to use the RMU in accounting, invoicing, contracting, payments & settlements, and marketing, financing, and investing.

Although some would scoff at the importance of cultural factors in the adoption of a new monetary unit, governments should put considerable effort into educating the public, business and government on the RMU. Vissol (1992a) and Lomax (1992) were among those who pointed out the need for public education on the meaning of the ECU for European markers.

⁴ See Vissol (1992a, 1992b)

Policymakers should launch a concerted educational campaign designed for specific sectors and firm-types in order to educate them on the institutional capacity and advantages of RMU. Educational efforts should not only suggest usage of RMU-instruments but also stabilize expectations by reducing misperceptions and uncertainty. Marketing campaigns should vigorously promote the RMU both within Asia and in global markets. These campaigns should help develop core groups of trend-setting and idealistic firms for the new Asia. In addition, regional central banks, finance ministries, and other policy-making bodies should politically commit support to RMU instruments.⁵

Regional governments should also commit resources to research and study the development of RMU markets in Asia. Doing so will encourage RMU markets to have broad penetration throughout the region. An open and frank dialogue on RMU markets among all stakeholders will increase credibility within the region and globally. Open discussion and analysis of RMU will also provide important opportunities to educate the public on the RMU and serve to market RMU instruments. As part of this encouragement and support, central banks can publish divergence of market-value of the RMU vis-à-vis the weighted-average of the market values of underlying currencies and divergence of market-value and real value of the RMU vis-à-vis the NEER and REER of each component currency. These indices will increase transparency and surveillance and promote debate regarding the relative levels and co-movements of currencies. In turn, the market credibility generated by these measures will prove invaluable to any future efforts seeking to use the RMU as part of formal regional policy coordination, such as an Asian Monetary system.

Five, regional treasuries can play a major role in kick starting RMU markets by establishing benchmark issuances and committing to public issuances denominated in RMU but payable in currencies in the country of residence. This combination will initiate the development of private RMU markets and also signal the willingness of regional governments to support the development of RMU markets.

⁵ We list political commitment here partially as a cultural impediment since opponents of the RMU can also choose to see the RMU as a competing entity rather than as an opportunity to accelerate integration and expand markets.

Bellwether products can provide anchorage for the RMU yield curve. Sovereign borrowers should actively commit to maintaining the quality and integrity of benchmark issues. Aggressive promotion of RMU instruments must extend into both primary and secondary markets. A bold statement in support of RMU instruments would help increase the anchor of the yield curve, increase the quality of issuances along the entire curve, increase liquidity, and help sustain the attractiveness of RMU instruments (see Tiley, 1991).

Sovereign borrowers should commit to a fixed but increasing fraction of issuances payable in RMU. EU government issuances were a major component of the ECU bond market throughout its development. Government borrowers can also help deepen the RMU bond market and increase the attractiveness of RMU instruments to traders by increasing the flow of offerings. While guaranteeing a steady but increasingly flow of issuances to the market may partially crowd out sovereign paper and result in a loss of seignorage revenues, these actions will give the RMU markets an essential boost.

Finally, central banks can take several additional actions to support RMU-market development. Central banks should expand the use of private RMU in international reserves. Doing so will increase the profile of the public commitment to RMU-market development. Central banks should also launch their own educational and marketing campaigns promoting the RMU as an institution for the New Asia within ASEAN+3 and in the US and EU. Central banks must also continue financial sector reforms that will allow for more liquidity and trading all along the RMU yield curve. Finally, central banks can monitor RMU movements vis-à-vis movements in the theoretical RMU.

1.2.2.3 Phase III: Deepening & Broadening RMU Markets

With Phase II having optimised conditions to grow RMU markets, Phase III must sustain the momentum by dedicating itself to the full and highly liquid build out of the yield curve. To do so, it must commit to reforms that will permit an environment of organic innovation in RMU products and encourage transaction, trading, hedging, and arbitrage opportunities in RMU instruments.

During Phase III, policymakers need to deepen and broaden the markets for RMU-based instruments. Importantly, policymakers must take actions to build out a deep & liquid yield curve, particularly on the short end. The shorter end of the yield curve together with RMU money markets must meet concerns of firms and investors to cover short-term exposure to movements in component currencies. Doing so will increase the attractiveness of RMU markets to both buy and sell side agents.

Policymakers must commit to growing product flow and expanding participation of traders, risk managers and arbitrageurs by developing active secondary and derivative markets. Regional governments and large regional corporations need to continue expanding their use of RMU debt instruments and related products if the RMU market is to remain viable and avoid any slide towards tokenism. Policymakers should commit to float a higher percentage of debt denominated in RMU and modify tax laws to encourage and promote regular issuances of RMU corporate paper. Increasing the size of debt markets will help deepen the RMU market across all maturities and reduce reliance on a small set of borrowers. In addition, jumbo benchmark issues must remain of high quality and integrity to remain credible anchors to the yield curve. Key to this goal would be continuing flow and turnover of these issues.

Markets need trading volume, volatility and risk if they are to be attractive to market participants. To sustain the development of RMU markets, there must be regular flow, turnover, volatility, and liquidity all along the yield curve to encourage active participation of traders, hedging operations, arbitrageurs and market-makers. In addition, policymakers should actively encourage the development of secondary and derivative markets to allow for more customized matching of assets and liabilities. By encouraging product innovation and customization, policymakers should be able to broaden institutional involvement. Otherwise, static markets may cause demand for RMU products and strategies to stagnate.

Security and taxation reforms should aim to expand scope of participation to institutional investors, including pension funds, insurance, mutual funds and hedge funds in secondary and derivative markets. Tax laws should be modified to reduce trading premia associated with differential tax rates and withholding provisions. Trading firms, hedge funds, and

arbitrageurs should be encouraged to participate in the development of RMU markets and to seek profits exposed by the markets. Secondary markets and derivative markets must be permitted to thrive. This goal would require continued flow and turnover all along the yield curve, as well as a reasonable degree of volatility in the markets. Only then can the RMU markets achieve maximum efficiency.

If successful, the realisation of Phase III would offer serious competition to the USD and a truly regional option within ASEAN+3. The European experience suggests that once Asia embarks on this process, policies associated with integration and liberalisation will need to accelerate or risk reversing trends in the RMU markets.

1.2.2.4 Phase IV: Addressing Cooperation & Coordination

The successful completion of Phases I-III should be sufficient to growing robust and sustained markets for RMU products. Phases I-III offer ASEAN+3 a complete programme to create an RMU that can take large market share from the USD and make the RMU a real option for those seeking the diversification benefits of a pan-Asian currency. However, by the end of Phase III it is inevitable that markets will already be pricing in expectations for the future of the RMU in Asia. Therefore, even with the successful completion of Phases I-III, the full potential of RMU markets for Asian integration will not be realised until stronger forms of political commitment suggest a clear relationship between the RMU and monetary policy in Asia. Even if no such end-goals are envisioned or desired, markets will need to receive constant and consistent guidance as to this theoretical possibility as they will trade accordingly. Therefore, Phase IV must set credible expectations for RMU role in monetary policy cooperation. If RMU markets are going to remain stable or continue to grow and deepen, policymakers will need to clearly communicate the path going forward, whether it is informal monetary cooperation, formal monetary coordination, monetary union or simply the status quo.

I.2.3 Providing Supportive Macroeconomic and Monetary Policies

While sequencing RMU-market development, it is imperative that policymakers accelerate deepening of domestic institutional reforms, trade & financial integration, and macroeconomic policy cooperation. Not only should these policies actions be welcomed by all countries for purely sovereign objectives, they are necessary if deeper regional cooperation is also desired. One, with respect to domestic institutional reforms, regional policymakers should accelerate sovereign institutional reforms with respect to rule of law, economic efficiency of markets, corporate governance, and regulatory frameworks. They must also reduce protectionist measures, particularly with trade barriers and the support of inefficient domestic industries. In addition, policymakers should reduce moral hazard by increasing central bank independence, gradual privatization of state-owned banks and firms, and the reform of bankruptcy laws.

Two, policymakers should accelerate trade & financial integration and the development of Asian economic union. Importantly, optimal cascading of financial liberalisation and the efficacy of monetary integration rests upon the presumption of real integration.

Three, concurrently, policymakers should accelerate informal modes of monetary cooperation. They must increase dialogue on the importance of fiscal discipline and regional contagion. They should increase regional capabilities to handle crisis management. They must also increase harmonization of data collection, and research programmes on monetary policy. In particular, policymakers can collect data at the microeconomic level and in the banking sector. In sum, these actions should promote the discussion of monetary policy in Asia's public sphere.

Such a programme should be supported by prudential financial liberalisation and compensation for seignorage losses arising from growing the share of RMU instruments. For countries with fragile banking systems, it is imperative that policymakers continue to prudently cascade financial liberalisation. In order to achieve internal balance and incentivise the deepening of sovereign financial markets, monetary policy flexibility should be

considered a necessary condition, albeit one that must proceed cautiously with due respect to the Open Economy Trilemma. In this process, the development of RMU markets should help provide a natural shock absorber for countries undergoing liberalisation. Prudential financial liberalisation will ensure that financial stability and minimise the spectre of contagion.

For poorer countries reliant on seignorage revenues derived from sovereign issuances, a technical assistance fund should be established to partially compensate countries for losses in seignorage revenue from the circulation of RMU-instruments and to help modernize tax-collection systems. The European experience suggests that countries with chronically weak currencies were able to benefit greatly from institutional reforms and technical assistance associated with the development of ECU markets and economic integration. Providing compensation for seignorage losses will help distribute the burdens associated with losses to domestic revenue generation by growing the RMU markets.

I.3 Strong & Institutional-Form Monetary Policy Commitment

While a reasonably robust market for RMU-instruments can be developed without the RMU playing a major role in regional monetary policy, the European experience suggests that the true potential of an RMU will be unlocked when it becomes more closely aligned with the monetary policy of its underlying currencies. Market participants will gain confidence when the potential conflicts between the RMU and underlying sovereign currencies are resolved under stronger forms of monetary policy commitment to the RMU. RMU markets will also become more efficiently anchored when intermediate and long-term forecasting of the RMU can be better tied to underlying monetary policies.

Therefore, under strong-form commitment of monetary policy to RMU, we suggest in order to expand and deepen RMU markets, policymakers should commit credibly and clearly to future monetary coordination. Furthermore, they should commit to a pathway of institutional reforms that will eventually result in region-wide monetary policy coordination. The specific timeline is not as much a concern as (a) the consistency of statements from central banks and

political leadership to the importance of such a pathway, (b) sufficient institutional progress on both the domestic and regional fronts, and (c) the viability of private RMU instruments. Such a commitment will not only validate building expectations for formal monetary coordination, but it will greatly expand incentives to participate in RMU-based instruments, those market participants who might otherwise remain on the sidelines for RMU products.

Two, policymakers should seek consistency between the component currencies of the RMU and the countries which will engage in monetary policy cooperation. While discrepancies in the form of smaller countries will not qualitatively affect the role of an RMU in regional monetary coordination, the omission of larger regional players, namely China and Vietnam, would generate first-order asymmetries and may reduce the credibility of the RMU as a regional and sub-regional financial instrument. Increasing the international consistency of the RMU will reduce uncertainties with RMU instruments and make hedging of risks of underlying currencies easier and cheaper. Consistency will also increase the credibility of the RMU as a monetary unit for Asia.

Three, policymakers should maintain the RMU as an independent instrument. Although strong currencies and weak currencies will no doubt reveal themselves, the RMU must maintain its independence if it is have any claim as a monetary unit for ASEAN+3. If the RMU is allowed to function only as a shadow for a dominant anchor currency with Asia, then the development of its markets will be significantly constrained. An independent RMU would also lend the air of political neutrality. Regional governments must commit to ensuring that the ECU is politically neutral and not subject to manipulation for national objectives. Maintaining the integrity of RMU in a region with an incredible range of political regimes and political history will provide immeasurable credibility to the RMU as a truly regional unit.

An independent RMU would also help expand and deepen interest in the RMU as a *de facto* regional currency. Once such a future is promoted, market activity will begin to price in both expectations of the RMU becoming the anchor to an Asian Monetary System and the possibility of the RMU becoming the single currency for ASEAN+3. An independent RMU

would therefore also allow markets to learn about the extent to which the RMU can trade as a *de facto* regional currency. One should expect that the RMU will trade with a great degree of independence if it is to provide the expected diversification benefits. Even if it does not, perhaps due to the emergence of a component currency as the anchor to RMU trading, markets will still be able to learn about what the RMU does in fact offer to market participants.

Four, policymakers should establish three classes of frequencies for divergence indicators, one for each policy mandate. Low-frequency divergence indicators provide perspective on the extent to which the RMU trades according to long-term equilibria. These low-frequency indicators have the added benefit of aiding the understanding the RMU as the centrepiece of an Asian Monetary System or Asian Monetary Union. These indicators should measure the divergence of market-value of the RMU vis-à-vis the weighted-average of the market values of underlying currencies where weights are GDP or trade shares. These low-frequency indicators can also compare the market-value and real value of the RMU vis-à-vis the NEER and REER of each component currency in order to give a sense of how to compare regional-optimal and sovereign-optimal currency positions.

Intermediate-frequency policy response indicators would model optimal responses to shocks and provide information on how an RMU consistent with optimal monetary policy trades during to the policy cycle (i.e. typically four to twelve quarters) for a given policy rule. These mid-frequency indicators will be essential in understanding how to better coordinate policy responses. Policy response indicators should focus on identification and measurement of shocks and the relationship of shocks to the direction, transmission lags and duration of monetary policy. These indicators should provide indications for the effects of these shocks on intermediate and long-run forecasts of aggregate demand, output and inflation. Policy-cycle indicators will provide markets with a much better sense of how, if at all, the behaviour of a RMU is tied to the policy decisions of member central banks. The modeling and estimation exercise involved will increase cooperation among research staff at central banks and serve as the basis for any future formal coordination of monetary policy.

Finally, financial divergence indicators, such as early warning indicators and balance sheet stress tests, will help provide information on how the RMU will behave under speculative pressure as well as on how financial integrity in the very short run might be affected by movements in the RMU markets. These high-frequency indicators should focus on the relationship between the market-value of the RMU and domestic currency values on one side and the health of financial systems and corporate balance sheets on the other. As measures of risk management, these indicators can utilize a variety of measurements of risk premia and financial warning indicators presently in the literature and can include stress tests of currency and maturity positions in the financial and corporate system. Such a class of divergence indicator and the market mechanisms upon which such an indicator would be based should be well-established before anything formal like an Asian Monetary System is put in place. High-frequency indicators should also publish stress tests of clearance mechanisms and very-short-term lending facilities well in advance of short-term credit problems so that risk premia can rise and appropriate actions taken before financial crises are generated.

Finally, when ASEAN+3 has met the conditions for more formal monetary coordination and is ready to commit politically such an undertaking, regional central banks and policymakers should promote RMU instruments in the process of integration and region building. Sustained growth and development of RMU instruments will require the incentives associated with monetary policy coordination.

Confidence and credibility of RMU markets would be further enhanced by institutional-form policy commitment. The strengthening of RMU markets under this deepest form of monetary policy commitment will likely be a function of both the technical role of the RMU in a formalized monetary arrangement as well as expectations of the RMU as a potential single currency for Asia. Of course, the theoretical maximum development of RMU markets would be realised with the adoption of the RMU as the single currency for ASEAN+3.

Part II

Alternative Options for the Basket Structure

Broadly speaking, there are four questions that must be addressed regarding the structure of a regional monetary unit (RMU) based on a currency basket. One, which national currencies are to be included? Two, for those countries that are to be included, what weight are they to be accorded and how are these weights to be determined? Three, what will be the protocol for revising the basket structure, either in terms of currencies, weights, or weighting schemes? Four, how will national currencies be defined vis-à-vis the currency basket and what structure will be accorded to these relationships?

II.1 Composition of Basket

First, we address the issue of basket composition. Should Japan be included inside the currency basket or amongst the external currencies? The strategic realities of the Asian political economy make exclusion of the yen from any future Asian monetary unit politically risky for Japan. Fortunately, most studies, including those of Kriz & Thai (2006) and Ogawa and Kawasaki (2006) suggest a large role for the yen within the currency basket. Kriz and Thai (2006) simulations of alternative monetary arrangements in a multi-country model indicate that (a) there is significantly less volatility among key variables (output and prices) if the yen is within the RMU and that (b) the results are robust to whether the weights are structured according to GDP per capita or regional trade shares. Furthermore, cointegration analysis by Ogawa and Kawasaki (2006) shows that while the yen plays the part of an exogenous variable during the pre-crisis period, the yen could be regarded as an endogenous variable in the cointegrating system for the post crisis period.

Another issue is the non-convertibility of Asian currencies such as the Chinese yuan. As far as the onshore markets are concerned, most APT countries keep varying degrees of regulatory controls in place. A description of the exchange controls for each APT currency can be found on Asian Development Bank's Asian Bonds Online website (<http://asianbondsonline.adb.org>). Such restrictions on the internationalization of the regional

currencies are imposed to deter currency speculation. While non-deliverable forwards (NDF) transactions in the offshore markets are active and can be used to cover foreign exchange forward risk, they are not sufficient to ensure deep and liquid markets. As emphasized in Part I, it is pertinent to have exception on capital controls for RMU transactions.

In line with the multi-speed approach whereby countries ready for policy coordination should proceed first, we think the regional monetary unit should initially feature a subset of regional currencies. In relation to the optimum currency area criteria, adopting common basket weights for two countries with different economic structure leads to higher value of loss function (Yoshino and Suzuki, 2004). In particular, a currency basket approach will tend to work better when the participating countries are more similar in terms of trade flows (Adams and Chow, 2006). Indeed, too much useful information will be lost when imposing the common RMU weights on countries with distinctly different trade weight structure. Hence, as proposed by Adams and Chow (2006), we adopt at the first stage only those currencies whose trade structure is relatively similar.

As a rough indication of similarity in regional trade flows amongst the APT countries, we examine the asymmetry of each country's weight towards the "plus three" countries of China, Japan and Korea. In particular, we compare the trade weights of individual countries with the weight structure of the currency basket proposed by Ogawa and Shimizu (2005). The authors proposed the construction of an RMU that follows the construction of the ECU within the EMS. Accordingly, the RMU will be a weighted average of all 13 APT currencies. To calculate the weights of the component currencies making up the RMU, Ogawa and Shimizu considered four different methods based on trade volume, nominal GDP, GDP measured at PPP and international reserves. They find that to achieve greatest stability of its external value against a composite of the US dollar and the euro, the RMU weighted in line with each country's GDP evaluated at PPP exchange rates and foreign trade weights is chosen and listed in Table 1.

We note the asymmetry of weighting between the ASEAN countries and larger plus three countries of China, Japan and Korea. The three non-ASEAN countries are effectively

assigned a total weight of over 70%. Alternative weighting schemes discussed in the next section produce RMUs that also exhibit such asymmetry, with the combined weight on the “plus three” countries being at least 58%. One way of checking how well the currency basket represents a regional currency is to compare the country’s trade weights with the RMU weights. Chow and Adams (2006) examined the recently updated trade weights used by the IMF for the computation of effective exchange rate indices (see Bayoumi et al, 2006). For each APT country, the weights on the other twelve APT countries are summed and normalized to 100. These weights, reported in Table 1, represent the weighting scheme for the “internal” nominal effective exchange rate (NEER) of the country and are compared with the RMU weights proposed by Ogawa and Shimizu (2005) (see Table 1).

We observe the same asymmetry of weighting between ASEAN countries vis-à-vis the plus three countries for the internal NEERs. With the exception of Brunei, Cambodia, Laos and Myanmar, the combined weight on the “plus three” countries is at least 60% for each case. Comparing with the RMU weights, the authors conclude that the RMU is not too different from the regional component for the NEER of these countries. In the case of Brunei, more than half its regional trade is with Singapore. In any case, the Brunei dollar is pegged to the Singapore dollar and each currency is acceptable customary tender in the other country. Hence, in monetary terms, we can use the Singapore dollar to proxy Brunei’s currency. Since the trade weights for Cambodia, Laos and Myanmar are rather different from the RMU weights, the authors infer that too much useful information will be lost when imposing the common RMU weights on these countries.

It follows that we should focus initially on an RMU made up of the currencies of China, Indonesia, Japan, South Korea, Malaysia, Philippines, Singapore, Thailand and Vietnam. Unfortunately, we have to exclude the Vietnamese Dong as it has missing values in the time series. Hence, we consider RMUs which comprise the eight currencies of ASEAN5 plus 3 instead. Nevertheless, it is important to maintain an open-ended system where new currencies can be included in the basket. The currencies of non participating countries can be accommodated when their trade structure has evolved to become sufficiently similar to those of participating countries.

Table 1. Comparison of RMU Weights versus “Internal” NEER Weights

	RMU Weights	Brunei	Cambodia	China	Indonesia	Japan	South Korea	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
Brunei	0.4	NA	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.0
Cambodia	0.2	0.0	NA	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.5	0.0
China	34.8	3.9	23.3	NA	14.9	39.5	29.6	10.5	13.3	20.6	10.2	14.4	13.5	14.1
Indonesia	5.1	3.2	4.3	3.0	NA	5.7	3.8	0.8	4.2	3.2	2.6	6.6	3.8	3.6
Japan	27.8	12.8	17.8	60.1	43.0	NA	47.2	8.8	39.2	10.1	48.8	34.7	48.1	40.1
South Korea	9.8	5.7	9.7	19.9	12.8	20.9	NA	2.6	9.3	9.5	12.6	11.2	7.8	17.4
Laos	0.1	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.5	0.0
Malaysia	5.3	18.7	6.3	4.2	6.8	8.1	4.4	1.1	NA	10.1	6.4	16.8	7.5	4.4
Myanmar	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Philippines	2.9	1.1	1.0	1.7	2.1	5.2	3.1	0.2	3.3	0.4	NA	4.7	3.7	1.7
Singapore	6.4	51.2	14.8	6.0	13.5	9.5	6.9	1.6	22.3	18.8	12.0	NA	13.1	10.3
Thailand	5.1	3.3	22.6	4.2	5.8	9.6	3.5	74.1	7.3	27.1	6.8	9.6	NA	8.6
Vietnam	1.7	0.1	0.2	0.8	1.0	1.4	1.4	0.2	0.7	0.2	0.5	1.3	1.5	NA
Sum for +3	72.4	22.3	50.8	80.0	70.7	60.4	76.8	21.9	61.8	40.3	71.6	60.3	69.4	71.5

II.2 Weighting Schemes

With respect to the weighting schemes for a pan-Asian currency, Ogawa and Shimizu (2005) proposes the construction of an RMU that follows the construction of the ECU within the EMS. As mentioned earlier, the RMU is constructed as a weighted average of East Asian currencies where the weight of each currency is computed as the arithmetic average of the country's respective shares of PPP-based GDP and foreign trade—each variable is first averaged over the years 2001 to 2003—in the total sampled countries. Further, deviation indicators which measure the extent to which APT currencies were diverging from the RMU basket are constructed. The authors propose that these deviation measures be used as additional tools by the East Asian monetary authorities to conduct surveillance when coordinating regional exchange rate policies. The ECU which is the precursor of the euro was constructed using weights that reflect the economic importance, regional trade shares and commitment in the EMS' financing facilities of each participating country.

In this study, we will consider the three alternative weighting schemes for the regional monetary unit and relate them to the different uses of the RMU. The criteria for determining weights will be different in so far as the RMU is formed for different purposes. We highlight three potential objectives of the RMU. First, as a statistical indicator that summarizes the collective movement of the regional currencies, the RMU serves as an additional tool for monitoring foreign exchange market conditions. In addition, the extent of divergences of the component currencies from the RMU benchmark provides information that contributes to the surveillance of macroeconomic conditions of the APT countries. Unlike the ECU under the EMS system, fluctuations in the RMU or the divergence indicators in this case do not obligate countries to intervene in the foreign exchange markets or require automatic policy responses. (Kawai, 2006)

Second, the RMU may aid in the development of regional financial and capital markets should its role as the region's currency basket gains acceptance by the market participants. If the RMU is set up in a market-friendly way, it could potentially be an attractive numeraire for denominating financial transactions and new financial instruments. An important case in point is the introduction of RMU-denominated bonds. Third, to the extent the RMU—as part

of a regional exchange rate system—promotes increased monetary cooperation and sound macroeconomic policies, intraregional trade and investment will be facilitated, thereby promoting regional integration. These fundamental institutional developments will lead ultimately to improvements in intraregional exchange rate stability.

Weights based on GDP

Weighting according to GDP evaluated at PPP-based exchange rates reflect the size and hence, economic importance of each country. As an alternative, one could consider using the nominal US dollar-based GDP computed at market exchange rates instead of the PPP-based GDP. Replacing the latter by the former while keeping the trade shares the same, reduces the weight on China from 48% to 17% and boosts the weights for Japan from 28% to 56%. We use nominal US dollar-based GDP since evaluating the GDP at market-based exchange rates more accurately measures the current economic size of the countries. However, frequent revision of the weights is necessary arising from the relative economic growth rates of the various APT countries.

Weights based on Trade Shares

As for trade shares, there is a choice between trade with the rest of the world versus trade within the region. As in the construction of the ECU, we use the weights based on trade shares computed as ratios of each country's trade with regional partners to the total trade within the region. These weights reflect the extent of intraregional trade which is important for the computation of a regional index. In this way, the APT countries with stronger regional trading relations are considered to be more important for the regional index and hence, assigned greater weightage in the RMU index. Following Ogawa and Shimizu (2005), we take the average trade shares over the three years 2001 to 2003. It turns out that the trade shares computed based on the two different methods are rather similar. Key differences in trade shares when replacing trade with the rest of the world by trade within the region are discernible for China (increasing from 22% to 26%) and Singapore (falling from 12% to 10%).

Weights based on Financial Openness Index

Using the RMU to support regional capital market development requires adjustments to a purely sized-based approach. Specifically, account may also be taken of the liquidity of the APT currencies. We need to consider the extent of capital account liberalization because this is a key factor in encouraging market participants to develop financial instruments related to RMU. Allowing transactions in terms of component currencies will not only aid basket delivery and but also facilitate the hedging of RMU transactions. Apart from GDP and foreign trade, we also include a metric for the capital account openness of the countries when setting currency weights. We use the financial openness index proposed by Chinn and Ito (2005) that measures the degree of exchange and capital control as a proxy for capital account openness. A higher index value means greater extent of openness. As the mean value of this index is zero, it can take on negative values.

Like the other two variables GDP and foreign trade, we take the average index value of each country over the three years from 2001 to 2003. Table 2 lists the average financial openness index for the APT countries, which ranges from -1.7% for financially repressed Myanmar to 2.68 for ultra-open Singapore and Japan. We first perform a location shift to covert all the index values to positive ones and then compute each currency weight as the country's respective share of financial openness index in the total sampled countries. The computed weights are found in Table 2. Not surprisingly, Japan and Singapore are assigned the highest weight of 18% while Myanmar has the lowest weight of 1%.

Table 2: Weights based on Average Financial Openness Index (2001-2003)⁶

	Average Index 2001 - 2003	Weights
Cambodia	-0.12	7.24
China	-1.07	3.57
Indonesia	1.28	12.63
Japan	2.68	18.00
Korea	-0.04	7.55
Lao PDR	-0.81	4.58
Malaysia	-0.04	7.55
Myanmar	-1.71	1.11
Philippines	0.25	8.64
Singapore	2.68	18.00
Thailand	-0.04	7.55
Vietnam	-1.07	3.57

Weights based on Inflation Index

Another key consideration in determining the currency weights is the soundness of the various APT currencies. In this regard, one may consider giving higher weight to countries with greater monetary stability as reflected by inflation measures. In general, a lower-inflation country provides a more stable national currency. Such an alternative RMU should be more stable in terms of its external value and hence, not only make a more credible investment vehicle but also add credibility to the management of regional monetary policy. This will no doubt encourage investors to invest in RMU-denominated financial products. In the case of Europe, the larger countries like Germany happened to be those with greater monetary stability so that using weights that reflect the size of the countries to construct the ECU was appropriate. As we observe later in Table 3 below, this is not the case for Asia. A case in point is China which ranks 1st on size consideration but ranks 8th on the inflation criteria.

⁶ Data on the financial openness index is not available for Brunei.

We think that the core inflation index instead of CPI inflation index is a more appropriate metric for computing the weights. However, due to unavailability of data, we compute the weights based on the GDP deflator instead. Similar to the financial openness index, we use the year-on-year inflation rate averaged over the three years from 2001 to 2003. Table 3 lists the average inflation rate for the APT countries which range from -1.6% for Japan to 29% for Myanmar. In order to assign a higher weight to a lower inflation country, we take the reciprocal of the inflation rate. To overcome the problem of negative values and taking the reciprocal of a near zero value, all average inflation rates below 1% are first replaced by 1%. Each currency weight is then computed as the country's respective share of the reciprocal inflation rate in the total sampled countries and is found in Table 3. The highest weight of 15% goes to Brunei, Japan and Singapore while the lowest weight of 0.5% goes to Myanmar.

Table 3: Weights based on Average Inflation Rate (2001-2003)

	Average Inflation Rate (%)	RMU Weights
Brunei	0.32	14.99
Cambodia	1.43	10.50
China	1.94	7.74
Indonesia	9.03	1.66
Japan	-1.57	14.99
Korea	3.03	4.95
Lao PDR	7.85	1.91
Malaysia	1.44	10.42
Myanmar	28.95	0.52
Philippines	3.97	3.78
Singapore	-1.15	14.99
Thailand	1.50	9.96
Vietnam	4.19	3.58

Three Alternative Weighting Schemes

We examine the three alternative weighting schemes and compare them to the one proposed by Ogawa and Shimizu (2005). As explained in the previous sub-section, we construct the alternative RMUs as comprising only the eight currencies of China, Indonesia Japan, South Korea, Malaysia, Philippines, Singapore and Thailand. For the first RMU which we call RMU-I, the weight of each currency is computed as the arithmetic average of the weights based on regional trade volumes, nominal GDP and financial openness index. For the second RMU which we term RMU-II, the weights based on the financial openness index are replaced by those based on inflation rate derived from GDP deflator. The third alternative, known as RMU-III has weights based on the average of all four variables, namely, regional trade volumes, nominal GDP, financial openness index and GDP deflator inflation rate.

We highlight that these weights are not derived through optimization of a regional loss function, such as one that aims to keep the volatility of inflation, output and the regional currency unit at ideal levels. For practical reasons, the weights created for the ECU are not theoretically optimized as well. There is, thus, some degree of arbitrariness in our weighting schemes. Naturally, some other weighting schemes or different variables can be used to compute the weights. For instance, the weights can first be computed as the arithmetic mean of GDP and trade shares alone, and then the financial openness index can be transformed into a factor that adjust these weights upwards or downwards depending on whether the index takes on positive or negative values. Other possibilities include using alternative measures of convertibility and financial development such as the value of international debt securities issued by residents instead of the financial openness index. Finally, instead of using inflation as a measure of monetary credibility, one can consider how well monetary authorities minimized a loss function in terms of output gaps and deviations from inflation targets.

Nevertheless, we work out the three proposed weighting schemes to demonstrate the possible effects of including variables that take into account the capital account openness and inflation of the various countries. The weights for RMU-I, RMU-II and RMU-III are found in Tables 4, 5 and 6 respectively. For comparability, the weights proposed by Ogawa and Shimizu (2005) are recomputed—that is, using the arithmetic mean of regional trade volume and PPP-based

GDP—but for the above-mentioned eight countries only. We call these the RMU-8 weights and included them in Tables 4, 5 and 6 to facilitate comparison. The combined weight on the plus three countries of China, Japan and Korea is 64.3%, 66.2%, 62% and 76% for RMU-I, RMU-II, RMU-III and RMU-8 respectively. Such asymmetry between the smaller ASEAN countries and larger North East Asian countries is reflective of the weights in the internal effective exchange rates (see Table 1).

Table 4: Weights for RMU-I

	Regional Trade weights	Nominal GDP weights	Financial Openness weights	RMU-I weights	RMU-8 weights
China	26.2	19.4	4.3	16.6	38.1
Indonesia	4.9	2.4	15.1	7.5	5.3
Japan	27.1	65.0	21.6	37.9	27.7
Korea	12.8	7.7	9.0	9.8	10.0
Malaysia	9.7	1.3	9.0	6.7	5.8
Philippines	3.7	1.1	10.4	5.0	3.2
Singapore	9.8	1.3	21.6	10.9	5.3
Thailand	5.8	1.8	9.0	5.5	4.7

Table 5: Weights for RMU-II

	Regional Trade weights	Nominal GDP weights	Inflation weights	RMU-II weights	RMU-8 weights
China	26.2	19.4	11.3	19.0	38.1
Indonesia	4.9	2.4	2.4	3.3	5.3
Japan	27.1	65.0	21.9	38.0	27.7
Korea	12.8	7.7	7.2	9.2	10.0
Malaysia	9.7	1.3	15.2	8.7	5.8
Philippines	3.7	1.1	5.5	3.4	3.2
Singapore	9.8	1.3	21.9	11.0	5.3
Thailand	5.8	1.8	14.5	7.4	4.7

Table 6: Weights for RMU-III

	Regional Trade weights	Nominal GDP weights	Financial Openness weights	Inflation weights	RMU-III weights	RMU-8 weights
China	26.2	19.4	4.3	11.3	15.3	38.1
Indonesia	4.9	2.4	15.1	2.4	6.2	5.3
Japan	27.1	65.0	21.6	21.9	33.9	27.7
Korea	12.8	7.7	9.0	7.2	9.2	10.0
Malaysia	9.7	1.3	9.0	15.2	8.8	5.8
Philippines	3.7	1.1	10.4	5.5	5.2	3.2
Singapore	9.8	1.3	21.6	21.9	13.6	5.3
Thailand	5.8	1.8	9.0	14.5	7.8	4.7

Should the RMU be used for surveillance purposes, the high asymmetry suggests that the optimal pan-Asian monetary policy would be very stable at the core, but place tremendous adjustment burdens on peripheral countries. To overcome this problem, we propose another version of the RMUs that lowers the huge weights on the large economic players. Replacing nominal GDP by PPP-based GDP in the weight computations reduces the combined weight on the plus three countries for RMU-I, RMU-II and RMU-III to 62%, 64% and 57% respectively (see Table 7). The less asymmetric weight structure is more politically tenable and would encourage the smaller ASEAN countries to use the RMU as an additional tool for monitoring foreign exchange market conditions.

Nevertheless, the emphasis on the plus three countries in the currency basket will tend to produce a more stable RMU that is more attractive to market participants. Hence, for the rest of this report, we will focus on the first set of RMUs that use nominal GDP in the weight computations.

Table 7: Alternative RMUs for Surveillance Purposes

	PPP-based GDP weights	RMU-I weights	RMU-II weights	RMU-III weights	RMU-8 weights
China	50.0	26.8	29.2	23.0	38.1
Indonesia	5.6	8.5	4.3	7.0	5.3
Japan	28.3	25.6	25.7	24.7	27.7
Korea	7.2	9.7	9.1	9.1	10.0
Malaysia	1.8	6.9	8.9	8.9	5.8
Philippines	2.7	5.6	4.0	5.6	3.2
Singapore	0.8	10.7	10.8	13.5	5.3
Thailand	3.6	6.1	8.0	8.2	4.7

Three Alternative RMUs and their Divergence Indicators

Following Ogawa and Shimizu (2005), we express the external value of each RMU in terms of the weighted average of the US dollar and the euro which we term the duro. The corresponding weights, 65% and 35%, are computed based on the trade volume in 2001-2003 between East Asia and the US and Euro area respectively. The duro value of each RMU, $S(\text{duro}/\text{RMU})$, can be expressed as sum over all eight currencies the quantity of each currency $Q(J)$ times its duro value $S(\text{duro}/J)$, i.e.

$$S(\text{duro} / \text{AMU}) = \sum_{j=1}^9 Q(J)S(\text{duro} / J) \quad (1)$$

The quantity for currency j is given by the product of its RMU weight and its benchmark exchange rate. The latter is the currency's value in terms of the duro during benchmark period 2000-2001 which was identified by closeness of the trade balance of the ASEAN plus three countries to zero.

For each RMU, we can derive a set of divergence indicators to measure exchange rate divergences. These divergence indicators gauge the extent constituent currencies deviate from the currency basket and they reflect how much each component currency move against all other currencies in the basket. Following Ogawa and Shimizu (2005), we use the time period

2000 to 2001 as our benchmark period. This time period was chosen by the authors in consideration of having the trade accounts for individual countries being close to balance. For each constituent currency j , we calculate the deviation from its reference value (at the benchmark period) in terms of the RMU. That is, divergence indicator for currency j in percentage terms is computed as follows:

$$[S(\text{RMU}/J) / \text{benchmark } S(\text{RMU}/J) - 1] \times 100\%$$

Figure 1 below gives the time plots of the four different versions of RMU constructed for the same eight countries, while the associated divergence indicators are found in Figures 2 to 5 respectively. We observe from the chart that the different weighting schemes do not have a significant impact on RMU's external value nor their divergence indicators. A plausible explanation for the similarity of the alternative versions of RMU is that the component regional currencies are mostly tracking the US dollar (McKinnon and Schnabl, 2004). In this case, the fluctuations in the regional currencies would be somewhat similar so that changing the weighting scheme should not have a significant impact on the composite index. Going forward, should the regional currencies become more flexible vis-à-vis the US dollar, differences in the movements of the alternative RMUs would likely become more apparent.

Figure 1. External Value of RMU-I, RMU-II, RMU-III and RMU-8

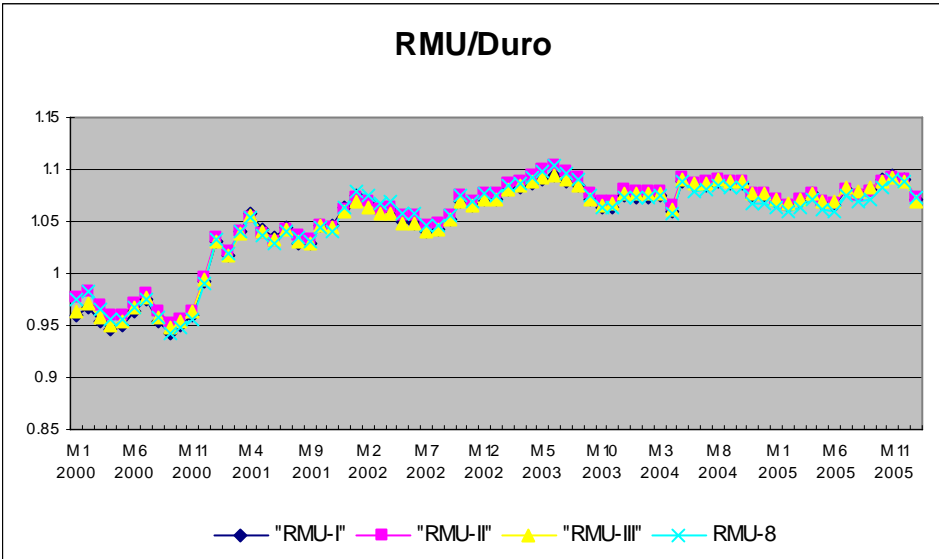


Figure 2. Divergence Indicators for RMU-I

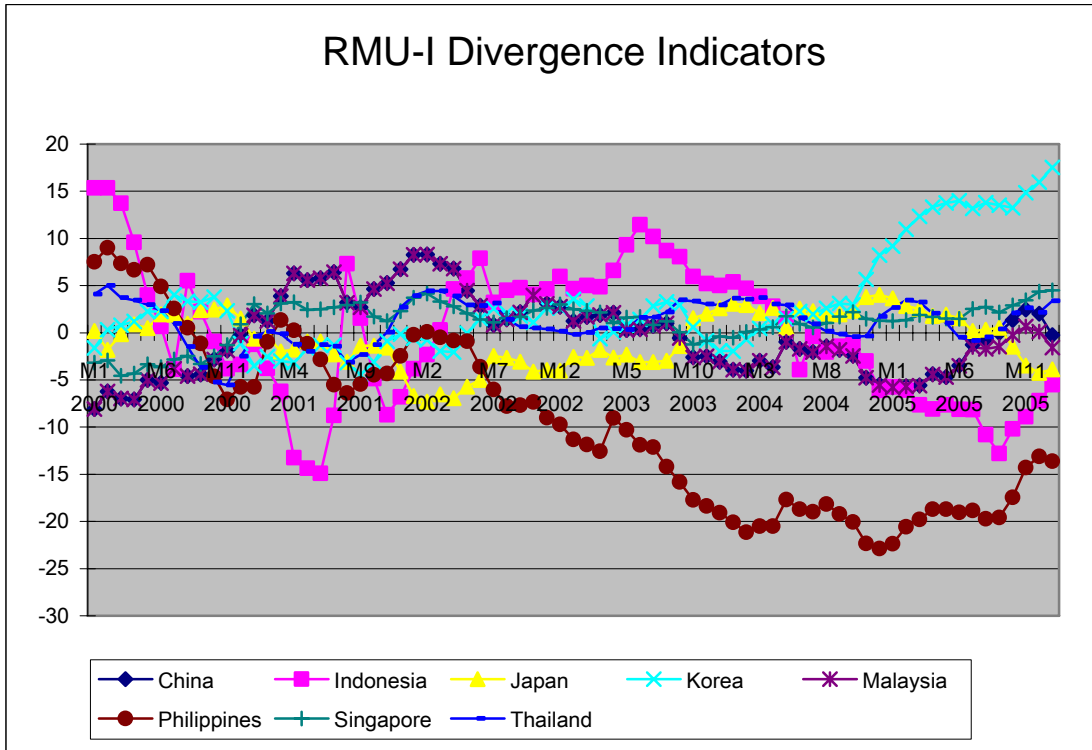


Figure 3. Divergence Indicators for RMU-II

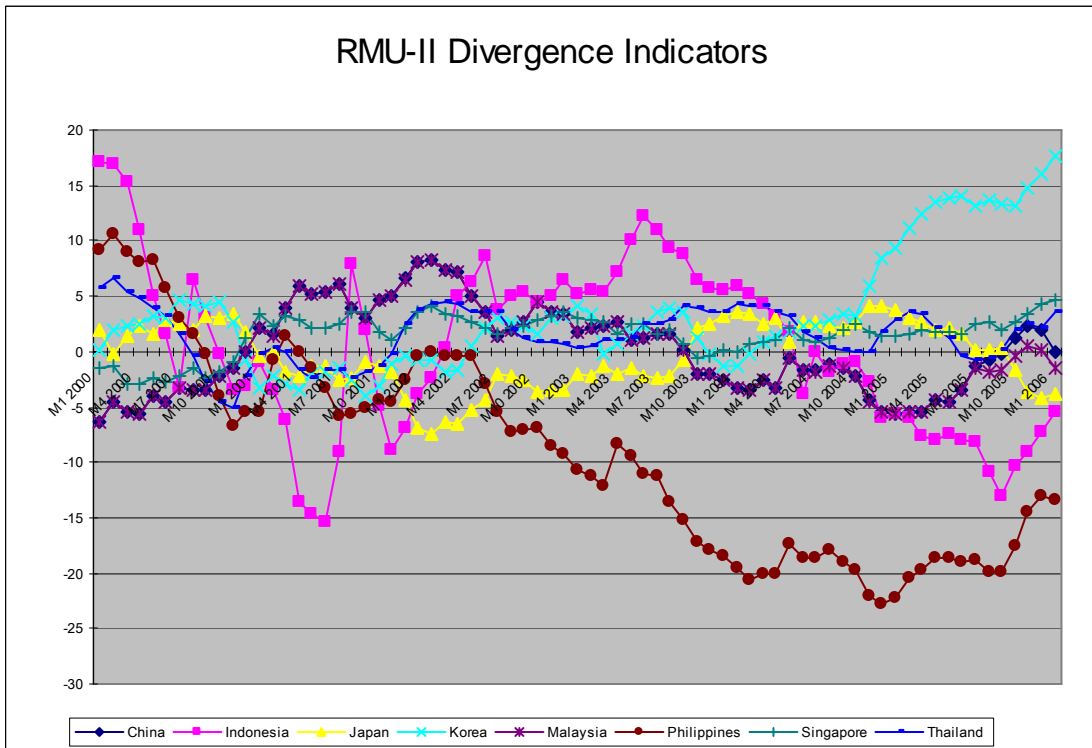


Figure 4. Divergence Indicators for RMU-III

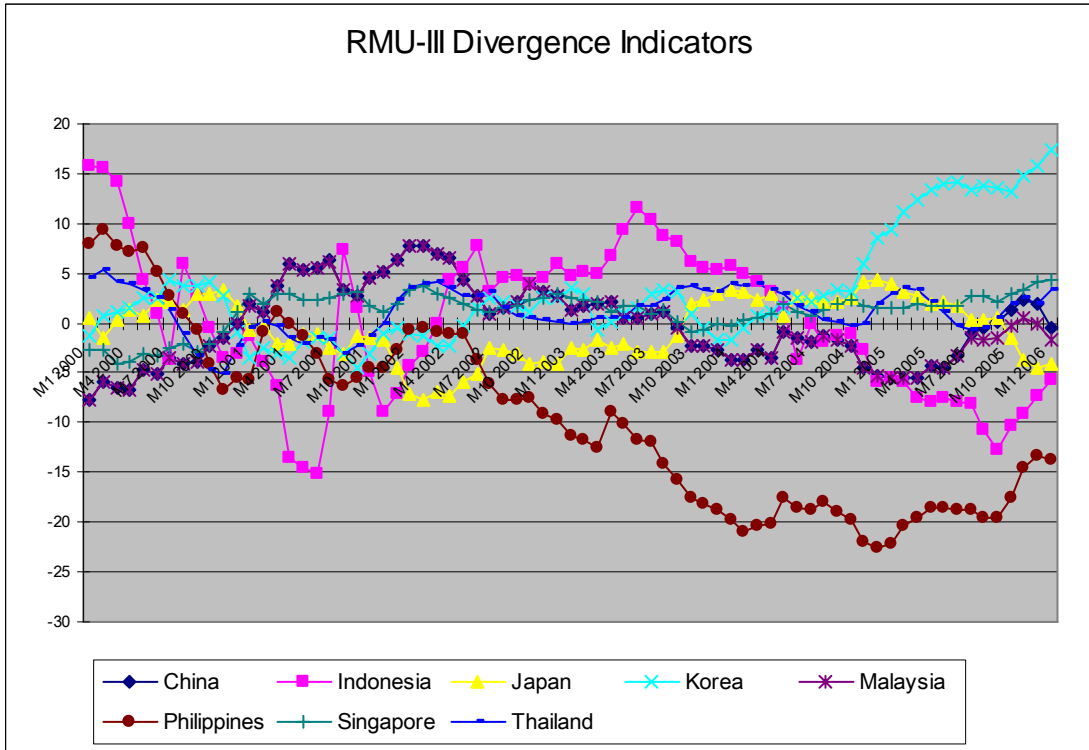
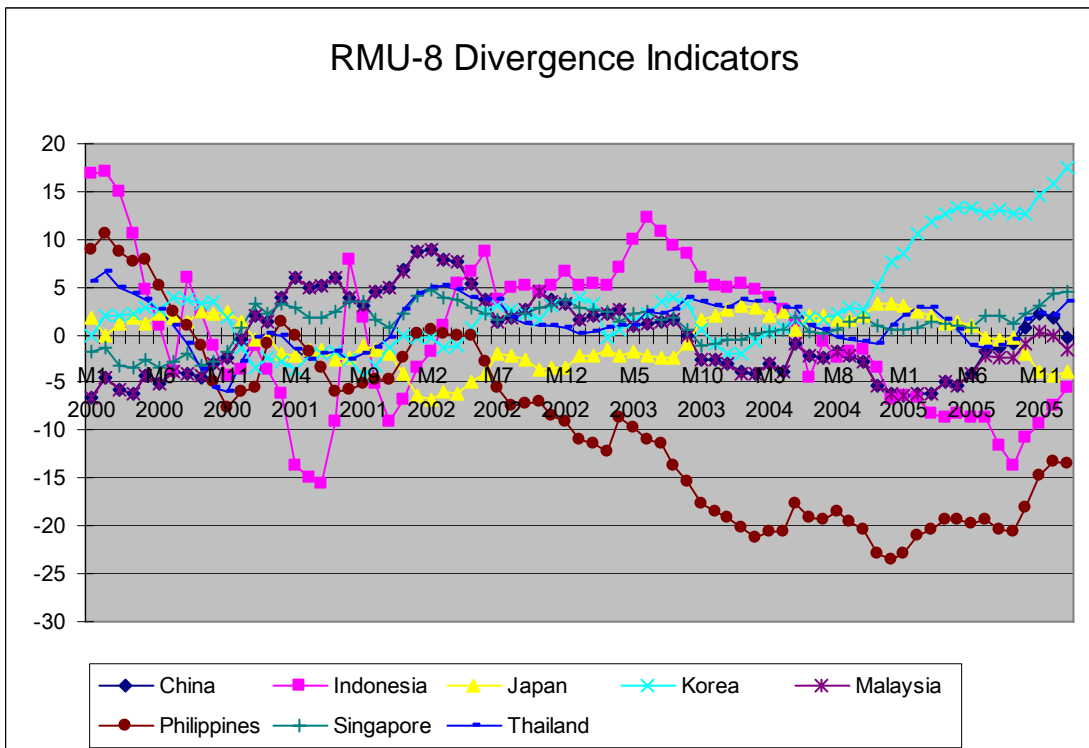


Figure 5. Divergence Indicators for RMU-8



II.3 Revisions

Although the quantity of each underlying currency remains constant in the basket, its contribution to the value of the RMU varies with its exchange rate. Hence, in order to circumvent the buildup of a situation where a component currency becomes significantly over-represented (under-represented) as it appreciates (depreciates) over time, there is a need to have a procedure for regularly revising the composition of the basket.

Under the ECU, weights were set three times: from 13 March 1979 to 16 September, 1984; 17 September 1984 to 21 September 1989; and from 21 September 1989 until 21 December 1994. In these periods, the German mark tended to appreciate against the other currencies. To prevent the over dominance of the German mark in the ECU basket, the weights were reset every five years. In these episodes, the German mark and Dutch Guilder weights were revised downwards as they had become too large while the Lira component had to be increased as the Lira had depreciated considerably. While the economic criteria based on GDP, intra-regional trade shares, and commitment in EMS financing facility served as a guide, the new weights were essentially determined by political negotiations. No further re-weighting of the ECU basket was carried out after 1994, in preparation of the introduction of the single currency, the euro, in 1999.

Given the fluidity of East Asia development and vastly different stages of growth and financial development within the region, currency weights will require more frequent periodic revisions and with greater changes and swing. Although gaps in price movements for APT have been small in recent years, diverse price developments going forward remains a possibility. Nevertheless, excessive changing of the weights generates a cost in terms of regime credibility. We proposed the revisions to take place at least every three years, while maintaining the same weighting scheme, the weights are re-computing using the latest three years of data. There should also be a limit, say 30% to the maximum currency weight each country can have. If a component currency has a weight that exceeds the cap, the excess could be re-distributed to the rest of the countries in portion to the remaining weights.

In addition, there is also a need to monitor how the revisions gain acceptance in the market. Since the revisions will affect interest rates calculated on the different constituent currencies of the basket as well as the value of the various financial instruments denominated in the RMU, transparent rules on the periodic revisions of the RMU are required to allow financial market analysts to compute the basket interest rate (Kawai, 2006) In particular, for bond contracts denominated in the RMU, contingency clauses to deal with shifts in the currency weights or changes to the basket composition are necessary.

II.4 Realignments

On the issue of how to define the national currencies vis-à-vis the currency basket, it's instructive to look at the European experience. The ECU represented only one key component of the EMS. Two other main features of the system were the Exchange Rate Mechanism (ERM) and the financing facilities. The ERM helped determine tolerances between national currencies and the ECU. Under the parity grid system, the participating countries set their central rates with each other. Fluctuation margins of 2.25% above and below the central rates were maintained by interventions of the two countries whose currencies reached the upper and lower bounds. Extensive financing facilities, such as the European Monetary Cooperation Fund, short term monetary support and medium term financial assistance, were also set up to ensure that participating countries had the resources to meet intervention obligations.

Initially, big inflation gaps and divergent economic policy objectives amongst the member countries gave rise to speculative attacks on their currencies. When a component currency exceeds the boundaries of the band due to structural reasons and these countries found difficulty to defend their central rates, changes in the reference rate were effected. The finance ministers of the countries involved in the realignment had to decide on the new central rates. Low (high) inflation countries appreciated (depreciated) their central rates such that the rate of appreciation (depreciation) for each country was generally proportional to the inflation gap vis-à-vis the ERM average. In the first four years from 1979 to 1983, seven such realignments took place.

With increasing emphasis being placed on nominal and real convergence as well as on the coordination of monetary policy to support exchange rate stability, the EMS entered a relatively stable phase with only four realignments between 1983 and 1987. After which, there were no realignments for the next five and a half years. Meanwhile, credit facilities for financing interventions were substantially augmented under the 1987 Basle-Nyborg Agreement. As such, realignments were avoided by the more frequent use of intervention to defend the bilateral exchange rate parities.

This turned out to be detrimental to the ERM, as highlighted by Tietmeyer (1998): “maintaining unrealistic central rates for too long proved to be the Achilles’ heel of the EMS”. The unrealistic parities was an endogenous response to (a) a convergence process that ran out of steam, (b) complacency with the de facto German mark bloc, and (c) failure to respond to collectively to the implications of the fall of Eastern Europe, most obviously the imminent absorption of East Germany. The EMS came under increasing strain due to the failure of collective action to push forward on economic integration and convergence. In other words, the EMS was vulnerable to attack.

The 1992 Danish referendum (the last defense) saw an unexpected rejection of the Maastricht treaty. With the referendum, credible political commitment fell by the way side and market expectations on the future realization of a European monetary union changed. Along with the liberalization of capital movements encouraged by the 1986 Single European Act, this triggered the 1992-1993 ERM crisis. The ERM suffered repeated attacks by currency speculators, prompting the widening of the fluctuation bands to 15% on each side in August 1993. Ultimately, the Italian lira and the British pound exited from the EMS. As mentioned earlier, some attributed the ERM crisis to the failure in the coordination of monetary and exchange rate policies (Buiters et al, 1998). Basically, the German unification posed an asymmetric shock to the region and the ERM crisis was brought on by the lack of a cooperative response—such as a general realignment and a cut in the German interest rates—to the shock.

The attacks gave rise to the second-generation multiple equilibria speculative attack literature, in which if pegs are not defended the economy will settle at one equilibrium (high inflation), but if the attacks are successfully defended, the economy will settle at the low inflation equilibrium. Economic fundamentals need only be bad enough to make the economy vulnerable to attack. The probability of a successful attack is inversely proportional to the credibility of the defense.

For an ERM-type system to be sustainable in this region, it needs to have various features to enhance its credibility. First, the exchange rate system must incorporate flexibility in terms of allowing for adjustments in the reference rates. Indeed, an important lesson from the European experience is that realignments of the central rates within the regional exchange rate system are necessary, as pointed out by Jochimsen (1993): "... during the second half of the 1980s, where one mistook the goal of keeping exchange rates stable as already constituting the result of actually holding them stable, without regard to the corresponding exigencies of adjusting domestic fiscal policies and collective bargaining accordingly." After all, according to the literature on exit strategies, the credibility of the system would not be undermined by parity changes if they are undertaken only when the cause can be directly observed or independently verified. However, the rules of the system have to be well-defined and compromises arising from conflicting interests of member countries should be ruled out (Volz, 2006).

Second, the incidence of speculative currency assault can be reduced by choosing wide exchange rate bands, such as allowing constituent currencies of the RMU to fluctuate within a $\pm 10\%$ band.⁷ The idea of a narrow band was to demonstrate to speculators the seriousness of the commitment, but narrow bands tend to encourage one way bets by currency speculators. Conversely, wider fluctuation margins that allow for reversal of exchange rate movements make currency speculation more risk-prone. Wide bands become more attractive as monetary coordination moves away from the management of the exchange rate system as the be-all-end-all goal of the system. In a cooperative arrangement, a wide band provides the

⁷ We can also consider bands of varying width, narrower ones for the "center" or "core" countries and wider ones for the less financially developed countries, as discussed in Chow et al (2005 & 2006).

impetus for discussion and joint moves. In true monetary policy system where exchange rate stability is but one facet, the wide band gives that same impetus of discussion but without the grave risks of system collapse and the costs of realignment as in the EMS. However, we note that in a pure exchange rate management system, bands that are too wide (such as allowing two currencies to move 20% relative to each another) can promote poor discipline and excessive volatility.

Third, support mechanisms such as common support funds for the defense of exchange rate parities are required to increase the credibility of a regional exchange rate system. While the design of the EMS was to offer unlimited financial support to the integrity of the system, this cost was too much to bear in the end and the realism over the unsustainability of the system prevailed. Despite the availability of huge foreign reserves in this region, a strong currency country would not have the incentive to support weak currencies as it risks losses due to the hazardous behavior of weak currency partners (Volz, 2006). This underlines the need for a regional institution with regulatory and supervisory oversight, as explained by Eichengreen (1996): “a regional analogue to the International Monetary Fund to monitor policies and press for adjustments. The absence of such an institution meant that the strong currency countries cannot be assured that their weak currency counterparts would take policy adjustments. Therefore, the foreign support they were willing to provide was necessarily limited.” There is a need for participating countries to redirect their sovereign policies to be consistent with the requirements of the AMS. If member countries do not (a) clean house and (b) subjugate their sovereign policies to the regional system, then system will fall apart. Such is the lesson not only of the EMS but of every monetary union that has been tried over the years.

Fourth, the credibility of an ERM-type system in this region depends critically on the effective regional cooperation on monetary policy amongst the APT countries. While the ERM parity grid system provided a neutral framework for monetary cooperation, it quickly anchored on the German mark which also served as the indicator variable, rendering only a minor role for the ECU. Similarly, an Asian monetary system will need an anchor currency to provide a target for calibrating regional monetary policy. The anchor of the system may mean

one currency, or it can mean some linear combination of a several currencies. Germany became the anchor for Europe because the monetary policies of the Bundesbank and the direction of the German economy became the foundation for pan-European policies and development. In East Asia, we need a clear economic vision to anchor its development going forward. This calls for China and Japan not to operate independently but to work together just as France and Germany wedded their futures together. However, the region’s asymmetry in financial and economic development poses a challenge to the development of a mechanism for regional monetary policy formulation. If formal Asian monetary policy and exchange rate policy coordination is not forthcoming, this raises questions on the feasibility of an ERM-type system for this region in the near future.

Furthermore, the trade patterns of the APT countries remain geographically diversified with extra-regional trade still playing a vital role, notwithstanding greater regional integration. Table 8 provides the trade weights of each country summed over the APT countries versus the sum over the remaining weights. With the exception of Lao and Myanmar, the sum of trade weights over the APT countries is less than half (see Table 8).

Table 8: Intra-regional versus Extra-regional Trade

	Sum of internal trade weights	Sum of external trade weights
Brunei	0.43	0.57
Cambodia	0.30	0.70
China	0.32	0.68
Indonesia	0.39	0.61
Japan	0.30	0.70
Korea	0.38	0.62
Lao PDR	0.53	0.47
Malaysia	0.39	0.61
Myanmar	0.67	0.33
Philippines	0.39	0.61
Singapore	0.42	0.58

Thailand	0.42	0.58
Vietnam	0.42	0.58

Hence, the RMU which comprises only regional currencies will not reflect the competitiveness of the APT countries in the world market. It follows that exchange rate stability vis-à-vis extra regional trading partners is at least as important to the APT countries as would intra-regional exchange rate stability. Benchmarking towards the RMU will not stabilize the effective exchange rates of these countries. Instead, policy makers will be confronted by swings in major currencies into relative trade competitiveness.

We think that the optimal approach to regional exchange rate cooperation should be a gradual and incremental one. Embarking on an ERM-type system in the short term, constrains the APT countries from having individual country exchange rate responses to asymmetric shocks that hit the region. Rather, the APT countries should initially engage in less demanding form of exchange rate cooperation before moving on to restrictive exchange rate arrangements. Importantly, the regional economies should develop stronger regional institutions; enhance regional surveillance; strengthen financing facilities under the CMI; develop well-functioning financial markets and cross-border settlement systems; and proceed with other forms of regional integration before moving on to formal exchange rate arrangements. As these other forms of integration aid in the development of a high degree of real and nominal convergence amongst the APT countries, an ERM-type system would then become more sustainable and less susceptible to speculative currency attacks in the region.

Part III

Data and Statistics Pre-requisite

To facilitate the creation of an effective RMU, good quality statistics are needed. A coherent body of statistical information is required both for the selection of constituent currencies and the computation of weights used in the construction of the RMU. As discussed in the previous section, weights assigned to the component currencies that make up the RMU are based on numerical criteria such as GDP, trade shares and inflation rate. At the same time, qualitative criteria such as the convertibility of currencies and extent of capital account openness are also considered when determining the weights. It follows that comparable economic data as well as information on various forms of capital controls across individual countries are essential. Importantly, data on the above variables need to be collected for countries that have been omitted from the initial construction of the RMU, namely Brunei, Cambodia, Laos, Myanmar and Vietnam. The availability of such information would allow the assessment of when the respective currencies are ready for incorporation into the RMU.

Country statistics have to be made comparable in quality, coverage, frequency and timeliness across the region. While the collection of data should remain largely the responsibility of national statistical authorities, we think the most efficient way to harmonize and regionally integrate data is through a regional statistical agency that sought to conform to these standards as far as is practicable. Having a region wide system for data, helps to limit redundancy and minimize the reporting burden of central banks and other institutions. Presently, apart from the IMF databases, data on East Asia can also be found on the Asian Development Bank and Bank of International Settlement websites. We propose that the appointment a statistical working group comprising members from the ASEAN+3 countries. This group should work closely with the above international organizations and national statistical agencies with the aim of improving the statistical systems in individual countries.

The strengthening of data comparability across the ASEAN+3 countries could be supported by the IMF's Data Quality Assessment Framework (DQAF). Under this framework, the

General Data Dissemination System contains standards build on the UN Fundamental Principles of Statistics which reflect best international statistical practices. (Carson and Laliberté, 2002a and 2002b). This system not only could serve as a diagnostic tool for evaluating statistical practices and governance of statistical agencies in individual countries, but also to compare statistical practices across countries. Table 1 below, reproduced from Abdulrahman et al. (2006), provides the principal dimensions for DQAF.

Table 1: The IMF’s Data Quality Assessment Framework

Dimensions	Some Key Elements
Prerequisites of quality	Legal, institutional environment, resources
Assurances of integrity	Professionalism, transparency, ethical standards
Methodological soundness	Concepts, definitions, classifications
Accuracy and reliability	Source data, statistical techniques
Serviceability	Periodicity, timeliness, consistency, revisions
Accessibility	Data accessibility, assistance to users

Source: IMF Data Quality Assessment Framework; <http://dsbb.imf.org> (go to DQRS).

The activities of the statistical working group could include the development of common classifications, methodology and definitions for application in individual countries. In addition, the group could coordinate the implementation of common statistical surveys based on harmonized methods. A controversial issue is whether to develop a legal framework for regional statistics as in the case of the European statistical agency *Eurostat*. Even though legal instruments may be necessary to achieve satisfactory standards, we think a pragmatic way forward is to rely on less formal arrangements. Some diversity of statistical practice across the member countries should be allowed while maintaining data comparability.

As East Asia integrates, regionalism increases and deeper capital markets demand more accountability, the data requirements for the successful design, implementation, and maintenance of the RMU will need to progress as well. To be practical, the primary focus of this region must be on collecting verifiable data for mutual surveillance. As discussed in the earlier sections, the credibility of an ERM-type system in East Asua depends on, amongst

other things, enhanced regional surveillance. Availability of good quality statistics is thus needed for regional monitoring and policy support.

In particular, we think the following multiple deviation indicators are required to identify risks that are imminent and to build trust amongst the regional countries. First, there is a need to monitor traditional fundamental indicators that include standard data—for instance, national income, balance of payments and government finance statistics—to guard against Generation One speculative attack. Information on banking and corporate balance sheet positions especially on the extent of currency and maturity mismatches are also necessary. Second, medium-term business cycle indicators such as pricing data, slack data, and market flexibility and competitiveness indices have to be examined. Last but not least, it is pertinent to keep track of short-term data concerned with risk premia, speculative pressure and hot flows such as offshore rates, forward market rates and on-sided market positions. Furthermore, the important issue of how to incorporate divergence indicators based on the RMU into an early warning system for the region would be an interesting topic for future research.

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