Research Papers and Policy Recommendations

on

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

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Summary

This study focuses on reviewing options in forming regional monetary units (RMUs), or a basket currency value. It is argued that the objective of using a basket will define the coverage of countries and weights of component currencies. In particular, two kinds of RMUs, one for surveillance and the other for transaction, will be proposed. The roadmap for introducing the RMUs will be presented as well.

(RMUs for surveillance)

Authorities should explore the following steps: (i) to define a RMU for surveillance purpose; (ii) to announce RMU value everyday; (iii) to monitor RMU deviation indicators in macroeconomic surveillance complemented by other indicators and variables; and (iv) to develop an Early Warning System (EWS) using RMU and other variables.

RMU is an appropriate tool in identifying misalignment and excess volatility of the Asian currency vis-à-vis its neighboring countries in the basket. When monitoring RMU deviations, currencies with a sustained deviation and currencies of rapidly deviating from the center may be monitored closely. The causes of the deviation may be identified as worrisome or benign.

In selecting countries in the basket, following considerations are important. Coverage of countries of the composite currencies of RMU could be ASEAN10+3 or any subset of them. ASEAN10+3 (RMU13), ASEAN10+4(RMU14), and ASEAN5+3 (RMU10) are proposed.

In determining weights, the following considerations are important. Weights of the currencies are based on GDP and trade volume data. Some other alternatives are considered. There are two kinds of GDP: First, PPP (Purchasing Power Parity) exchange rate based GDP; and second, market exchange rate based GDP. The difference between them will disappear over the medium or long term due to convergence in domestic prices as the economy develops.

(RMUs for transaction)

RMU could be utilized for the denomination of commercial and financial transactions. Developing a market for tradable financial products is important in stimulating private-sector interest in the issue.

Core-RMU is composed of major Asian currencies with convertibility in both foreign exchange and foreign exchange forward/money markets. Weights of the currencies in Core-RMUs may be based on market openness, in addition to GDP and trade volume.

Core-RMU could be divided into Core-RMU-hard that has convertibility in both the current and capital accounts; and Core-RMU-soft that has convertibility only in the current account. The group of countries will expand as more countries join the hard group. Eventually, the list will coincide with the surveillance path.

Hard and soft differences will disappear over the medium or long term. As a country develops into an advanced country, it will liberalize capital accounts. Hence, as capital controls are eliminated, the difference between "hard" and "soft" will disappear. Also, making economies more integrated will encourage the country to liberalize the capital account.

Core-RMU financial instruments in the private sector, without official support, may be possible. However, in view of the vicissitudes of MU (Monetary Units)s in Europe, it is doubtful if such an RMU financial market can be expected to grow to a meaningful mass. Also official support alone is not sufficient for the sustainable market development of an RMU financial market.

The following official use may help RMUs to be used in the private sector: Denomination of bond issuance by the government; denomination of swap arrangements under CMI; preferential treatment of RMU-Core related operations in foreign exchange regulations; allowing RMU-denominated assets in a supervisory framework; acknowledgment of the private RMU-Core legally or de facto as a "foreign currency;" daily announcement of RMU; and use of RMU in budget by the ASEAN+3 Secretariat or ADB (and ADBI) when it is established.

As the convertibility of the component currencies in Core-RMU is necessary, regional financial cooperation for wide-spread convertibility is recommendable. Countries are wary of the possible massive capital inflows and sudden reversal, and worse yet speculators' attack. Therefore, to strengthen regional financial cooperation to help each other is needed. In this context, expanded CMI in size and triggering mechanism, permanent secretariat of CMI, and further financial cooperation, e.g. reserve pooling would be desirable.

CHAPTER 1

VARIOUS ARRANGEMENTS OF RMUs

Chapter1 : Various Arrangements of RMUs

1-1. Purpose for RMUs

In May 2006 (Hyderabad, India), the finance ministers of ASEAN+3 countries agreed to pursue study on creating regional monetary units (RMUs) at the ASEAN+3 Finance Ministers' Meeting. Additionally, the Finance Ministers of China, Japan and Korea (Trilateral Finance Ministers' Meeting) noted the importance of sharing a long-term vision for financial integration in the region and agreed on further study of related issues, including the usefulness of RMUs, through the ASEAN+3 Finance Ministers' Process. In this chapter, we propose various arrangements of RMUs composed of some different groups of countries in East Asia and clarify some technical issue to be solved in constructing RMUs. Before getting into them, we briefly explain purposes of creating RMUs.

There are two broad purposes of creating for RMUs in the region. One purpose is to use the RMU for macroeconomic policy surveillance: and the other is for the denomination of financial transactions. As for the surveillance indicator, RMUs can serve as a useful benchmark in monitoring overvaluation and undervaluation of the currency. Ogawa and Shimizu (2005) have proposed to create an Asian Monetary Unit (AMU), which is composed of the ASEAN+3 currencies, and AMU Deviation Indicators (AMUDIs), which show how much the currency deviate from the benchmark rate of the region. Ogawa and Shimizu proposed that AMUDIs are appropriate indicators in monitoring misalignment and volatility of the relative value of Asian currencies within the region.[1]

RMUs also represent diversified assets that can be used for business accounting and invoicing, market portfolio and transactions, private-sector financial products, including bond issuance and bank deposits. This aspect is called the private use of RMUs. We propose a Core-RMU, which is composed of main currencies with convertibility in both foreign exchange and money markets.

1-2. Various Arrangements of RMUs

It is important to be recognized that the composition of currencies in RMUs depend on the purposes. In this chapter, we propose various arrangements of RMUs, which are composed of some different combination of currencies both as the surveillance indicator in the region and as the private use RMUs.

1-2-1. For the surveillance purpose

The AMU of Ogawa and Shimizu (2005) is defined as a basket currency of the ASEAN10+3

[1] The data of AMU and AMU Deviation Indicators are available on the website of RIETI (http://www.rieti.go.jp/users/amu/en/index.html).

countries in the same way that the ECU was defined as a basket of currencies of EU member countries before the Euro was created. In addition to the AMU, other currency baskets of different countries within East Asia for surveillance purpose should be considered. ASEAN10+3 is not the fixed list of members forever. Theoretically, there can be various combinations of currency baskets in the region.

For calculating RMUs here, the methodology to calculate the AMU by Ogawa and Shimizu (2005) is followed. The weight of each currency in the basket is based on the country's shares of GDP measured at Purchasing Power Parity (PPP) and that of intra-regional trade volumes (the sum of exports and imports). The arithmetic average share of the two factors of the most recent three years is used. For the benchmark year of the exchange rate, the same period of the AMU is used, which is 2000-2001.[2]

Accordingly, RMU13-A, which is composed of ASEAN+3 currencies with the basket weight based on GDP measured at PPP exchange rate and intra-trade volume, as well as the AMU is defined. Another candidate of RMU for surveillance is RMU13-B, whose basket weights are based on GDP measured at market exchange rates and intra-trade volume. The RMU13-A and RMU13-B are different because there are a large difference between the size of PPP-exchange-rate GDP and market-exchange-rate GDP. While PPP-exchange-rate GDP represents the size of the economy taking into account standard of living—real values of consumption and investment—while market-exchange-rate GDP represents the best proxy for the size of economy. If we use data of GDP measured at PPP to calculate basket weights, the Chinese yuan is the highest share among ASEAN+3 currencies. However if we use data of market-exchange-rate based GDP, the Japanese yen is the highest. Accordingly, we assign both economic indicators separately to create different RMUs. In this chapter, we indicate RMUs of 3 different country groups with two different basket weights, namely 6 RMUs in total as follows:

- RMU13-A: ASEAN 10 + 3 (China, Japan and South Korea) based on PPP-exchange-rate GDP
- RMU13-B: ASEAN 10 + 3 (China, Japan and South Korea) based on market-exchange-rate GDP
- RMU14-A: ASEAN 10 + 4 (China, Japan, South Korea and Hong Kong, SAR) based on PPP-exchange-rate GDP
- RMU14-B: ASEAN 10 + 4 (China, Japan, South Korea and Hong Kong, SAR) based on market-exchange-rate GDP

[2] The benchmark period is defined as follows. The total trade balance of member countries, the total trade balance of the member countries (excluding Japan) with Japan, and the total trade balance of member countries with the rest of world should be relatively close to zero. The relevant data from 1990 to 2005 indicates that the trade accounts were the closest to balance in 2001. Assuming a one-year time lag before changes in exchange rates affect trade volumes, 2000 and 2001 has been chosen as the benchmark period.

- RMU10-A: ASEAN 5 + 3 (China, Japan and South Korea) + 2 (Hong Kong, SAR and Chinese Taipei) based on PPP-exchange-rate GDP
- RMU10-B: ASEAN 5 + 3 (China, Japan and South Korea) + 2 (Hong Kong, SAR and Chinese Taipei) based on market-exchange-rate GDP

The value of RMUs is quoted in terms of a weighted average of the US dollar and the euro because both the United States and EU countries are important trading partners for East Asia. The weighted average of the US dollar and the euro (hereafter, US$-euro) is based on the East Asian countries' trade volumes with the United States and the euro area. The weights on the US dollar and the euro are set at 65% and 35%, respectively.

Tables 1 to 6 show the basket shares and weights of six different RMUs. The basket weights are different depending on both the combination of currencies and on which GDP data, market-exchange-rate GDP or PPP-based, are used to calculate basket shares. However, the differences of shares are not so large. Basically, the highest basket share is the Chinese yuan when we calculate RMUs based on PPP-exchange-rate GDP, and the highest basket share is the Japanese yen when we calculate RMUs based on market- exchange-rate GDP. The third in the share is the Korean won if the Hong Kong dollar is not in the group, while it is Hong Kong dollar if it is included in the group.[3]

Figure 1 shows the movement of the two kinds of RMU13, based on PPP-GDP and Market-GDP. Figure 2 shows the movement of RMU14s and RMU10s. All RMUs have co-moved together so far and have stayed between 9.0 to 9.5 vis-à-vis the US$-euro basket currency since September 2002.

1-2-2. For the private use

Although a basket currency including all 13 countries of the ASEAN+3 group of countries may be useful for surveillance of the macroeconomy and financial conditions, the basket currency may not be used as a currency that requires settlement if one or more currency in the basket is not "convertible." Unless the basket can be replicated in the market easily, the basket currency cannot be used as a settlement currency. It is also hard to convince private-sector institutions and individuals to use it in transactions. The so-called private use of the composite currency requires all the component currencies can be transacted without high transaction costs, both in spot and forward. Therefore, one such basket currencies, Core-RMUs, should include only major Asian currencies, which are convertible. For the private use, Core-RMUs must be convertible as a

[3] The intra-trade share of Hong Kong is fairly large within the region, because their trade volume with China is large. However this data might include re-export volume which should be treated as the Chinese trade volume.

currency. Convertibility means that residents as well as nonresidents have an access directly or indirectly to the foreign exchange and money markets of the currency.

In order to define core-RMUs, criteria to choose eligible currencies have to be decided. First of all, core-RMUs should be freely traded in the inter-bank foreign exchange market. There are several ways to categorize transactions in the foreign exchange markets. One category is time horizon, such as spot, forward, swap, and futures. Another category is to differentiate types of underlying economic goods, services, and assets to be traded: current account-related transactions and capital account-related transactions. Among East Asian currencies, the Japanese yen, the Singapore dollar, and the Hong Kong dollar have already ensured convertibility in both the current account and capital accounts. With regard the transaction of these currencies there exist effectively no capital and foreign exchange controls, except with regard to money laundering and terrorism prevention. Some other East Asian countries have liberalized only the current account transaction of foreign exchange while they have not yet fully liberalized the capital account transactions. Due to these constraints, most Asian currencies are traded actively in an offshore NDF (non delivery forward) market recently.[4] The offshore trading of NDF transactions may not be enough to qualify for full convertibility that investors feel secure about the depth and liquidity in the market. Hence, "foreign exchange convertibility" in onshore markets is chosen as a criterion to make the currency qualify for a composition currency of core-RMUs.

The high-quality core-RMUs (core-RMUs hard, for short) should be defined as the basket composed of only currencies that are convertible in both the current and capital accounts. However, medium-quality core RMUs (core-RMUs soft, for short) will include those with convertibility in the current account transactions only. If monetary authorities agree to liberalization of the currency transactions for basket-currency bonds, then the current account convertibility may be enough for certain type of private-market use.

As for the foreign exchange forward and/or foreign exchange swap markets, core-RMU currencies should have markets up to one-year in maturity. Foreign exchange outright forward and foreign exchange swaps are one of most popular measures to hedge foreign exchange risks. In addition to the convertibility in foreign exchange markets, restriction in the money market transactions should be examined, since the short-term money markets are strongly related to both the foreign exchange forward and swap markets and loan/deposit transactions. The liquidity conditions of both foreign exchange and money markets have to be examined.

Core-RMUs may be used as a denomination currency of Asian bonds and bank deposits/loans. For the denomination currency of Asian bond, each currency's credit rating of local currency sovereign

[4] Non deliverable forward (NDF) transactions of Asian currencies including the Chinese yuan are active in both Singapore and Hong Kong offshore markets.

bond would be an important factor for eligibility.[5] The ratings of bonds in the core-RMU basket should be similar, in order for the basket-currency bond to be rated accordingly. The accessibility to the loan/deposit markets by non-resident investors will be a factor for the inclusion in the basket.

In investigating the above market information, the "Asian Currency Handbook 2006" published by Deutsche Bank is consulted. The publication categorized the market liquidity condition into three categories: good, fair and poor.

Table 7 shows the qualification of Core-RMU currencies in East Asia. The two kinds of Core-RMUs are proposed. One is "Core-RMU hard" and the other is "Core-RMU soft." Those qualifications are as follows.

- "Core-RMU hard"
  - No restrictions on FX spot market related to current account transactions by non-residents
  - Non-residents can access the FX sport market related to capital account transactions, the FX forward/swap market, short-term money market and loan/deposit market. However some restrictions remain.
  - Credit rating of local currency sovereign bond is above single "A."
- "Core-RMU soft"
  - Non-residents can access the FX sport market related to current account transactions, but some restrictions may remain.
  - Non-residents can access the FX sport market related to capital account transactions, the FX forward/swap market, short-term money market and loan/deposit market. But some restrictions may remain.
  - Credit rating of local currency sovereign bond is above single "A."

In Table 7, "circle" means no restriction, "triangle" means that non-resident is allowed to access the market with some restrictions, and "cross" means that the transactions by non-resident are not allowed.[6] As a result, we select following currencies as the two kinds of Core-RMU.

- Core RMU hard : Japan, Hong Kong, SAR, South Korea and Singapore
- Core RMU soft : Core-RMU hard + China and Thailand[7]

Tables 8 and 9 show the basket shares and weights of Core-RMU hard based on PPP-exchange-rate GDP and Market-exchange-rate GDP, respectively. In the case of Core-RMU hard, the share of the

[5] These data are downloaded from the website of AsianBondsOnline by ADB (http://asianbondsonline.adb.org/regional/regional.php).
[6] Please see the Appendix 1 for detail information of Asian markets.
[7] Thailand is treated here as a Core-RMU soft currency at the moment, because of their unexpected strengthening of foreign exchange control announced in December 2006.

Japanese yen is above 50 percent. The second highest share is the Korean won. Tables 10 and 11 show the basket shares and weights of Core-RMU soft based on PPP-exchange-rate GDP and Market-exchange-rate GDP, respectively. In the case of Core-RMU soft, the highest share is the Japanese yen and the second it the Chinese yuan. The third is the Hong Kong dollar instead of the Korean won, since the intra-trade share of Hong Kong becomes larger due to Chinese participation into Core-RMU soft.

Figure 3 shows the movement of the two kinds of the Core-RMUs with different basket weights, which are based on Market-exchange-rate GDP and PPP-exchange-rate GDP. From this figure, it is found that the Core-RMU hard is more volatile than the Core-RMU soft. It is partly because the Japanese yen weight is higher than 50% and partly because Core-RMU hard the Core-RMU soft include two more currencies than the Core-RMU hard.

1-3. Technical issues to calculate the basket weights of RMUs

In the previous section, various arrangements of RMUs with different combinations of currencies were proposed. However, other technical issues have to be discussed before creating RMUs. In this section, the following three points are examined.

- How to incorporate “market openness’ or “market liquidity” into basket weights
- How to control the size of basket weights
- How often to revise basket weights

1-3-1. How to incorporate “market openness” or “market liquidity” into basket weights

The consideration has to be given to “market openness” or “FX market liquidity” when basket weights are determined. There are some information sources to indicate these factors.

Regarding to market openness the "Annual Report on Exchange Arrangements and Exchange Restrictions" published by the International Monetary Fund (IMF) is consulted. The IMF annually publishes the each country’s capital controls and regulations.[8] Table 12 shows the details based on the publication, according to which Japan and Hong Kong have the least restrictions--they have only two restrictions—followed by Singapore with five restrictions. Except for them, other countries have many restrictions on capital controls and regulations so that distinctions among them are almost meaningless. So not enough information can be extracted from the IMF report in order to choose currencies for a core-RMU basket weights.

Another possibility is to explore the already existing currency basket indexes, which are provided by the private financial institutions. Some Asian indexes, composed of Asian currencies, are traded to some extent in the Asian markets. How these baskets weights are chosen gives us a useful idea to

[8] Annual Report on Exchange Arrangements and Exchange Restrictions

study our method to calculate RMUs. Here, four Asian currency Indexes are examined: the Bloomberg-JP Morgan Asia Currency Index (ADXY), iBoxx of Asian Bond Fund, Asian Local Bond Index (ALBI) and Deutsche Bank "EARLY" (Emerging Asia Reserves, Liquidity and Yield) Index. These indices are composed of selected ex-Japan Asian currencies.[9]

The ADXY is composed of the following countries' currencies, -- China, Hong Kong, India, Indonesia, South Korea, Malaysia, Philippines, Singapore, Chinese Taipei and Thailand.[10] The Basket weight of each country is calculated from Trade weights (75%, as of official source, smoothed five year average) and Liquidity weights (25%, FX turnover of local markets accessible to offshore investors, Inter-bank survey minimum five banks). Table 13 shows the details of the weights: Chinese Yuan, Korean Won and Hong Kong Dollar have higher weights than other countries. Chinese Yuan has the highest Trade weight (27.91%) and poor liquidity (4.08%).

The iBoxx covers Sovereign and quasi-sovereign bonds issued in eight Asian currencies from China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, and Thailand. International Index Company (IIC) and EMEAP develop this jointly. The Basket weight of each country is constructed from the sum of the baseline weight (12.5%) and the adjustment factor (AFi).

$$Wi=12.5\% + AFi$$

The Adjustment factor is calculated by the following factors.

$$AEi=0.2*Si+0.2*Ti+0.2*Ri+0.4*Oi$$

Si: bond market size

Ti: turnover ratio

Ri: sovereign rating

Oi: market openness

In above equation, country weight factor is affected by the relative market openness of the eight markets. Currently, the countries fall into the following categories:

Highly open: Hong Kong, Singapore

Generally open: Indonesia, Korea, Malaysia, Philippines, and Thailand

Relatively less open: China

Table 14 shows the details of the weights. Among eight Asian countries, the highest is South Korea (21.26%). China is fourth (11.28%) due to their relatively less open market condition.

The ALBI covers the local bonds issued in ten Asian currencies from China, Hong Kong, India, Indonesia, South Korea, Malaysia, the Philippines, Singapore, Chinese Taipei and Thailand. The

[9] During the interview with some of the financial institutions that provide the indexes, they refer to the two reasons. One is that the Japanese yen is included inthe most foreign exchange portfolios as a core currency. The second is that Japanese yen has been "de-coupled" from the other group of currencies in East Asia, whereby Japanese yen has been showing a different pattern of movement compared with the other currencies.

[10] Each currency must be traded minimum USD50bn of NDF volume per a day average over preceding quarter to be deemed "liquid" and enter/remain in the index.

Basket weight of each country is constructed from size and liquidity of local bond market and the accessibility by foreign investors in terms of capital/foreign exchange restrictions. The later is named as "Impediments Index." It is the relative ranking instead of absolute score. Among ten Asian countries, Hong Kong has the least number of restrictions. Then, Hong Kong is set as the ceiling (100) and others are scored relative to Hong Kong. Table 15 shows the details of the weights. The highest is South Korea (21.04%) and the second is Chinese Taipei (13.23%). China is the seventh among ten Asian countries due to low score of Impediments Index.

The EARLY is a US dollar based index of nine Emerging Asian currencies -- China, India, Indonesia, South Korea, Malaysia, Philippines, Singapore, Chinese Taipei and Thailand. The index weights are distributed on the basis of ordinal ranking across three equality-weighted criteria as follows:

Reserve accumulation / nominal GDP (the average of last three full years' data)

Liquidity of the Region's FX markets

Yield (the last one year's average 6 month FX implied yield)[11]

Table 16 shows each ranking of three criteria and Index weights. In Reserve accumulation / nominal GDP, the Chinese yean is the first and the Singapore dollar is the second. In liquidity of the region's FX market, the Singapore dollar is the first and the Korean won is the second. In yield, the Indonesian rupiah is the first and the Indian Rupee is the second. Totally, the biggest weight is the Singapore dollar (17.56%) and the second biggest weight is the Korean won (13.17%).

The indexes are designed in a way to meet the potential needs of the user of the indexes and as reportedly the users are mostly those who have only a limited exposure to East Asia. The outstanding and turnover of the indexes seem to be quite limited as well. However, the indexes provide interesting information in studying and creating RMUs especially in terms of structure and component of the indexes, and measurement the openness and the liquidity of each market and reserve accumulation could be taken into consideration in creating RMUs.

1-3-2. How to control the size of basket weights

Next discussion is the size of basket weights. For example, the Chinese yuan's share in the AMU is 36.88%, which is above one-third of total share. It is concerned that a currency basket with too high a share as a one specific currency might be unstable. In order to avoid too high share of one specific currency, the ceiling to cap the basket weights should be introduced.

In EMS's experience, they decide an upper limit (1/3) of each currency to calculate ECU. In the case of PAIF, they set the maximum permissible country weight at 30%. And if a country has a theoretical weight in excess of 30%, the residual weight is distributed amongst the remaining countries in proportion to their respective weights.

[11] It is as an indication of the cost of carrying FX exposure in each currency.

1-3-3. How often to revise basket weights

The frequency to revise the basket share/weight has to be discussed. Recently, not only the Asian economy but also the Asian financial markets are changing dramatically and rapidly. Accordingly, it is important to set a clear rule to revise the basket weight in advance. For example, the basket weights of the AMU are revised annually and they assign the 3 years average data of PPP-exchange-rate GDP and intra-trade volume. In the case of Monetary Authority of Singapore (MAS), who adopts an individual currency basket system, they seem to revise the basket weights in every 5 years of 5 years average data.

The existing market indexes revised more often to reflect the latest market conditions. For example, the ADXY is revised the liquidity weights quarterly (Mar-Jun-Sep-Dec) and the trade weights annually (Mar). The country weights of iBoxx are reviewed annually at the 30 September re-balancing. Additionally, the iBoxx Asian Index committee of International Index Company may decide to undertake an extraordinary country weight review at any monthly re-balancing. Examples of such events are a major increase in bond issuance or liquidity, or major regulatory changes that impact the market accessibility, significantly.

References

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Table 1.

RMU13-A : ASEAN10+3 (China, Japan and South Korea)
(based on PPP-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	PPP-exchange-rate GDP** .%	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
Brunei	0.36	0.37	0.37	0.589114	0.0062
Cambodia	0.20	0.22	0.21	0.000270	7.8843
China	23.82	50.35	37.09	0.125109	2.9645
Indonesia	4.40	5.38	4.89	0.000113	434.2159
Japan	26.49	26.38	26.44	0.009065	29.1643
South Korea	13.17	6.94	10.06	0.000859	117.0397
Laos	0.08	0.08	0.08	0.000136	5.8993
Malaysia	8.35	1.74	5.05	0.272534	0.1852
Myanmar	0.35	0.08	0.22	0.159215	0.0136
Philippines	2.97	2.61	2.79	0.021903	1.2723
Singapore	11.22	0.82	6.02	0.589160	0.1022
Thailand	6.54	3.49	5.02	0.024543	2.0437
Vietnam	2.03	1.53	1.78	0.000072	248.5286

Ogawa and Shimizu(2005), (http://www.rieti.go.jp/users/amu/en/index.html)

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: PPP-exchange-rate GDP is the average of PPP-exchange-rate GDP in 2002, 2003 and 2004 taken from the World Development Report 2006, World Bank. For Brunei and Myanmar, we again use the same share of trade volume since no GDP data are available for these countries.

*** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 2.

RMU13-B : ASEAN10+3 (China, Japan and South Korea)
(based on market-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	market-exchange-rate GDP ** .%	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
Brunei	0.36	0.06	0.21	0.589114	0.0036
Cambodia	0.20	0.06	0.13	0.000270	4.8458
China	23.82	21.17	22.50	0.125109	1.7982
Indonesia	4.40	3.18	3.79	0.000113	336.3437
Japan	26.49	60.37	43.43	0.009065	47.9124
South Korea	13.17	8.71	10.94	0.000859	127.3118
Laos	0.08	0.03	0.05	0.000136	3.9240
Malaysia	8.35	1.43	4.89	0.272534	0.1795
Myanmar	0.35	0.13	0.24	0.159215	0.0150
Philippines	2.97	1.09	2.03	0.021903	0.9254
Singapore	11.22	1.29	6.26	0.589160	0.1062
Thailand	6.54	1.95	4.25	0.024543	1.7303
Vietnam	2.03	0.54	1.28	0.000072	179.3185

Ogawa and Shimizu(2005), (http://www.rieti.go.jp/users/amu/en/index.html)

* : The trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: Market-exchange-rate GDP is the average of market-exchange-rate GDP in 2002, 2003 and 2004 taken from IFS (IMF).

*** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 3.

RMU14-A : ASEAN10+4 (China, Japan, South Korea and Hong Kong, SAR)
(based on PPP-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	PPP-exchange-rate GDP** ,%	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
Brunei	0.26	0.22	0.24	0.589114	0.0041
Cambodia	0.17	0.25	0.21	0.000270	7.8149
China	22.39	49.64	36.02	0.125109	2.8788
Indonesia	3.22	5.31	4.27	0.000113	378.9132
Japan	20.77	26.04	23.40	0.009065	25.8187
South Korea	10.39	6.85	8.62	0.000859	100.3466
Laos	0.06	0.08	0.07	0.000136	4.8749
Malaysia	6.49	1.72	4.11	0.272534	0.1506
Myanmar	0.26	0.11	0.18	0.159215	0.0114
Philippines	2.38	2.57	2.48	0.021903	1.1318
Singapore	9.06	0.81	4.93	0.589160	0.0837
Thailand	4.98	3.44	4.21	0.024543	1.7172
Vietnam	1.53	1.51	1.52	0.000072	212.3734
Hong Kong, SAR	18.04	1.43	9.74	0.132842	0.7328

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: PPP-exchange-rate GDP is the average of PPP-exchange-rate GDP in 2002, 2003 and 2004 taken from the World Development Report 2006, World Bank. For Brunei and Myanmar, we again use the same share of trade volume since no GDP data are available for these countries.

*** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 4.

RMU14-B : ASEAN10+4 (China, Japan, South Korea and Hong Kong, SAR)
(based on market-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	market-exchange-rate GDP ** ,%	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
Brunei	0.26	0.07	0.17	0.589114	0.0028
Cambodia	0.17	0.06	0.12	0.000270	4.2589
China	22.39	22.61	22.50	0.125109	1.7982
Indonesia	3.22	3.11	3.17	0.000113	281.2371
Japan	20.77	57.28	39.02	0.009065	43.0505
South Korea	10.39	8.25	9.32	0.000859	108.4797
Laos	0.06	0.03	0.04	0.000136	3.1337
Malaysia	6.49	1.43	3.96	0.272534	0.1453
Myanmar	0.26	0.11	0.18	0.159215	0.0114
Philippines	2.38	1.09	1.74	0.021903	0.7927
Singapore	9.06	1.30	5.18	0.589160	0.0879
Thailand	4.98	1.94	3.46	0.024543	1.4109
Vietnam	1.53	0.54	1.03	0.000072	144.4569
Hong Kong, SAR	18.04	2.19	10.12	0.132842	0.7615

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: Market-exchange-rate GDP is the average of market-exchange-rate GDP in 2002, 2003 and 2004 taken from IFS (IMF).

*** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 5.

RMU10-A : ASEAN5+3(China, Japan, South Korea)+2 (Hong Kong,SAR, Chinese Taipei)
(based on PPP-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	PPP-exchange-rate GDP** %	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
China	20.89	48.52	34.71	0.125109	2.7740
Indonesia	2.99	5.18	4.09	0.000113	362.9331
Japan	19.26	25.39	22.33	0.009065	24.6336
South Korea	9.64	6.68	8.16	0.000859	94.9571
Malaysia	6.05	1.68	3.87	0.272534	0.1418
Philippines	2.23	2.51	2.37	0.021903	1.0812
Singapore	8.29	0.79	4.54	0.589160	0.0771
Thailand	4.46	3.36	3.91	0.024543	1.5921
Hong Kong, SAR	17.03	1.40	9.21	0.132842	0.6936
Chinese Taipei	9.16	4.48	6.82	0.031928	2.1363

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: PPP-exchange-rate GDP is the average of PPP-exchange-rate GDP in 2002, 2003 and 2004 taken from the World Development Report 2006, World Bank. For Brunei and Myanmar, we again use the same share of trade volume since no GDP data are available for these countries.

*** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 6.

RMU10-B : ASEAN5+3(China, Japan, South Korea)+2 (Hong Kong,SAR, Chinese Taipei)
(based on market-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	market-exchange-rate GDP ** %	Arithmetic average shares % (a)	Benchmark exchange rate*** (b)	AMU weights (a)/(b)
China	20.89	21.88	21.38	0.125109	1.7092
Indonesia	2.99	3.01	3.00	0.000113	266.6393
Japan	19.26	55.44	37.35	0.009065	41.2045
South Korea	9.64	7.99	8.81	0.000859	102.5316
Malaysia	6.05	1.38	3.72	0.272534	0.1364
Philippines	2.23	1.05	1.64	0.021903	0.7487
Singapore	8.29	1.26	4.77	0.589160	0.0810
Thailand	4.46	1.88	3.17	0.024543	1.2904
Hong Kong, SAR	17.03	2.12	9.58	0.132842	0.7209
Chinese Taipei	9.16	3.99	6.58	0.031928	2.0598

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: Market-exchange-rate GDP is the average of market-exchange-rate GDP in 2002, 2003 and 2004 taken from IFS (IMF).

*** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table7.

The qualification of Core-RMU currencies

Country	Sovereign Credit Rating (S&P)	FX Spot Market			FX Forward/Swap Market		Short-term Money Market	Loan/ Deposit	Core-RMU qualification
		Regulatory on Current Account	Regulatory on Capital Account	Liquidity	Regulatory	Liquidity within 1year			
Japan	AA-/Positive	○	○	Good	○	Good	○	○	Core-hard
HongKong	AA-/Stable	○	○	Good	○	Good	○	○	Core-hard
South Korea	A+/Stable	○	△	Good	△	Good	△	△	Core-hard
Singapore	AAA/Stable	○	○	Good	△	Good	○	○	Core-hard
Thailand	A/Stable	○	△	Good	△	Good	△	△	Core-soft
Malaysia	A+/Stable	△	△	Good	△	Good	△	△	No
Philippines	BB+/Negative	○	△	Good	△	Fair	×	×	No
Indonesia	BB/Positive	○	○	Fair	△	Good	△	△	No
China	A/Stable	△	△	Good	△	Poor	△	△	Core-soft

Note:

1. The data of Sovereign Credit Rating (S&P) are from the website of AsianBondsOnline (ADB). Each credid rating and outlook is for each Long-term Local Currency sovereign bond.

2. Each contry's market and regulatory information is from "Asian Currency Handbook 2006" by Deutsche Bank and each monetary authority's website. For non-residents, ○ means no restrictions, △means transactions are allowed with some ristrictions, and × means transactions are not allowed.

3. Each market liquidity information is from "Asian Currency Handbook 2006" (Deutsche Bank).

4. The qualifications of “Core-RMU hard” are as follows: 1.No restrictions on FX sport market related to current account transaction by non-residents. 2.Non-residents can access the FX sport market related to capital account transactions, the FX forward/swap market, short-term money market and loan/deposit market, however there are some restrictions exist. 3.Credit rating of local currency sovereign bond is above single “A”.

5. The qualifications of “Core-RMU soft” are as follows: 1.Non-residents can access the FX sport market related to current account transactions, however there are some restrictions exis. 2.Non-residents can access the FX sport market related to capital account transactions, the FX forward/swap market, short-term money market and loan/deposit market, but some restrictions may remain. 3.Credit rating of local currency sovereign bond is above single “A”.

Table 8.

Core-RMU, Hard-A (Japan, South Korea, Singapore and Hong Kong,SAR)
(based on PPP-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	PPP-exchange-rate GDP** ,%	International Debt Securities, by residence***,%	Arithmetic average shares % (a)	Benchmark exchange rate**** (b)	RMU weights (a)/(b)
Japan	36.81	74.11	49.66	53.52	0.009065	59.0462
South Korea	21.52	19.51	22.79	21.27	0.000859	247.5377
Singapore	23.23	2.30	10.04	11.86	0.589160	0.2013
Hong Kong, SAR	18.44	4.08	17.52	13.35	0.132842	1.0048

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).
**: PPP-exchange-rate GDP is the average of PPP-exchange-rate GDP in 2002, 2003 and 2004 taken from the World Development Report 2006, World Bank.
***: The data of International Debt Securities by Residence of Issuer are as of December, 2005 from BIS 74th Annual Report 2006.
**** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 9.

Core-RMU, Hard-B (Japan, South Korea, Singapore and Hong Kong,SAR)
(based on market-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	market-exchange-rate GDP ** ,%	International Debt Securities, by residence***,%	Arithmetic average shares % (a)	Benchmark exchange rate**** (b)	RMU weights (a)/(b)
Japan	36.81	82.98	49.66	56.48	0.009065	62.3112
South Korea	21.52	11.95	22.79	18.76	0.000859	218.2472
Singapore	23.23	1.88	10.04	11.72	0.589160	0.1989
Hong Kong, SAR	18.44	3.18	17.52	13.05	0.132842	0.9821

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).
**: market-exchange-rate GDP is the average of market-exchange-rate GDP in 2002, 2003 and 2004 taken from IFS (IMF).
***: The data of International Debt Securities by Residence of Issuer are as of December, 2005 from BIS Annual Report 2006.
**** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 10.

Core-RMU, Soft-A (Hard currentries + China and Thailand)

(based on PPP-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	PPP-exchange-rate GDP** ,%	International Debt Securities, by residence***,%	Arithmetic average shares % (a)	Benchmark exchange rate**** (b)	RMU weights (a)/(b)
Japan	23.10	29.48	45.57	32.72	0.009065	36.0921
South Korea	12.39	7.76	20.92	13.69	0.000859	159.2914
Singapore	7.78	0.92	9.21	5.97	0.589160	0.1013
Hong Kong, SAR	23.87	1.62	16.08	13.86	0.132842	1.0432
China	27.59	56.32	4.64	29.52	0.125109	2.3594
Thailand	5.27	3.90	3.58	4.25	0.024543	1.7321

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).
**: PPP-exchange-rate GDP is the average of PPP-exchange-rate GDP in 2002, 2003 and 2004 taken from the World Development Report 2006, World Bank.
***: The data of International Debt Securities by Residence of Issuer are as of December, 2005 from BIS 74th Annual Report 2006.
**** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in

Table 11.

Core-RMU, Soft-B (Hard currentries + China and Thailand)

(based on market-exchange-rate GDP, benchmark year=2000/2001)

	Intra-Trade volume* %	market-exchange-rate GDP ** ,%	International Debt Securities, by residence***,%	Arithmetic average shares % (a)	Benchmark exchange rate**** (b)	RMU weights (a)/(b)
Japan	23.10	61.21	45.57	43.29	0.009065	47.7630
South Korea	12.39	8.82	20.92	14.04	0.000859	163.4018
Singapore	7.78	1.39	9.21	6.12	0.589160	0.1040
Hong Kong, SAR	23.87	2.35	16.08	14.10	0.132842	1.0613
China	27.59	24.16	4.64	18.80	0.125109	1.5025
Thailand	5.27	2.07	3.58	3.64	0.024543	1.4841

* : The intra-trade volume is calculated as the average of total export and import volumes in 2002, 2003 and 2004 taken from DOTS (IMF).

**: market-exchange-rate GDP is the average of market-exchange-rate GDP in 2002, 2003 and 2004 taken from IFS (IMF).

***: The data of International Debt Securities by Residence of Issuer are as of December, 2005 from BIS Annual Report 2006.

**** : The Benchmark exchange rate ($-euro/Currency) is the average of the daily exchange rate in terms of US$-euro in 2000 and 2001.

Table 12.

Exchange Restrictions reported to IMF

	Brunei	Cambodia	China	Indonesia	Japan	South Korea	Lao, PDR	Malaysia	Myanmar	Philippins	Singapore	Thailand	Vietnam	Hong Kong SAR
Controls on:														
Capital market securities		#	*	*		*	*	*	-	*	*	*	*	
Money market instruments		#	*	*		*	*	*	-	*		*	*	
Collective investment securities		#	*	*		*	*	*	-	*		*	*	
Derivatives and other		-	*	*		*	*	*	-	*		*	*	
Commercial credits			*	*		*	*	*	*	*			*	
Financial credits			*	*		*	*	*	*	*	*	*	*	
Guarantees,sureties,and financial backup facilities			*	*		*		*	*	*		*	*	
Direct investment	*	*	*	*	*	*	*	*	*	*		*	*	
Liquidation of direct investment			*						*				-	
Real estate transactions	*	*	*	*		*	*	*	*	*	*	*	*	
Personal capital transactions	*		*			*	*	*	*	*		*	*	
Provisions specific to:														
Commercial banks and other credit institutions	*	*	*	*		*	*	*	*	*	*	*	*	*
Institutional investors				*	*		-	*	-	*	*	*	*	*
Total number of Ristriction	*4	#3 -1 *3	*12	*11	*2	*11	*10 -1	*12	*8 -5	*12	*5	*11	*12 -1	*2

* Indicates that the specified practice is a feature of the exchange system.

- Indicates that data were not available at time of publication.

# Indicates that the specific practice is not regulated.

Source: "Annual Report on Exchange Arrangements and Exchange Restrictions" 2005, IMF

Table 13.

The Case of ADXY (The Bloomberg - JP Morgan Asia Currency Index)

Country / Weights	Current Weights (as of Dec 2006)		
	Trade(75%)	Liquidity(25%)	Total
China	27.91	4.08	21.95
Hong Kong	13.00	21.04	15.01
India	5.58	3.60	5.09
Indonesia	4.23	3.44	4.03
South Korea	16.75	20.24	17.62
Malaysia	0.00	0.00	0.00
Philippines	3.41	2.48	3.18
Singapore	9.75	23.28	13.13
Chinese Taipei	12.54	17.36	13.75
Thailand	6.82	4.48	6.24

Data Source: Bloomberg

Table 14.

The Case of iBoxx of PAIF (Pan Asian Index Fund)

Country / Adj. factor weight	Size(USDbn) 20%	Turnover ratio 20%	Local rating 20%	Market openness* 40%	Index weight 100%
China	442.1	0.54	A	RO	11.28%
Hong Kong	45.2	4.94	AA+	HO	17.05%
Indonesia	48.6	1.13	BB	GO	6.14%
Malaysia	101.9	1.15	A+	GO	10.76%
Philippines	25.2	0.48	BB+	GO	5.19%
Singapore	58.2	5.81	AAA	HO	18.70%
South Korea	488.1	6.58	AA-	GO	21.26%
Thailand	57.2	1.83	A	GO	9.62%

* HO: Highly open, GO: Generally open, RO: Relatively less open
Data Source: IIC

Table 15.

The Case of ALBI: Asian Local Bond Index

Country / Weight	Size(USDbn)*	Turnover ratio**	Buying volume in a single day(USDm)	Impediments index	Overall weighting(%)	Latest Weighting (Nov.2006)
China	205.3	0.7	12.1	12	8.2	7.11
Hong Kong	62.7	10.6	192.3	100	12.3	11.62
India	171.5	4.1	133.3	30	10.1	7.92
Indonesia	45.3	1.2	11.6	68	5.9	8.02
Malaysia	48.5	1.6	26.3	65	6.1	6.75
Philippines	15.3	0.5	6.4	54	3.9	6.4
Singapore	72.4	9.5	58.8	97	10.7	11.1
South Korea	213.5	7.9	862.1	45	21.4	21.04
Chinese Taipei	78.7	45.4	150.2	38	15.6	13.23
Thailand	37.3	3.2	12.5	66	5.9	6.81

* Government only for China, India, Indonesia, Korea, The Philippines and Chinese Taipei; government and quasi-government only in Thailand and Malaysia; government and non-government included for HK and Singapore.

** An estimate of how much an offshore investor can buy across the yield curve on an average day with reasonable ease and without large adverse price impact.

Data Source: HSBC

Table 16.

The Case of EARLY: Emerging Asia Reserves, Liquidity and Yield Index

Country / Weight	Reserve accumulation / nominal GDP*	Liquidity of the Region's FX markets**	FX-implied 6-month Yield***	Basket Weights
China	1	4	9	12
India	9	8	2	30
Indonesia	6	5	1	68
Malaysia	3	7	7	65
Philippines	8	9	3	54
Singapore	2	1	6	97
South Korea	5	2	5	45
Chinese Taipei	4	3	8	38
Thailand	7	6	4	66

The figure shows the ordinal ranking in second to forth columns.

* The average of last three full years' data

** The liquidity of offshore investors estimated by Deutsche Bank's Asian Currency Handbook

***The last one year's average 6 month FX implied yield

Data Source: Deutsche Bank

Figure 1.

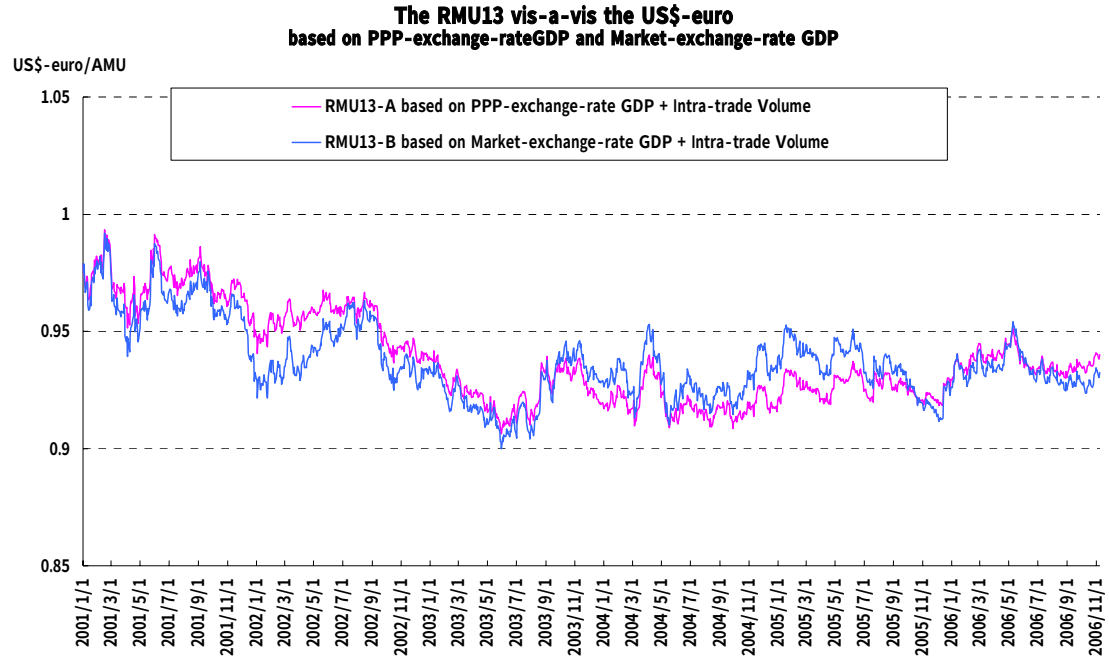


Figure 2.

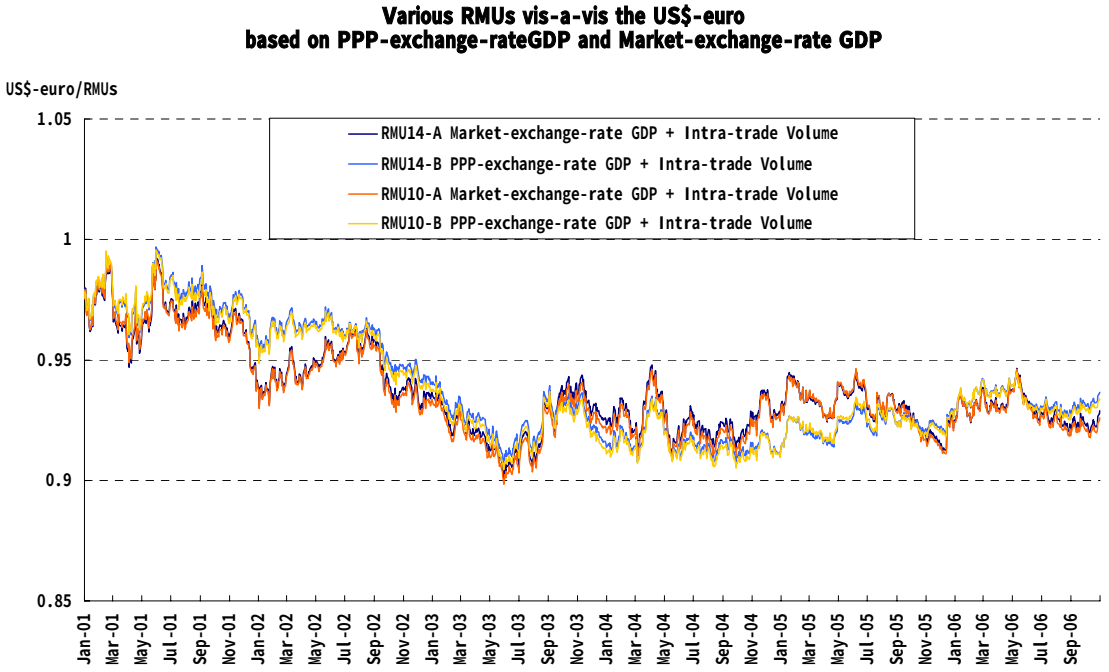
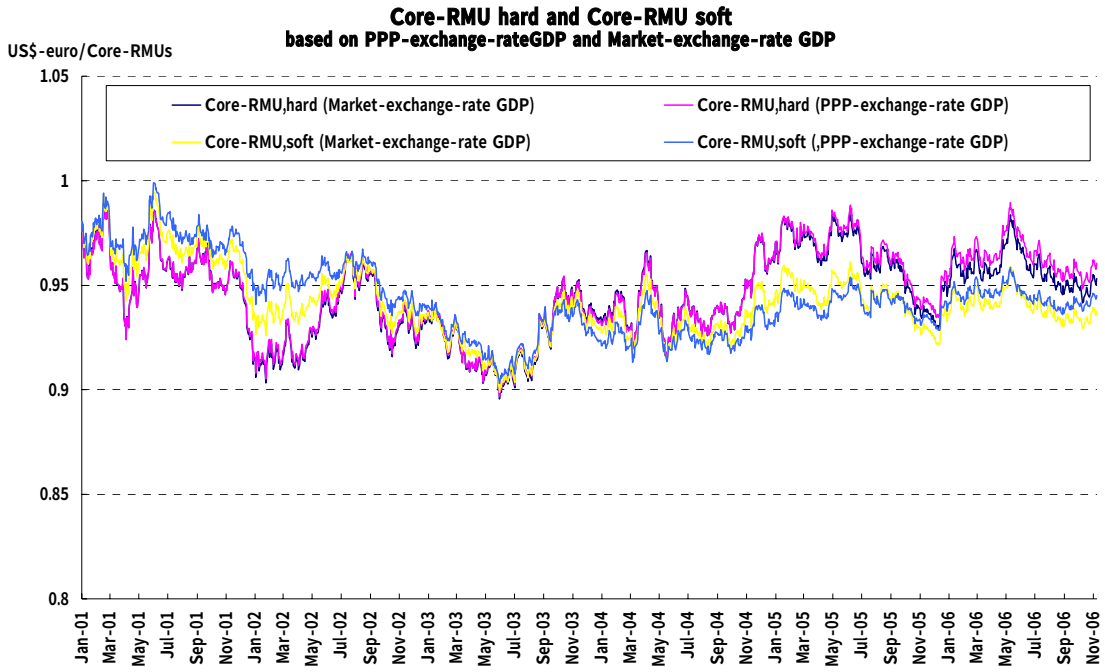


Figure 3.



Appendix 1

Asian FX policy and Onshore market condition

Source: ***Asian Currency Handbook 2006*****, Deutsche Bank**

China

Onshore Regulation of CNY Products FX spot market

Regulatory: Only licensed onshore counterparties are allowed. CNY spot can currently only be traded against USD, HKD, EUR and JPY on CFETS, China's inter-bank FX trading system, conditional on submission of the required documentation. As of May 2005, EUR/USD, AUD/USD, GBP/USD, USD/JPY, USD/CHF, USD/HKD and EUR/JPY are tradable. Seven foreign banks, including Deutsche Bank, and two domestic banks were among the first batch of market makers for these new pairs. Certain kinds of conversion under non-trade and capital items require pre-approval from SAFE.

Liquidity: Good.

FX forward/swap market/long-dated FX forward

Regulatory: Banks with a derivative license can apply for a separate license to trade USD/CNY forwards in the interbank market after they sign the Forward Master Agreement issued by CFETS. Banks are permitted to trade USD/CNY swaps after 6 months of trading forwards.

Liquidity: Poor.

Short-term money market instruments (BA/CP/repo)

Regulatory: Repo markets exist in both the interbank and exchange bond markets.

Liquidity: Tenors range from 1-365 days, with the 1 day and 7day repo being the most liquid funding tool. The CHIBOR market has tenors of less than 3 months and liquidity is poor.

Loan

Regulatory: Only licensed banks are allowed to offer CNY loans.

Deposit

Regulatory: Only licensed banks are allowed to take CNY deposits onshore, although a limited scheme of offshore CNY deposit-taking has been operating in Hong Kong since February 2004.

Hong Kong, SAR

Onshore Regulation of HKD Products FX spot market

Current account: No restrictions.

Capital account: No restrictions.

Liquidity: Good.

FX forward/swap market/long-dated FX forward

Regulatory: No restrictions.

Liquidity: Good.

Short-term money market instruments (BA/CP/repo)

Regulatory: No restrictions.

Liquidity: Good.

Loan

Regulatory: No restrictions.

Liquidity: Good for both USD and HKD.

Deposit

Regulatory: No restrictions for the deliverable market.

Liquidity: Good up to 6mth.

Indonesia

Onshore Regulation of IDR Products FX spot market

Regulatory: Both buying and selling of IDR are permitted. Non-Resident (NR) accounts must not be overdrawn.

Liquidity: Fair.

FX forward/swap market

Regulatory: NRs can only buy or sell IDR with supporting documents for underlying economic

activities with a minimum tenor of 3 months and a maximum tenor equivalent to the maturity of investment.

Liquidity: Good for 1-6 months tenors, fair for tenors above 6 months.

Short-term money instruments (cash market, repo)

Regulatory: Onshore banks can lend excess IDR to Bl through an overnight window called FASBI at a fixed predetermined rate.

Liquidity: Good.

Loan

Regulatory: Loans to foreign parties must be syndicated loans involving onshore and offshore banks, with the offshore banks contributing at least 51% of the total amount.

Liquidity: Good.

Deposit

Regulatory: NRs have very limited access to the onshore market, and total outstanding Commercial Offshore Borrowing is capped at 30% of each bank's capital.

Liquidity: Fair.

Malaysia

Onshore Regulation of MYR Products FX spot market

Regulatory: Spot is only permitted onshore.

Liquidity: Good.

FX forward/Swap market/Long-dated FX forward

Regulatory: Non-residents are allowed to enter into hedging arrangements with licensed onshore banks for any inflow or outflow of funds for firm committed transactions.

Liquidity: Good.

Shore-term money market instruments (BA/CP/repo)

Regulatory: Clients-Repos/Placements: Overnight and above.

Liquidity: Liquidity in the repo market is poor but improving, with BNM becoming more active.

Loan

Regulatory: For cross-border inter-company lending, a resident company may obtain credit facilities in foreign currency up to the equivalent of MYD 50 million from non-residents companies.

Liquidity: Good.

Deposit

Regulatory: Non-Resident External Accounts (EA) with onshore financial institutions are permitted.

Liquidity: Good.

Philippines

Onshore Regulation of PHP Products FX spot market

Regulatory: Onshore banks may buy FCY/PHP from both onshore and offshore counter-parties without prior BSP approval or documentation.

Liquidity: Good.

FX forward/swap market/long-dated FX forward

Regulatory: For deliverable outright FCY/PHP forward, spot trading rules apply. For forwards and swaps, Authorized Agent Banks may only enter into derivative contracts with their customers for hedging eligible actual FX obligations or existing FX exposures.

Liquidity: Good for overnight-6months tenors, fair for tenors above 6 months.

Short-term money market instruments

Regulatory: Non-Residents are not allowed to access the onshore market.

Liquidity: Good for overnight poor for term.

Loan

Regulatory: Non-Residents are not allowed to borrow PHP from onshore banks. PHP loans are subject to a 5% Gross Receipts Tax (GRT) and Documentary Stamp Tax (DST).

Liquidity: No loan trading market. Good for corporate loan market on both USD and PHP.

Deposit

Regulatory: Non-residents are not allowed to maintain PHP deposits onshore unless the deposit is funded by an inward remittance of foreign exchange (converted through an onshore bank).

Liquidity: Fair for tenors from overnight up to 1 year.

Singapore

Onshore Regulation of SGD Products FX spot market

Current account: None.

Capital account: None.

Liquidity: Good.

FX forward /swap market/long-dated FX forward

Regulatory: Banks may lend SGD to Non-Resident financial entities for any purpose, whether in Singapore or overseas, as long as aggregate facilities do not exceed SGD 5m per entity.

Liquidity: Good

Short-term money market instruments (t-bills/repo/SIBOR/SOR)

Regulatory: As per FX forwards/swaps.

Liquidity: Repo market liquidity has improved dramatically. Term markets are lagging, but the availability of bonds to borrow and short is good.

Loan

Regulatory: No restrictions on foreign participation.

Liquidity: Good for both USD and SGD.

Deposit

Regulatory: No restrictions. SGD denominated deposits are subject to reserve requirements.

Liquidity: Good up to 1 year.

South Korea

FX spot market

Regulatory: Supporting documentation (including a declaration or approval of proper regulatory authority for a capital transaction, i.e, a loan, guarantee or investment) should be submitted to a foreign exchange bank (FX Bank) prior to trading if there is to be physical delivery. The documentation handling process usually takes 1 to 2 days.

Liquidity: Good.

FX forward/swap market/long-dated FX forward

Regulatory: As per spot. Hedging is permitted for underlying transactions with onshore banks.

Liquidity: Good.

Short-term money market instruments (CD/CP/repo)

Regulatory: Non-residents are not allowed to access the onshore deliverable market.

Liquidity: Fair.

Loan

Regulatory: Loans between Residents and Non-Residents generally require relevant declaration or approval with the proper regulatory authority.

Liquidity: Good.

Deposit

Regulatory: Non-Residents are allowed to remit foreign currency and exchange it for KRW, which may be deposited with an onshore bank. However, other capital transactions (i.e, loans, guarantees, investments, etc.) are subject to relevant requirements for declaration or approval.

Liquidity: Good.

Thailand

Onshore Regulation of THB Products FX spot market

Regulatory: No regulations.

Liquidity: Good.

FX forward/swap market/long-dated FX forward

Regulatory: For hedging purposes only.

Liquidity: Good for 1-12 months tenors, fair for tenors above 12 months.

Short-term money market instruments (CD/CP/repo)

Regulatory: Banks cannot hold commercial paper worth more than 25% of bank's capital (single lending limit).

Liquidity: Good.

Loan

Regulatory: To prevent speculation in the FX market, credit facilities provided by each financial institution to Non-Residents that do not have an underlying trade or investment activity, are capped at THB 50m per counter party.

Liquidity: Good for both USD and THB.

Deposit

Regulatory: Deposits placed at the end of June and December are subject to a 0.2% tax as an FIDF charge.

Liquidity: Good.

Appendix 2.

Data Table

	Brunei	Cambodia	China	Indonesia	Japan	Korea, Rep.	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	Hong Kong, SAR
Benchmark EX rate, average2000/2001 vis-à-vis the US$-euro (vis-à-vis the US$)														
	1.6975	3696.90	7.9930	8877.84	110.32	1163.66	7336.95	3.6693	6.2808	45.6565	1.6973	40.7451	13979.13	7.5277
	(1.7585)	(3828.61)	(8.2777)	(9338.66)	(114.66)	(1210.37)	(7601.22)	(3.8000)	(6.5092)	(47.6334)	(1.7584)	(42.3485)	(14483.3500)	(7.7958)
PPP-exchange-rate GDP (current international $), Source: World Bank*														
2000	2.3696E+10	-	4.9598E+12	6.2453E+11	3.3265E+12	7.6055E+11	8288576512	2.0529E+11	-	3.0514E+11	9.5398E+10	3.8577E+11	1.58133E+11	1.7359E+11
2001	2.566E+10	-	5.5131E+12	6.4347E+11	3.4005E+12	8.0644E+11	8923285504	2.0915E+11	-	3.1047E+11	9.4756E+10	4.0404E+11	1.72905E+11	1.7622E+11
2002	2.7613E+10	-	6.0894E+12	6.7773E+11	3.4463E+12	9.2374E+11	9613496320	2.2012E+11	-	3.3069E+11	1.0363E+11	4.3243E+11	1.88767E+11	1.8562E+11
2003	3.0117E+10	-	6.7836E+12	7.2928E+11	3.553E+12	9.1807E+11	1.0541E+10	2.3324E+11	-	3.5019E+11	1.0793E+11	4.7252E+11	2.06323E+11	1.9151E+11
2004	3.3431E+10	-	7.6418E+12	7.8358E+11	3.7373E+12	9.843E+11	1.1366E+10	2.5582E+11	-	3.8068E+11	1.2237E+11	5.1528E+11	2.27954E+11	2.145E+11
2005	3.6508E+10	-	8.5727E+12	8.4741E+11	3.9438E+12	1.0561E+12	1.2928E+10	2.7485E+11	-	4.0864E+11	1.302E+11	5.4926E+11	2.54041E+11	-
Market-exchange-rate GDP (US$ Billions, at market prices), Source: IFS (IMF), World Economic Outlook Database														
2000	4.3	3.7	1,198.5	165.5	4,650.9	511.7	1.7	90.3	9.8	75.9	92.7	122.7	31.2	168.8
2001	4.2	3.8	1,324.8	164.4	4,090.2	481.9	1.8	88.0	7.7	71.2	85.6	115.5	32.5	166.5
2002	4.4	4.1	1,453.8	200.0	3,911.6	546.9	1.8	95.3	8.7	76.8	88.5	126.9	35.1	163.7
2003	4.9	4.3	1,641.0	237.5	4,237.1	608.1	2.1	104.0	8.6	79.2	92.7	142.9	39.5	158.5
2004	5.7	4.9	1,931.6	254.5	4,587.1	679.7	2.5	118.3	6.4	86.1	107.5	161.7	45.3	165.8
2005	6.4	5.4	2,224.8	276.0	4,571.3	793.1	2.7	130.8	5.4	97.7	117.9	168.8	50.9	177.7
International Debt Securities, by residence (US$ Billions), BIS**														
2000			12.8	2.8	104.9	46.8		14.9		17.1	9.2	11.9	0.5	27.7
2001			12.4	1.9	95.1	44.4		16.1		17.4	16.5	10.0	0.5	30.1
2002			11.1	1.9	104.3	47.6		22.3		21.5	17.4	10.0	1.0	38.7
2003			12.0	2.6	119.7	54.7		21.4		25.6	22.9	9.1	1.0	42.9
2004			14.2	4.0	141.8	65.6		23.4		27.2	33.6	9.7	1.0	47.4
2005			16.9	6.6	141.1	75.4		24.0		29.0	39.7	10.8	1.8	49.7

*: The World Development Report 2006
**: BIS 74th Annual Report 2006

Intra-Trade volume

RMU13 : ASEAN10+3(China, Japan and South Korea)

	Intra-Trade Voulme	
	in millions of US$	share(%)
Brunei	4275.82	0.36
Cambodia	2381.80	0.20
China	279907.46	23.82
Indonesia	51717.57	4.40
Japan	311239.82	26.49
Korea	154744.04	13.17
Lao PDR	924.58	0.08
Malaysia	98148.08	8.35
Myanmar	4152.09	0.35
Philippines	34850.54	2.97
Singapore	131860.15	11.22
Thailand	76886.92	6.54
Viet Nam	23803.41	2.03
Total	1174892.27	100.00

RMU14 : ASEAN10+4(China, Japan, South Korea and Hong Kong, SAR)

	Intra-Trade Voulme	
	in millions of US$	share(%)
Brunei	4,348.50	0.26
Cambodia	2,816.16	0.17
China	369,693.22	22.39
Indonesia	53,231.77	3.22
Japan	342,958.41	20.77
Korea	171,619.02	10.39
Lao PDR	932.07	0.06
Malaysia	107,174.32	6.49
Myanmar	4,236.12	0.26
Philippines	39,357.67	2.38
Singapore	149,570.16	9.06
Thailand	82,316.38	4.98
Viet Nam	25,222.89	1.53
Hong Kong, SAR	297,825.75	18.04
Total	1,651,302.45	100.00

RMU10 : ASEAN5+3(China, Japan, South Korea)+2(and Hong Kong, SAR, Chinese Taipei)

	Intra-Trade Voulme	
	in millions of US$	share(%)

CHPTER 2

RMU AS A DEVIATION INDICATOR FOR STBILIZING INTRA-REGIONAL EXCHANGE RATES

Chapter 2 : RMU as a Deviation Indicator for Stabilizing Intra-regional Exchange Rates

2-1. Necessity of Introducing RMU and its Deviation Indicator for Surveillance

2-1-1. Asymmetric Reaction of East Asian currencies to the depreciation of the US dollar

Under the global imbalance, the growing current accounts deficits in the United States might cause some depreciation of the US dollar against currencies of the rest of the world. As the exchange rate regimes in Asia are diverse, the exchange rate movements vis-à-vis the US dollar have varied from a country to another in the last several years. The Korean won, the Thai baht, and the Singapore dollar have appreciated against the US dollar since 2002. The Chinese yuan and the Malaysian ringgit had been pegged to the US dollar before July 21, 2004. In particular, the Chinese yuan has still very strong relationship with the US dollar in a sense that it has a gradual appreciation against it at an almost constant speed. The speed of appreciation is slower than that of the former currencies.

One group of the countries that adopt the floating or managed floating exchange rate system faces their home currencies' appreciation against the US dollar since 2002. The group includes Korea, Thailand, and Singapore. The other group consists of economies that had adopted officially or *de facto* fix their home currencies to the US dollar before July 21, 2004. The group includes Hong Kong, Malaysia and China. Their exchange rates had been completely fixed against the US dollar. The East Asian currencies had made diverse reactions to the depreciation of the US dollar under a variety of exchange rate systems as pointed out in Ogawa (2004). As a result, cross exchange rates among Asian currencies (e.g., Korean won/Japanese yen) have become widely fluctuating. Instability among the intra-regional exchange rates may not be desirable because the intra-regional trade ratio has become large.

Table 2.1 indicates the latest actual weights on the three major currencies for each of the Asian currencies in 2005 (until November 11, 2005). We estimated the weights on the US dollar, the euro, and the Japanese yen in a possible currency basket for each of the East Asian countries according to a method of Frankel and Wei (1994).[12] As a result, we can divide twelve Asian currencies into the following two groups: a group of the currencies who have still kept a strong linkage with the US dollar and the other group of the currencies who have increased their weights on the Japanese yen

[12] The log differences of exchange rates of each East Asian currency in terms of the Swiss franc were regressed on log differences of three major currencies in terms of the Swiss franc.

recently.

The former is a group of the dollar pegging currencies. Coefficients on the US dollar were almost unity in the cases of the Chinese yuan and the Malaysian ringgit. Their weights on the US dollar were still close to unity but have slightly decreased in 2005 due to the announcement of Chinese government's changing its exchange rate system on July 21, 2005. These results indicate that they have still kept their *de facto* dollar peg system in 2005. The latter is a group of the currencies who seem to adopt a currency basket system. We obtained the following results of estimated weights in a possible currency basket. In the case of Singapore, their weights on the US dollar, the euro, and the Japanese yen were 0.5021, 0.1707, and 0.3926, respectively in 2005.[13] In the case of Thailand, the weights on the US dollar, the euro, and the Japanese yen were 0.6172, 0.1301 (insignificant), and 0.3124, respectively in 2005. We can find the similar movements in the cases of South Korea, Indonesia, and the Philippines.

[13] We can find the almost same movements with the Singapore dollar in the case of Brunei dollar because the monetary authority of Brunei adopts a currency board where the Brunei dollar is pegged to the Singapore dollar.

Table 2.1: Linkage of East Asian currencies with three major currencies (2005)

	US dollar		euro		Japanese yen		Adj. R2
Chinese yuan	0.9213	***	0.0412		0.0935	***	0.9576
	(0.01974)		(0.06141)		(0.02100)		
Singapore dollar	0.5021	***	0.1707	**	0.3926	***	0.8817
	(0.0271)		(0.0844)		(0.0289)		
Thai baht	0.6182	***	0.1301		0.3124	***	0.8163
	(0.0374)		(0.1163)		(0.0398)		
Malaysian ringgit	0.9869	***	0.0228		-0.0124		0.9337
	(0.0252)		(0.0784)		(0.0268)		
Philippine peso	0.8428	***	0.0727		0.1178	***	0.8473
	(0.0374)		(0.1162)		(0.0397)		
Indonesian rupiah	0.6728	***	0.0910		0.2305	*	0.3075
	(0.1161)		(0.3614)		(0.1236)		
South Korean won	0.5597	***	0.2179		0.2169	***	0.5715
	(0.0594)		(0.1847)		(0.0632)		
Burunei dollar	0.5264	***	0.1619	*	0.2931	***	0.8480
	(0.0295)		(0.0917)		(0.0314)		
Cambodia riel	0.9255	***	0.2195		-0.0242		0.6309
	(0.0692)		(0.2154)		(0.0737)		
Laos kip	0.6751	**	-1.1907		0.2262		0.0359
	(0.2962)		(0.9216)		(0.3151)		
Myanmar kyat	0.9437	***	0.0973		-0.0214		0.9202
	(0.0268)		(0.0833)		(0.0285)		
Vietnamese dong	0.9944	***	-0.0158		0.0057		0.9958
	(0.0062)		(0.0193)		(0.0066)		

Calculated by authors. All exchange data are from Datastream. We use the data by 30 Nov, 2005.
1. We estimated weights on the US dollar, the euro and the Japanese yen in a possible currency basket for some East Asian countries according to a method of Frankel and Wei (1994). We use the Swiss francs as a numeraire currency.
2. Standard errors are in parenthesis. *、** and *** denote statistical significance at the 10%、5% and 1% levels, respectively.

Source: Ogawa and Shimizu (2006a)

Ogawa and Ito (2002) pointed out possibilities of coordination failure in choosing exchange rate system and exchange rate policy in a game theoretical framework as long as one country's choosing the dollar peg system has an adverse effect on others' choosing their own exchange rate system through relative price effects. Ogawa (2007) conducted an empirical analysis on whether the dollar pegging currencies gave adverse effects on other East Asian countries' choice of the exchange rate system and exchange rate policy. They choose not a desirable exchange rate system but the *de facto* dollar peg system because the dollar pegging countries keep adopting official or *de facto* dollar peg systems. In other words, the monetary authorities in East Asian countries face coordination failure in choosing desirable exchange rate system among East Asian countries. Accordingly, it is clear that we should make regional coordination for a desirable exchange rate regime instead of the formal or the *de facto* dollar peg system.

It is suggested that the dollar pegging countries should adopt more flexible system such as an intermediate exchange rate system that consists both currency basket and exchange rate band. The more flexible system means not a free floating exchange rate system but an intermediate exchange rate system that is locate between the free floating exchange rate system and the dollar peg system. It is to suggest that an intermediate exchange rate system that consists of both currency basket and exchange rate band.

First, under the currency basket system, the monetary authorities should target not the US dollar but a currency basket that is composite of the US dollar, the Japanese yen, and the euro from a viewpoint of international trade and foreign direct investments. Asian countries have strong economic relationship in terms of international trade, foreign direct investments and international finance with Asian countries and European countries as well as the United States. Second, under the exchange rate band system, the monetary authorities should set a band in which the exchange rates are free floating without any intervention in the foreign exchange market. The exchange rate band can afford room for domestic monetary policy to the monetary authorities.

Asian countries have strong economic relationships with each other within the intra-region as well as the United States and European countries as show in Table 2.2. Table 2.2 show Asian countries' bilateral trade shares in terms of a sum of imports and exports in 2000 and 2004. It indicates that the average of intra-regional trade shares (in term of a sum of imports plus exports) of the Asian countries increased from 48.7 percent in 2000 to 51.0 percent in 2004. The trade shares with China have increased recently. Some Asian countries, such as South Korea and Singapore, had stronger trade relationship with China than Japan in 2004. On the other hand, the average of trade shares of the East Asian countries with the United States was decreased to 12.5 percent, which was even lower than

with the EU in 2004.

It is desirable for Asian countries to stabilize exchange rates among the intra-regional currencies and to stabilize their exchange rates against outside currencies such as the US dollar and the euro. The monetary authorities of Asian countries coordinate their exchange rate policy to their exchange rates against the outside currencies in order to stabilize both intra-regional exchange rates and their exchange rate with outside currencies at the same time. They should care about not only the US dollar and the euro but also the Japanese yen because Japan has a larger portion in intra-regional economic relation.

Table 2.2: trade (exports and imports) shares of each of East Asian countries

2000	ASEAN10+3	Japan	China	United States	EU	rest of the world
Brunei Darussalam	74.2%	29.5%	1.6%	11.6%	7.4%	6.8%
Cambodia	35.9%	2.7%	5.4%	30.3%	12.8%	21.0%
China,P.R.: Mainland	33.1%	17.5%	-	15.7%	15.1%	36.1%
Indonesia	50.6%	20.7%	5.0%	12.4%	13.7%	23.3%
Japan	30.9%	-	10.0%	25.2%	14.9%	28.9%
South Korea	36.7%	15.7%	9.4%	20.2%	12.3%	30.8%
Lao People's Dem.Rep	72.8%	3.2%	4.0%	1.3%	13.6%	12.3%
Malaysia	49.4%	16.7%	3.5%	18.8%	12.6%	19.2%
Myanmar	62.2%	6.5%	13.1%	9.2%	9.0%	19.6%
Philippines	39.7%	16.7%	2.0%	24.5%	13.9%	21.9%
Singapore	46.5%	12.3%	4.6%	16.2%	13.0%	24.3%
Thailand	44.9%	19.5%	4.7%	16.8%	13.5%	24.8%
Vietnam	56.4%	16.2%	9.8%	3.6%	14.4%	25.5%
Average	48.7%	14.8%	6.1%	15.8%	12.8%	22.7%

2004	ASEAN10+3	Japan	China	United States	EU	rest of the world
Brunei Darussalam	73.6%	29.9%	4.1%	7.2%	6.0%	13.2%
Cambodia	45.2%	2.9%	8.3%	24.7%	13.4%	16.8%
China,P.R.: Mainland	31.5%	14.5%	-	14.7%	15.4%	38.4%
Indonesia	52.5%	18.7%	7.4%	10.2%	12.2%	25.1%
Japan	36.7%	-	16.5%	18.8%	14.4%	30.0%
South Korea	40.5%	14.2%	16.6%	15.1%	13.0%	31.4%
Lao People's Dem.Rep	68.5%	1.4%	7.5%	0.6%	15.0%	15.9%
Malaysia	49.8%	12.8%	8.1%	16.9%	12.4%	20.9%
Myanmar	71.9%	4.3%	18.5%	0.2%	9.3%	18.6%
Philippines	47.8%	18.7%	6.3%	18.5%	12.5%	21.2%
Singapore	46.1%	9.0%	9.2%	12.9%	14.0%	27.1%
Thailand	48.6%	18.7%	7.9%	11.8%	12.3%	27.2%
Vietnam	50.7%	11.9%	11.7%	11.0%	15.5%	22.9%
Average	51.0%	13.1%	10.2%	12.5%	12.7%	23.7%

Source: DOTS of IMF (Nov. 2005)
ASEAN 10+ 3 includes ASEAN 10 countries plus South Korea, China and Japan.
Source: Ogawa and Shimizu (2006a)

2-1-2. Regional monetary coordination in Asia

The diverse reaction of the Asian currencies to the depreciation of the US dollar should bias relative prices of products made in Asian countries. The monetary authorities of Asian countries should prevent from the biased changes in the relative prices caused by the US dollar depreciation under the different exchange rate systems in East Asian countries. For the purpose, they have to make coordination in choosing their exchange rate systems and exchange rate policies.

Kawai, Ogawa, and Ito (2004) suggested the following three points of policy recommendation related with the exchange rate policy in East Asia. First, the monetary authorities of the ASEAN+3 should discuss the exchange rate issue as a part of the surveillance process. The surveillance process is conducted at the Economic Review and Policy Dialogue (ERPD) in the Financial Deputy Ministers' Meeting of the ASEAN+3. They discuss about domestic macroeconomic variables such as GDP and inflation as well as soundness of financial sectors at the EPRD. They do not focus on any issues related with exchange rates while the IMF conducts its surveillance over exchange rate policy under Article IV. They should focus on the exchange rate issue as well as domestic macroeconomic policies and soundness of financial sector because exchange rates of home currency against neighbor countries' currencies are related with its terms of trade and its price competitiveness. Each country in the Asia region has strong economic relationships with the other intra-regional countries as well as the United States and the European countries. Exchange rates among the intra-regional currencies should affect economic activities in each country of Asia through intra-regional trade, investments, and finance. The monetary authorities should make surveillance over not only movements of the exchange rates but also their deviations from the regional averages and, in turn, their exchange rate policy in itself. The regional monetary coordination should be to avoid manipulating exchange rate in order to prevent effective balance of payment adjustment or to gain an unfair competitive advantage over the neighboring countries.

The surveillance process, in itself, might not be so robust in keeping regional policy coordination in the long run because the monetary authorities in each of the countries do not have any commitments to the policy coordination. They may make limited contribution to the policy coordination. It is necessary to have a mechanism that will be robust in keeping regional coordination in the long run by obliging the monetary authorities to have a commitment to the regional policy coordination. For the regional policy coordination, it is necessary to make all the monetary authorities in the region agree on an arrangement to create a regional common unit of account that consists of a basket of regional currencies. They might make a commitment to follow the regional common unit of account in conducting their exchange rate policy. It is desirable to create the regional common unit of account

consisted of a basket of regional currencies that monetary authorities of East Asian countries should refer to when they make regional policy coordination for their exchange rate policies with each other. For the purpose, it is to introduce a regional common unit of account (Regional Monetary Unit; RMU) in Asia. One way to achieve the regional monetary coordination is for all the monetary authorities of the ASEAN+3 to construct a common currency basket that includes regional currencies of the ASEAN+3 countries as the Regional Monetary Unit and to target its own home currency to the Regional Monetary Unit in conducting their own exchange rate policies.

2-2. Stability of the Value of Currency

2-2-1. Value of Asian Currencies

The value of currency should be kept stable and trusted for private sectors to do international trade transactions, foreign direct investments, and international financial transactions. The value of currency means an effective exchange rate, that is trade-weighted average of exchange rates of the relevant currency against all of its trade partners when we focus on international trade with all of the trade partners. The trade partners of each of Asian countries commonly include neighboring Asian countries, the United States, and European countries. Thus, the effective exchange rate is trade-weighted average of exchange rates of the relevant currency in terms of currencies of neighboring Asian countries, the United States, and European countries.

A real effective exchange rate, that is a relative price of foreign products in terms of domestic products, should be focused on to stabilize exports and imports and, in turns, trade balances. Inflation rates should be taken into account for countries that experience much higher inflation rates than those in neighboring countries because the inflation differentials should appreciate the currencies with higher inflation in real term and weaken price competitiveness of their domestic products over foreign products.

Data on domestic and foreign general price indexes need to be used to calculate the real effective exchange rate. The data on general price indexes are monthly data while the data on nominal exchange rate are daily data. In addition, it takes some months to obtain the data on general price indexes. For the reasons, real effective exchange rates are lower frequent data with longer time lags than nominal effective exchange rates that are daily and real time data. In a real economy with sticky prices, the nominal effective exchange rates should not be so deviate from the real effective exchange rates in the short run. Thus, it is suggested that the monetary authorities should watch both the nominal and real effective exchange rates to find effectively position (overvaluation or

undervaluation) of their own home currencies. The nominal effective exchange rates should be watched in the short-run while the real effective exchange rates should be watched in the long-run.

It might be desirable for the emerging market economies in East Asia to stabilize exchange rates in terms of a G-3 currency basket (the US dollar, the euro, and the Japanese yen) if member countries of the regional monetary coordination in Asia could exclude Japan and regard the Japanese yen as an outside currency. The monetary authorities of the regional emerging economy countries should use their G-3 currency baskets as a common currency basket in order that they should avoid a coordination failure in choosing their exchange rate policy and exchange rate system. If the Asian countries except for Japan adopted a common G-3 currency basket arrangement based on the Japanese yen, the US dollar and the euro, a Regional Monetary Unit for the Asian countries except for Japan would also become a *de facto* basket of the G-3 currencies. This would create a zone of currency stability within Asia which excludes Japan. In addition, regional currency arrangements to target their home currencies to the common G-3 currency basket would help prevent competitive devaluation among the currencies in a region because the monetary authorities have a commitment to the arrangements.

However, Japan should be included for the regional monetary coordination in Asia in order that it should be robust and strengthened for prevention and management of any currency crisis in Asia. The monetary authority of Japan cannot logically target the common G-3 currency basket because it includes the Japanese yen. It might be an alternative for East Asian countries which include Japan to adopt a common G-2 currency basket which the US dollar and the euro and target the common G-2 currency basket. However, it is difficult for especially the monetary authority of Japan to target the common G-2 currency basket because the foreign exchange markets of both the Japanese yen- US dollar and the Japanese yen -euro are too huge to make effective intervention in the foreign exchange markets. Rather it is more realistic and effective for the monetary authorities of ASEAN+3 to target commonly the Regional Monetary Unit in order to make regional monetary coordination for stability of intra-regional exchange rates in Asia.

Thus, the monetary authorities of ASEAN+3 should create not only a Regional Monetary Unit that is composed by the currencies of ASEAN+3 but also deviation indicators of each currency from the Regional Monetary Unit to make surveillance over intra-regional exchange rates in Asia at the EPRD in the Financial Deputy Ministers' Meeting of the ASEAN+3. They can make effective regional monetary coordination in Asia.

2-2-2. Relationship between regional monetary unit and effective exchange rate

Ogawa and Shimizu (2006b) investigate the relationships between a Regional Monetary Unit (Ogawa and Shimizu (2005) created an Asian Monetary Unit as a Regional Monetary Unit) and its Deviation Indicators and the effective exchange rates of each Asian currency (See section 2-4 for details of AMU and AMU Deviation Indicator). It is regarded that a value of the combination of the AMU, which is quoted in terms of a weighted average of the US dollar and the euro, and its Deviation Indicator should be a proxy of its effective exchange rate in terms of currencies of the rest of world for each the Asian currencies. Although in the case of the AMU and the AMU Deviation Indicators, it is supposed that all of the relevant Asian currencies have the same shares on each currency of the rest of the world. Accordingly, we should check how strong relationship each East Asian currency has between the combination of the AMU and its Deviation Indicator and its effective exchange rate. The nominal effective exchange rates of each Asian currency are regressed on the AMU and its Nominal AMU Deviation Indicator in order to investigate how each of the AMU and the AMU Deviation Indicator explain the each nominal effective exchange rate.

The monthly effective exchange rates are calculated using the monthly average of exchange rate (*International Financial Statistics*, IMF) and monthly volumes of export and import (*Direction of Trade Statistics*, IMF). We calculate two types of effective exchange rate. One is an effective exchange rate in terms of currencies of the rest of world ("ROW"), which is calculated by the trade data in terms of the rest of world. It includes at most 180 countries.

The sample period covers from January 1999 to December 2004 and its number of observation is 71 after adjusting endpoints. The AMU and the nominal AMU Deviation Indicator are the monthly average of daily calculated AMU and AMU Deviation Indicators, respectively. The following equation was estimated.[14] The main focus of this regression analysis is whether the coefficient on the difference of each AMU Deviation Indicator (β_2) is significant and positive.[15]

$$\Delta \log EER_{ROW,i} = \beta_0 + \beta_1 \cdot \Delta \log AMU + \beta_2 \cdot \Delta AMUDI_i \qquad (1)$$

where $EER_{ROW,i}$: country i 's effective exchange rate in terms of the rest of world currencies, AMU : Asian Monetary Unit, $AMU\ DI_i$: country i 's AMU Deviation Indicator.

[14] If residuals have any serial correlation, we use the Cochran-Orcutt method for the residuals. We show a term of AR(1) that is added in the figure.

[15] It was indicated that the equations end up being a regression of an exchange rate onto its inverse because an effective exchange rate and the AMU Deviation Indicator are both versions on the exchange rate, and that such regressions might suffer from endogeneity problems. Although both are calculated by using same exchange rates, we do not strongly concern the endogeneity problem here because our purpose is to investigate the relationship between them.

Table 2.3 shows the analytical results using by the effective exchange rate in terms of the rest of world currencies. As a whole, most of the coefficients on the AMU Deviation Indicator are larger and more significant than those on the AMU. Additionally, the magnitudes of the coefficients on the AMU Deviation Indicator are mostly above one. It means that the AMU movement itself does not affect on the movements of each effective exchange rate, but that the AMU Deviation Indicator movements affect on them.

Despite these circumstances, we obtained the results that the coefficients on the AMU Deviation Indicators are positive and significant in both cases. These results suggest that monitoring the AMU Deviation Indicator and keeping them within a certain band is considered to be a useful policy for East Asian countries to keep not only the regional effective exchange rates stable, but also the effective exchange rates against world wide trade relationship stable.

Table 2.3: Relationship of effective exchange rate with AMU and AMU Deviation Indicator

Effective Exchange Rate (⊿log (Effective Exchange Rate))	constant		AMU (⊿log (AMU))		AMU D I (⊿AMU DI)		AR(1)		Adjusted R-squared	Durbin-Watson	F-statistic
Japanese yen (ROW)	0.9039	**	1.2850	**	1.1097	***	-0.2876	**	0.2593	1.9857	9.0532
	(0.3865)		(0.4913)		(0.3207)		(0.1183)				(0.0000)
Chinese yuan (ROW)	-0.0112		1.7181		2.4801	*	-0.2093		0.0432	1.9985	2.0388
	(0.8749)		(1.2119)		(1.2732)		(0.1305)				(0.1169)
Korean won (ROW)	0.4057		1.1732		0.9827	*	-0.4348	***	0.2623	2.3063	9.1770
	(0.5403)		(0.7369)		(0.5200)		(0.1144)				(0.0000)
Singapore $ (ROW)	0.2258		0.5968		0.8300		-0.4077	***	0.1492	2.2976	5.0327
	(0.4542)		(0.6483)		(0.9254)		(0.1121)				(0.0033)
Thailand baht (ROW)	0.4512		0.8166		1.3135	**	-0.2869	**	0.0991	2.0226	3.5289
	(0.6371)		(0.7662)		(0.5466)		(0.1210)				(0.0195)
Indonesian rupiah (ROW)	0.5132		1.0082		1.0904	***	-0.4549	***	0.4599	2.1886	20.5917
	(0.4869)		(0.6147)		(0.1341)		(0.1114)				(0.0000)
Malaysian ringgit (ROW)	0.3641		0.6066		1.1123	*	-0.3773	***	0.1201	2.1221	4.1406
	(0.4448)		(0.6469)		(0.6272)		(0.1128)				(0.0095)
Philippine peso (ROW)	0.1802		0.6987		0.8339		-0.4554	***	0.1645	2.1256	5.5306
	(0.9639)		(1.1258)		(0.7021)		(0.1150)				(0.0019)
Brunei $ (ROW)	-0.1400		2.0011		4.3549		-0.3637	***	0.1055	2.3137	3.7120
	(2.7091)		(3.8377)		(5.3434)		(0.1161)				(0.0157)
Canbodian riel (ROW)	-1.3993		4.4152		5.1214	*	-		0.0188	1.9906	1.6738
	(3.1779)		(3.4575)		(3.0281)						(0.1952)
Laos (ROW)	-4.1538		2.5081		0.1321		-0.3069	**	0.0650	2.0959	2.6000
	(2.9754)		(3.4958)		(0.4557)		(0.1186)				(0.0595)
Myanmar kyat (ROW)	0.2146		-0.0165		-1.3872		-0.2908	**	0.0559	2.1039	2.3634
	(1.7860)		(2.5999)		(2.4040)		(0.1163)				(0.0791)
Vietnamese dong (ROW)	0.1489		4.9215	***	4.2414	**	-0.3701	***	0.1433	2.0603	4.7373
	(1.2853)		(1.7378)		(1.8632)		(0.1188)				(0.0048)

1. Sample period is from Jan 1999 to Dec 2004. All data are monthly and the number of Observation is 71after adjusting endpoints.
2. Effective exchange rate (ROW) is calculated by using the trade data against the rest of the world. On the other hand, effective exchange rate (ROEA) is calculated by using the trade data against the Sampled East Asian countries.
3. AMU and AMU Deviation Indicator (nominal) are the montly average of daily calculated AMU and AMU Deviation Indicators, respectively.
4. Estimated method is OLS and . If the residual has serial correlation, the term of AR(1) is added. Standard errors are in parenthesis. *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Source: Ogawa and Shimizu (2006b)

2-3. Deviation Indicators of Each Currency from RMU

2-3-1. How to calculate nominal and real RMU deviation indicators

The monetary authorities of ASEAN+3 might watch the nominal and real effective exchange rates to find effectively position of their own home currencies in their surveillance process at the EPRD. Rather, the monetary authorities should watch Deviation Indicators of their own home currencies in terms of the Regional Monetary Unit (RMU) that composes of a currency basket of regional currencies to recognize a position of their own home currencies among East Asian currencies for their surveillance process at the EPRD.

The RMU Deviation Indicators in both nominal and real terms are used to make the surveillance over exchange rates. The Nominal RMU Deviation Indicators should be watched in the short-run while the real RMU Deviation Indicators should be watched in the long-run as explained in the previous section. Using mixture of the Nominal and Real RMU Deviation Indicators should be effective in terms of both the real time and high frequency data and the effects on real economic variables.

Nominal exchange rates of East Asian currency in terms of the RMU are used to calculate a Nominal RMU Deviation Indicator in terms of percentage (%). It indicates how far each Asian currency i deviates from the Benchmark Exchange Rate in terms of the RMU, which is a weighted average of East Asian currencies. The Nominal RMU Deviation Indicator (DI) is calculated according to the following equation:

$$Nominal\,DI(\%) = \frac{actual\,rate\,of\ RMU\ /\ currency - benchmark\,rate\,of RMU\ /\ currency}{benchmark\,rate\,of RMU\ /\ currency} \quad (2)$$

An RMU Deviation Indicator in real terms is calculated by taking into account inflation rate differentials between the relevant country and the relevant region. Given that the Nominal RMU Deviation Indicator is defined as equation (2), the Real RMU Deviation Indicator (DI) is calculated according to the following equation:

$$Rate\,of\,change\,in\,Real\,DI_i = Rate\,of\,change\,in\,Nominal\,DI_i - \left(\dot{P}_{RMU} - \dot{P}_i\right) \quad (3)$$

where $\dot{P}_{RMU}$: inflation rate in the relevant region where the RMU is introduced, $\dot{P}_i$: inflation rate in county i.

The Consumer Price Indexes (CPI) are used to calculate the Real RMU Deviation Indicators. For the data constraints, Real RMU Deviation Indicators can be computed on a monthly basis with a 5 to 6 month time lag due to data constraints. Regarding the inflation rate in the RMU area, its shares of each component currency in the RMU are used to calculate a weighted average of the CPI for the RMU area.

From the viewpoint of data frequency, nominal deviation indicators can be monitored in real time. We are able to use them as the indicator of daily surveillance for the monetary authorities. On the other hand, real deviation indicators are available only on a monthly basis and there might be some time lags when we obtain the real deviation indicators. The Real RMU Deviation Indicator is more appropriate when considering the effects of exchanges on real economic variables such as trade volumes and real GDP. On the other hand, the Nominal RMU Deviation Indicator is more useful when it is important to monitor exchange rate movements on a timely basis. Accordingly, the Nominal and Real RMU Deviation Indicators should be regarded as complementary measures for the surveillance of exchange rate policy and related macroeconomic variables and, in turn, for devising coordinated exchange rate policies among the Asian countries.

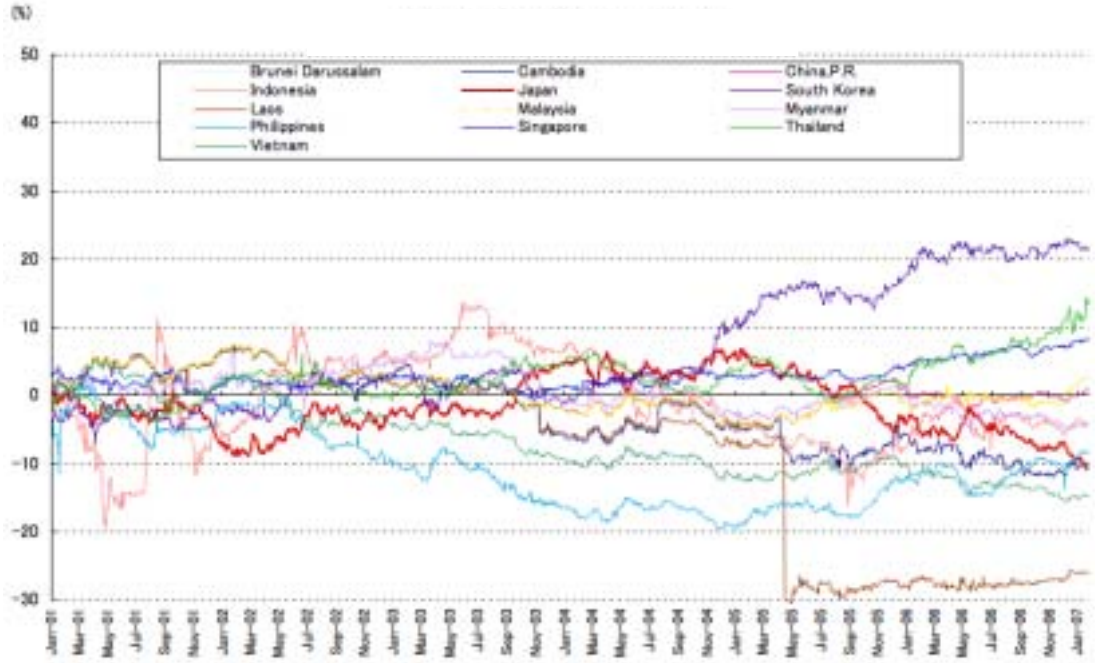
2-3-2. Example of RMU Deviation Indicators

(1) Deviation Indicator for RMU of ASEAN+3

Ogawa and Shimizu (2005) calculated a Regional Monetary Unit that consists of the ASEAN+3 currencies. They called it as Asian Monetary Unit (AMU). It corresponds to the RMU13-A shown in the previous chapter. An arithmetic average of both trade shares and GDP measured at PPP are used to calculate the RMU13-A. The RMU13-A is based on to calculate both Nominal and Real Deviation Indicators. Figure 2.1 shows movements in the Nominal Deviation Indicators for RMU13-A on a daily basis.

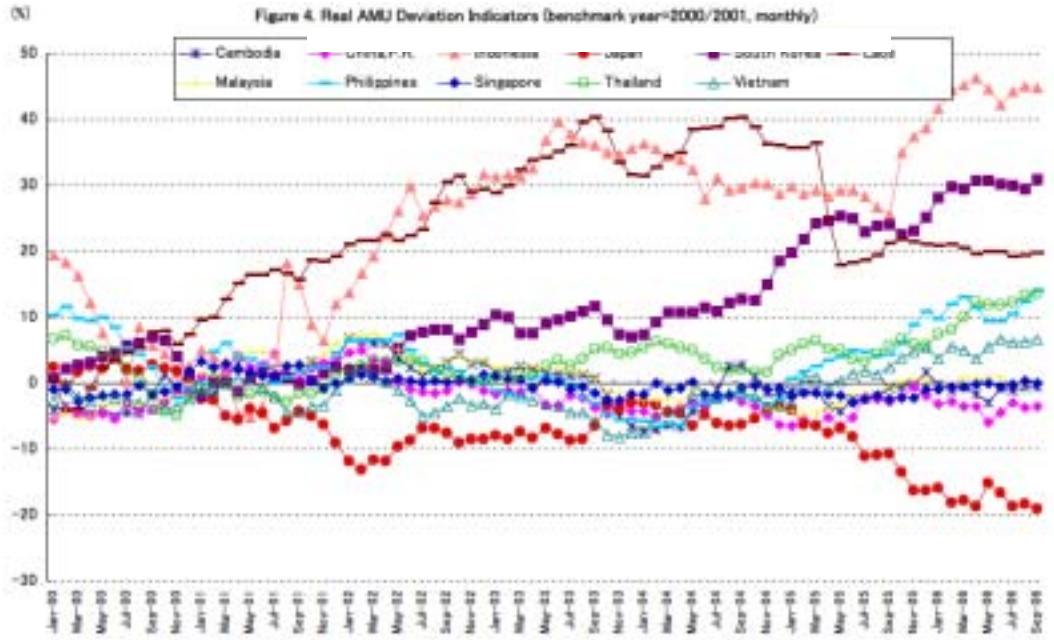
Figure 2.2 shows the movement in the Real Deviation Indicators for RMU13-A on a monthly basis for each of the Asian currencies. We can compare the Real Deviation Indicators with the Nominal Deviation Indicators by looking at both Figure 2.2 as well as Figure 2.3 which shows the movement in the Nominal Deviation Indicators on a monthly basis for each of the Asian currencies.

Figure 2.1: Nominal Deviation Indicators for RMU13-A
(benchmark year=2000/2001, basket weight=2002-2004, daily)



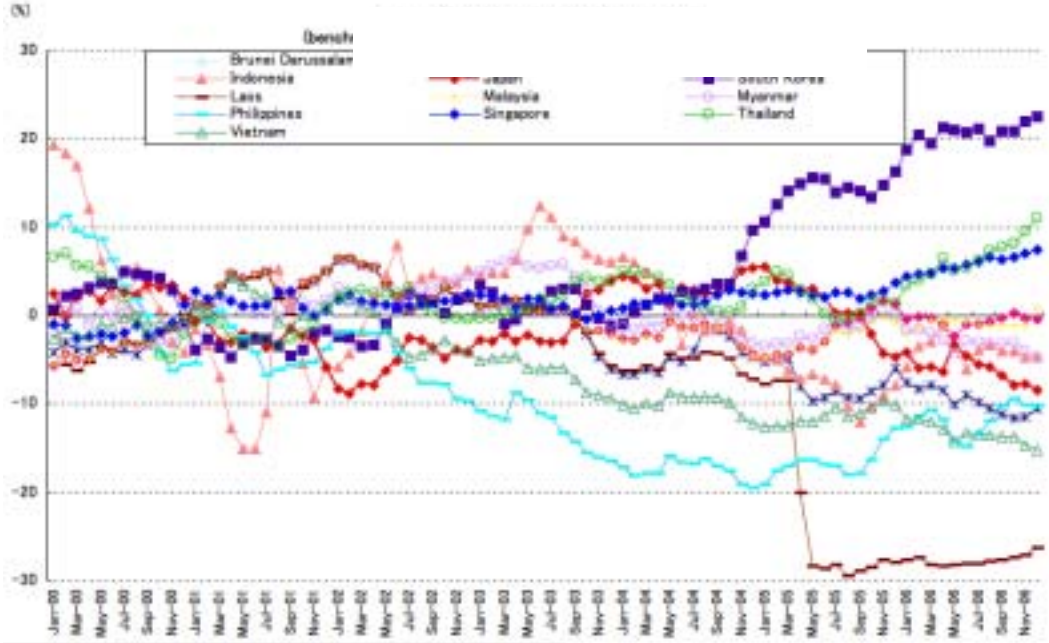
Source: http://www.rieti.go.jp/users/amu/index.html

Figure 2.2: Real Deviation Indicators for RMU13-A
(benchmark year=2000/2001, basket weight=2002-2004, monthly)



Source: http://www.rieti.go.jp/users/amu/index.html

Figure 2.3: Nominal Deviation Indicators for RMU13-A
(benchmark year=2000/2001, basket weight=2002-2004, monthly)



Source: http://www.rieti.go.jp/users/amu/index.html

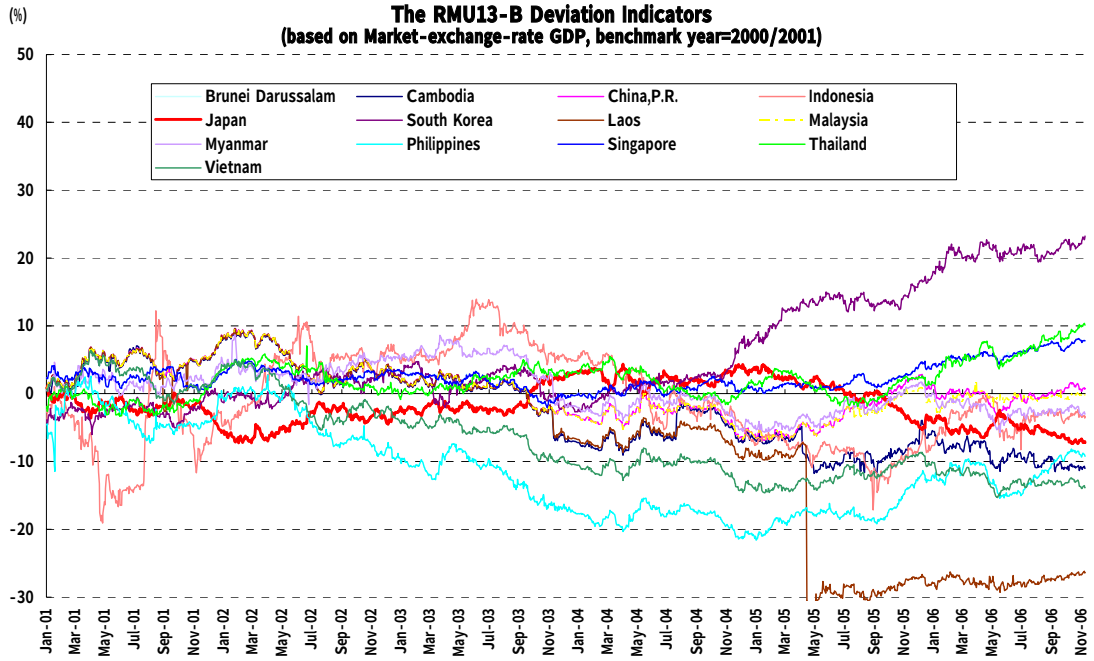
The Real Deviation Indicator shows that inflation makes the related currency appreciate in real terms while deflation makes it depreciate in real terms. For example, while the Indonesian rupiah, the Laos kip, and the Korean won have appreciating deviation in nominal terms, they have larger depreciating deviation in real terms. On one hand, while the Philippine peso and Vietnamese dong have over 10 percent depreciating deviation in nominal terms, they have smaller depreciating deviation in real terms. These findings indicate that we have to monitor both the nominal and real deviation indicators carefully for surveillance over intra-regional exchange rates among the Asian countries. Furthermore, Figure 2.2 shows that the Asian currencies have over 60 percent of deviations between the most overvalued and the most undervalued currencies in real terms while Figure 2.3 shows that the Asian currencies have about 50 percent of deviations between the most overvalued and the most undervalued currencies in nominal terms. Misalignments among the Asian currencies are larger in real terms than those in nominal terms.

(2) Alternative Deviation Indicators

Alternative Deviation Indictors based on the Regional Monetary Units are explained in the preceding chapter. One of the alternatives is a variety of RMU13-A (that is RMU13-B) that consists of the

ASEAN+3 currencies. The RMU13-B is based on an arithmetic average of both trade shares and nominal GDP. Figure 2.4 shows Nominal Deviation Indicators based on RMU13-B.

Figure 2.4: Nominal Deviation Indicators for RMU13-B



Calculated by Authors

One alternative is Nominal Deviation Indicators based on RMU14-A that consists of the ASEAN10+4 (China, Japan, South Korea, and Hong Kong, SAR) currencies. The RMU14-A is based on an arithmetic average of both trade shares and GDP measured at PPP. Figure 2.5 shows Nominal Deviation Indicators based on RMU14-A. RMU14-B is a variety of RMU14-A. It is based on an arithmetic average of both trade shares and nominal GDP measured. Figure 2.6 shows Nominal Deviation Indicators based on RMU14-B.

Another alternative is Nominal Deviation Indicators based on RMU10-A that consists of the ASEAN5 (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) + 4 (China, Japan, South Korea, and Hong Kong, SAR) currencies. The RMU10-A is based on an arithmetic average of both trade shares and GDP measured at PPP. Figure 2.7 shows Nominal Deviation Indicators based on RMU(ii-a). RMU10-A is a variety of RMU10-B. It is based on an arithmetic average of both trade shares and nominal GDP measured. Figure 2.8 shows Nominal Deviation Indicators based on RMU10-B.

Figure 2.5: Nominal Deviation Indicators for RMU14-A

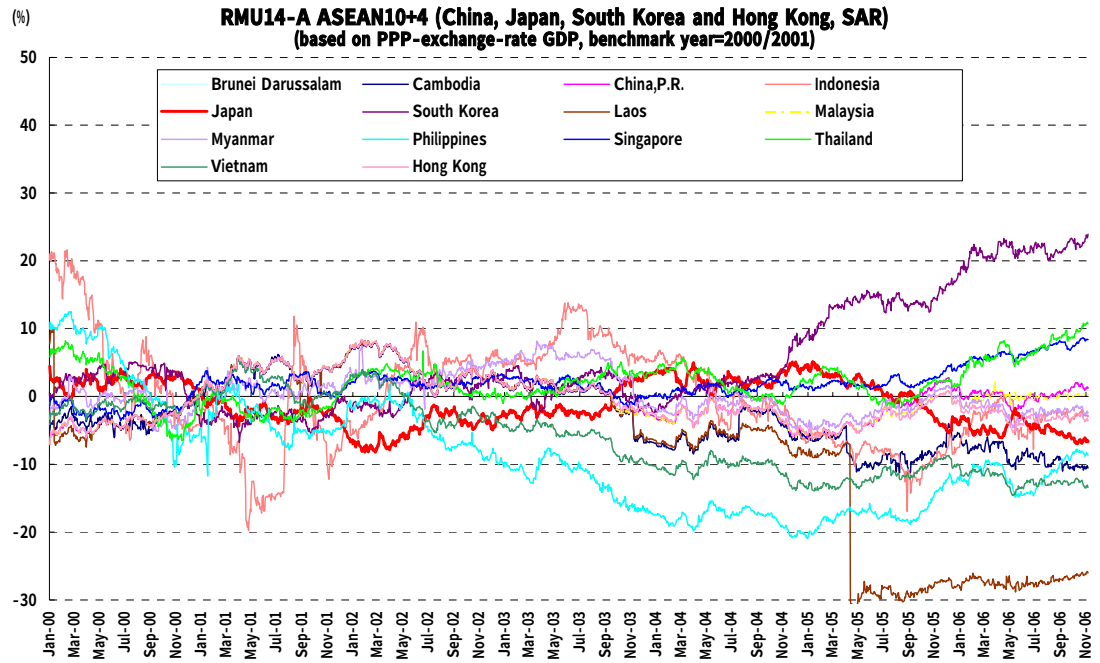


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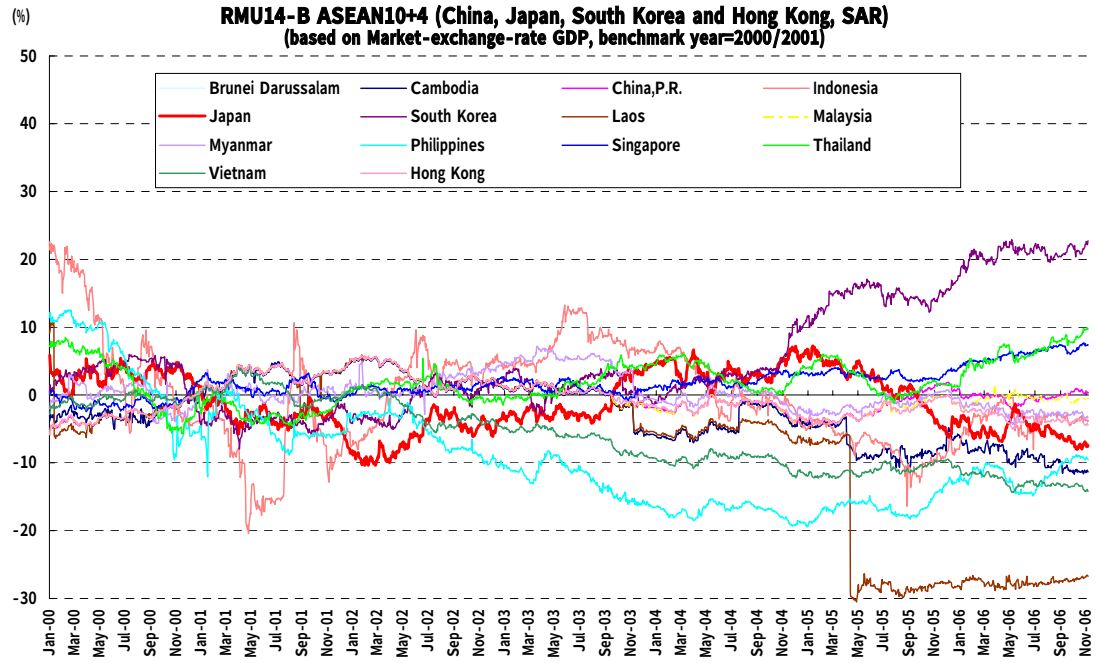
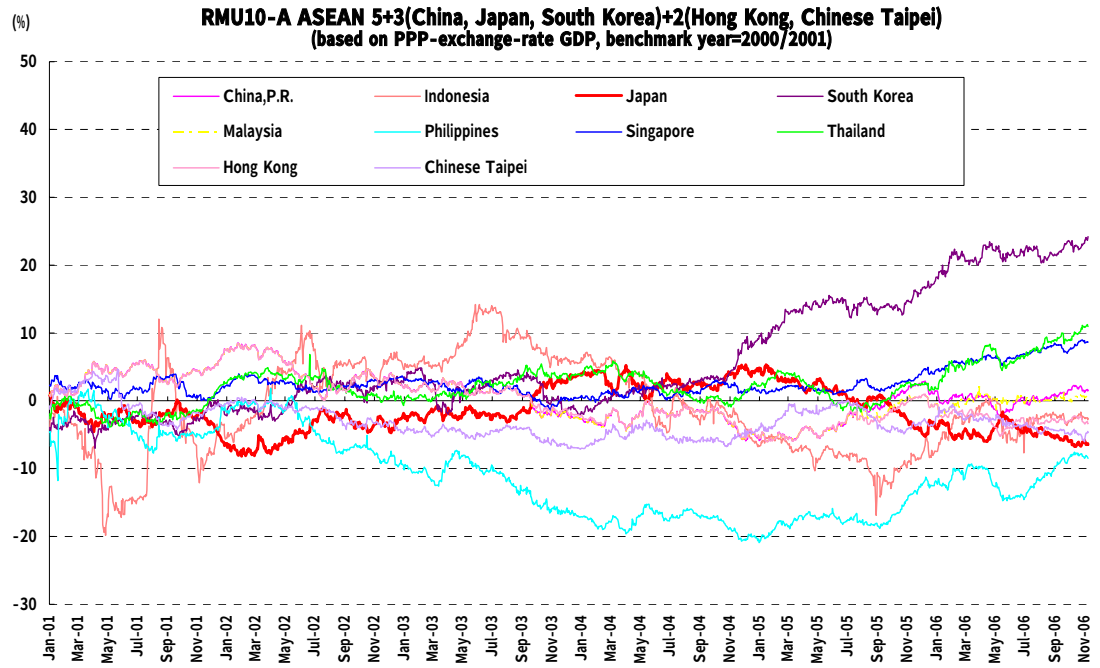
Figure 2.6: Nominal Deviation Indicators for RMU14-B



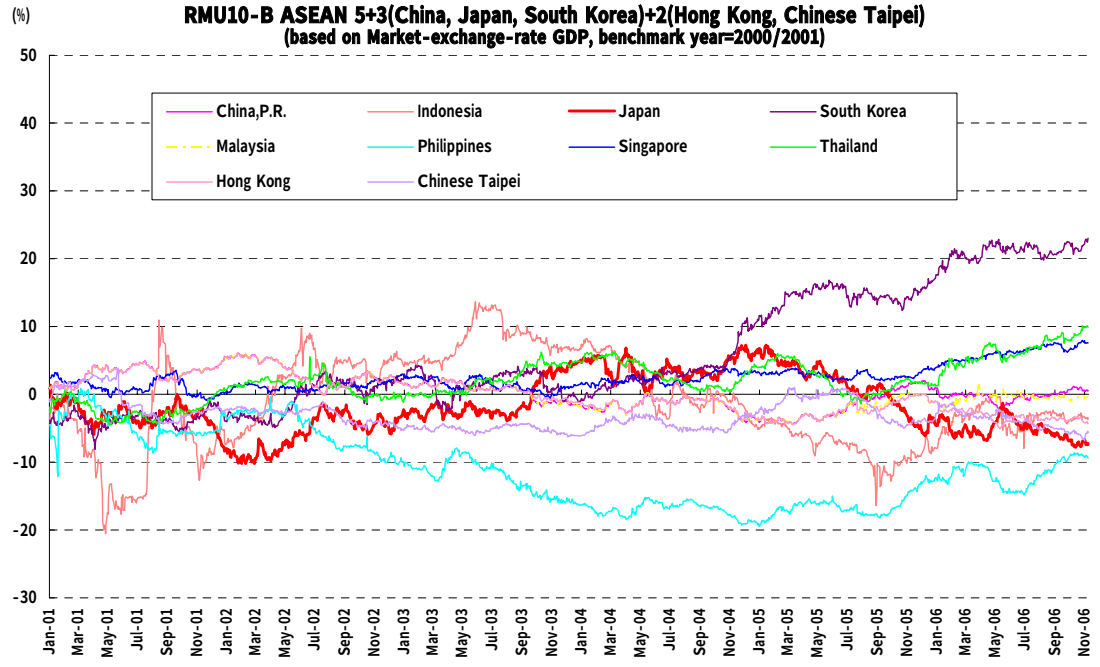
Calculated by Authors

Figure 2.7: Nominal Deviation Indicators for RMU10-A



Calculated by Authors

Figure 2.8: Nominal Deviation Indicators for RMU10-B



Calculated by Authors

Concerning the Deviation Indicators, it is found that the candidates are almost the same in terms of position of each currency among the East Asian currencies and deviation between the most overvalued currency and the most undervalued currency.

2-4. Beyond Limitation of Policy Dialogue based on the RMU: Joint Intervention for Coordinated Exchange Rate Policies

The monetary authorities of the ASEAN+3 should discuss the exchange rate issues as a part of the surveillance process that is conducted at the Economic Review and Policy Dialogue (ERPD) in the Financial Deputy Ministers' Meeting of the ASEAN+3. They discuss about not only domestic macroeconomic variables such as GDP, inflation, and soundness of financial sectors but also the exchange rate issues at the ERPD. At the first step, it is important for the monetary authorities of ASEAN+3 to launch the policy dialogue about exchange rates and exchange rate policies in order to identify any problems related with the exchange rate policy. At the time, the RMU and RMU Deviation Indicators should be used to conduct surveillance over the exchange rates and exchange rate policies as well as domestic macro economy at the Economic Review and Policy Dialogue (EPRD) of ASEAN+3. The surveillance process based on the RMU would contribute to the regional coordination for exchange rate policies among the monetary authorities of ASEAN+3.

However, the Policy Dialogue in the surveillance process, in itself, might not be so robust in keeping regional coordination in conducting their exchange rate policy because the Policy Dialogue is just a dialogue. The monetary authorities in each of the countries should have strong commitments to the regional coordination in conducting their exchange rate policy. Only the Policy Dialogue is weak for persuading a monetary authority to correct its exchange rate manipulation and to conduct a coordinated exchange rate policy for the regional monetary coordination especially when the Policy Dialogue leads to obligation of the coordinated exchange rate policy on a "best efforts" basis.

The monetary authorities of ASEAN+3 should consider possibility of adopting joint intervention in foreign exchange markets. The joint intervention would contribute to enhance effects of the regional monetary coordination on stable intra-regional exchange rates among Asian currencies. They might introduce a bilateral Grid method based on the RMU to conduct some joint intervention in foreign exchange markets of the relevant intra-regional exchange rates. An Asian Exchange Rate Mechanism would be established for their joint intervention for accomplishing the coordinated exchange rate policies. It is similar with the Exchange Rate Mechanism under the European Monetary System that had been adopted before they introduced the euro in 1999.

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CHPTER 3

THE POST-WAR VICISSITUDES OF MONETARY UNITS (MUs) AND LESSONS FOR EAST ASIA

Chapter 3 : The post-war vicissitudes of monetary units (MU) and lessons for East Asia

3-1. Overview

Four types of monetary unit (MU) were officially used in the post-war world: the EPU UA (also called the EUA17 in bond markets because the EPU had 17 member states/currencies), the EUA (also called the EUA9 in bond markets because it was related to, or composed of nine EEC member states/currencies), the ECU and the SDR. While the EPU UA and the initial SDR were units of account indexed to the value of gold, the EUA (except some EUA9 bonds in the early 1970s), ECU, and the SDR after July 1974 were currency baskets.

Against the backdrop of the existence of the four official MUs, attempts were made by the private sector to use them for private financial transactions. However, only the ECU achieved a substantial degree of success in both banking transactions and bond markets. While the EPU UA and EUA enjoyed some degree of popularity in bond markets, the SDR was used only temporarily (until the early 1980s) by the private sector.

All the above-mentioned MUs were hardly, or to a very limited degree, used by the private sector for commercial transactions including trade settlements. Even the ECU, the most successful MU, was used for commercial purposes only by a few European multinational companies, the share of ECU invoiced trade being reported to be less than 1% of the European trade. The main disadvantages of MUs for commercial use were (a) high transaction costs and the absence of a clearing system for high volume transactions (the ECU clearing system operated by the BIS and the ECU Banking Association was designed for high-value low-volume transactions) (Johnson (1991) pp.139 & 179).

Attempts were made to use private-sector MUs not supported by any official MU in the issuance of EURCO-denominated bonds and some of EUA9 bonds, but the use of such MUs was short-lived and/or limited.

Table 1. How MUs were used by the public and private sectors

	EPU UA (unit of account)	EUA (European unit of account)	ECU (European Currency Unit)	SDR (Special Drawing Right)	Others: Eurco (European Composite Unit)
Public Sector	1950-1978	1975-1978	1979-1998	1969 to date	—
	EPU UA= 0.888671 grams of gold (=US$1.00). Used as a unit of account by the EPU (1950-58). In 1953 adopted by ECSC for booking. In 1958 adopted by EEC organi- zations for budgeting and booking. In 1973 adopted by EMCF as EMUA (Euro- pean monetary unit of account) and used until the end of 1978.	Composed of EC9 currencies. Initially equi- valent to SDR as of 6/28/ 1974(=0.888671 grams of gold). On 4/21/1975 EEC made an official decision to use as a unit of account for aid, and adopted in the same year by ECSC and EIB. In 1977 adopted by EC for its general account budget. (Note: some information says this MU was first adopted in 1974 by EDF as a unit of account.)	Composed of EC currencies (9, and later increased to 12). Initially equi- valent to EUA (basket made up of the same currencies). Adopted by EC organizations for budgeting and booking. ① Unit of account for the ERM; ② Reference value of divergence indicator; ③ Unit of account for intervene- tions and credit facilities; Means of payment by the authority.	Initially 1 SDR = 0.888671 grams of gold (=US$1.00). In July 1974 changed to a basket of 16 currencies. At the begin- ning of 1981 changed to a basket of 5 currencies. Adopted by some inter- national organizations such as IMF and BIS for budgeting and booking ① Reserve assets; ② Unit of account for loans; ③ Standard of (pegged) currency value.	—
Private sector use	Almost none in banking deposits/len- ding, or commercial transactions. Limited to bond markets.	Ditto as left. EUA-denomi- nated deposit accounts were opened at private banks by EC organiza- tions including European Commission.	1991 balance of banks' ECU assets stood at 160 billion ECU (about 5% of EC's total assets). ECU capital and forex markets were in operation. Limited commercial transactions.	Only until around 1982 SDR was used in bank deposit market, for issuance of CDs, for syndicated loans (six loans totaling about 1.1 billion SDR), and in forward exchange markets.	Attempts in the bond market are known. Use in other financial and commercial transactions is unknown.
Bond Market	During 1961- 71 forty-one bond issu- ances in total for 500 million UA (then called EUA17)	(EUA9 in 2 types: parity index* and currency basket) During 1973-82 fifty-five bond issuances in total for 1,093 million UA.	By the end of 1997, a total of 1,218 bond issuances for US$168 billion.	During 1975- 81 only thirteen bond issuances in total for 560 million SDR.	Eurco bonds were devised by private banks. During 1972-73 only 3 bond issuances in total for US$130 million.

*The EUA9 bonds (of the parity index type), issued prior to the introduction of the official EUA on 21 April 1975, were financial products devised purely by commercial banks without any official MU of an identical character.
(Source) "Composite Currencies SDRs, ECUs and other instruments," Euromoney Publications, 1984, "Basket weaving: the euromarket experience with basket currency bonds," BIS Quarterly Review, 2006 etc.

3-2. Official use and private-sector use of MUs

3-2-1. Official use

3-2-1-1. EPU UA

The European Payment Union (EPU) was established on 1 July 1950 (the EPU agreement was signed on 19 September 1950, effective retroactively), and functioned as a multilateral settlement institution among member states of the Organization for European Economic Cooperation (OEEC: 18 members including Free Territory of Trieste, which later returned to Italian sovereignty), which was an organization to execute the Marshall Plan. The EPU was a European entity, but through the sterling and French franc areas, it covered in fact about 70% of the world trade (Gros & Thygesen (1992) p. 6). It functioned for nearly 8 years until 27 December 1958, the date when most of member states recovered the currency convertibility for current account transactions.

The operation of the EPU was booked in a unit of account equivalent to the US dollar. The Article 26 (a) of the Agreement for the Establishment of the European Payment Union stipulates: "Accounts shall be kept, calculations relating the operations shall be made and credits granted by….shall be expressed, in terms of a unit of account of 0.88867088 grams of fine gold." (Wragg (1984) p.99)

Even after the dissolution of the EPU in 1958, the EPU UA was used by/for the ECSC (European Coal and Steel Community), the Euratom (e.g. at the European Atomic Energy Committee), the EIB (European Investment Bank), the EEC's common tariff and common agricultural policy, the EMCF (European Monetary Cooperation Fund that was operated in EMUA (European Monetary Unit of Account)). Even after EC organizations gradually shifted to the use of the EUA (9-currency basket) after 1975, the EMCF continued to use the gold-based EMUA until the end of 1978 for the settlement of debts and credits related to the "snake," a regional fixed exchange system in effect among countries with close economic relations with West Germany.

3-2-1-2. EUA

Following the collapse of the Bretton Woods system, the currencies of major countries shifted to a floating exchange rate system, and the EPU UA, which was predicated on the gold par and the fixed exchange system, ceased to function as a unit of account.

On 21 April 1975 the Council of the European Union adopted the EUA (European unit of account), a basket of EC9 currencies, as a unit of account for aid under the Lome Convention (with the initial value being equivalent to 1 SDR as of 28 June 1974, or 0.888671 grams of gold). This marked the

virtual birth of the ECU (used by the European Monetary System, which came into operation in 1979):

> 75/250/EEC: Council Decision of 21 April 1975 on the definition and conversion of the European unit of account used for expressing the amounts of aid mentioned in Article 42 of the ACP-EEC Lome Convention (OJ L 104, 24/04/1975, p.0035)
> Article 1: "The amounts of aid….shall be expressed in a unit of account, defined as the sum of the following amounts in the currencies of the member states of the Community; DM 0.828, £ 0.0885, Ffr 1.15, Lit 109, Dfl 0.286, Bfr 3.66, Lfr 0.14, Dkr 0.217, IR £ 0.0759."
> Article 2: "The value of the unit of account in any given currency shall be equal to the sum of the equivalent in that currency of the accounts of currencies referred to in Article 1. It shall be calculated by the Commission using daily market exchange rates.
> The daily values of the unit of account in the various national currencies shall be made available every day and shall be published periodically in the official journal of the European Communities."

In 1975, the EUA began to be used by the EDF (European Development Fund, which provided EUA-denominated aid), the ECSC (which used the EUA for expressing revenue and expenditure, and accounting records), and the EIB. In December 1977, the EC adopted the EUA in its general account budget.

3-2-1-3. ECU

The resolution of the European Council dated 5 December 1978 on the establishment of the EMS and related matters stipulates in Section 2 "ECU and its Functions" as follows:

> "2.1 A European Currency Unit (ECU) will be at the center of the EMS. The value and composition of the ECU will be identical with the value of the EUA at the outset of the system.
> 2.2 The ECU will be used:
> (a) as the denominator (numeraire) for the exchange rate mechanism;
> (b) as the basis for a divergence indicator;
> (c) as the denominator for operations in both the intervention and the credit mechanism;
> (d) as a means of settlement between monetary authorities of the European Community.
> 2.3 The weights of currencies in the ECU will be reexamined….every five years, or on request, if the weight of any currency has changed by 25%.
> Revisions have to be mutually accepted; they will, by themselves, not modify the external value of the ECU. They will be made in line with underlining economic criteria."

3-2-1-3-1. The currency composition of the ECU was determined in the following manner and procedure:

The official criteria were each country's share of: Community GNP, intra-Community trade and the EMS financial support system. In 1974, the criteria were each country's average share achieved during the immediately preceding five years, and for the redefinition in 1984 some judgmental adjustment was added to such share based on the single-year data (Johnson (1991) p.14). Especially after 1979, the economic criteria have served only as broad indicators; in other words, "New weights are not automatically determined by the 'arithmetical average' supplied by these indicators; they result from an 'agreed' average."

A revision had to be implemented in such a way that, on the day of the change, the value of the "new" ECU is identical to that of the "old" ECU, in other words, the external value of the ECU had to be maintained. This was done as follows: on the day the Ecofin Council decided to revise the ECU, one applied the new weights agreed upon to the last available exchange rate of the old ECU in order to determine the specific amounts of the component currencies in the revised ECU (Louw (1988) pp.9-10).

The revision of the ECU currency composition was subject to the following procedures:

(1) The European Commission prepares a draft revision, based on which a revision proposal is presented/recommended, formally, by the Monetary Committee and the board of the EMCF (made up of central bank governors of EEC member states), and substantively, at the initiative of the Monetary Committee.
(2) Ecofin Council unanimously decides the revised weight of the ECU currency composition.

Table 2. Revision of the composition of the EUA/ECU basket

	21 April 1975 EUA		13March 1979 ECU		14 Sep 1984	17 Sep 1984 ECU		18 Sep 1989	21 Sep 1989 ECU	
	compo sition	weight %	compo sition	weight %	weight %	compo sition	weight %	weight %	compo sition	weight %
BFr	3.66	7.9	3.66	9.28	8.1	3.71	8.2	7.6	3.301	7.6
DKr	0.217	3.0	0.217	3.06	2.7	0.219	2.7	2.7	0.1976	2.45
DM	0.828	27.3	0.828	32.98	36.9	0.719	32.0	34.7	0.6242	30.1
Dra	-	-	-	-	-	1.15	1.3	0.6	1.440	0.8
Esc	-	-	-	-	-	-	-	-	1.393	0.8
FF	1.15	19.5	1.15	19.83	16.7	1.31	19.0	18.7	1.332	19.0
HFl	0.286	9.0	0.286	10.51	11.3	0.256	10.1	10.9	0.2198	9.4
Ir £	0.00759	1.5	0.00759	1.15	1.0	0.00871	1.2	1.1	0.00855	1.1
LFr	0.14	0.3	0.14	0.35	0.3	0.14	0.3	0.3	0.130	0.3
Lit	109.0	14.0	109.0	9.5	7.9	140.0	10.1	9.4	151.8	10.15
Pta	-	-	-	-	-	-	-	-	6.885	5.3
UK £	0.0885	17.5	0.0885	13.34	15.1	0.0878	15.0	13.0	0.08784	13.0

(Source: "European Monetary Integration 1952-2002," Emmanuel Apel, 1998)

3-2-1-3-2. Risks for commercial banks related to the revision of ECU composition

Mr. A. Louw, head of Division at the European Commission in 1988, made an interesting remark relating to the revision of the ECU composition in 1989, which can be relevant in building a new financial architecture in East Asia in future, as follows:

"A solution should be found to some important technical problems that the banks, active in the ECU market would have to face. Indeed, the international ECU bank credit- and deposit market is unbalanced: ECU credits to non-banks exceed by far the ECU resources supplied by ECU deposits. Consequently, a certain number of banks have to fund a significant portion of their ECU credits through borrowing in the basket of the component currencies. A revision as envisaged above raises two problems for these banks:

- an important exchange risk arises from the need to switch immediately from the old basket to the new one. In the present market situation, this involves borrowing the currencies newly introduced (Peseta, Escudo) and sell them against the other currencies in the basket….there is no guarantee that the exchange rates at which these switch operations are carried out will be identical to those which were used to calculate a new basket of equal value to the old one (Friday rates at 14.15 h).
- if the Escudo is included in the ECU, the Portuguese authorities should (as Greek authorities did in 1984) commit themselves to give the ECU-banks access to the Escudo in order to enable them to perform the basket funding operations that are a structural component of the ECU market. (Louw (1988) p.13)"

After 1980, the ECU began to be used in all EC organizations for booking and settling external transactions. However, the revenue and expenditure of the EC's general account budget was basically recorded using each country's currency except for the CAP (common agricultural policy), which was expressed in ECUs and converted into each country's currency at the "Green Rate." The resulting difference between the market rate and the Green Rate was adjusted by MCA (monetary compensatory amounts).

The European Commission announced ECU exchange rates every day. At the outset of the official use of the ECU in 1979, its interest rate was the weighted average of the official discount rates of all ECU member states, but in 1985, the interest rate was revised to the weighted average of each member country's representative market interest rates.

3-2-1-4. SDR

SDR underwent two substantial changes in its composition since its initial creation in 1969.

(1) From July 1969 through June 1974, the SDR was equal to 0.888671 grams of gold;
(2) From July 1974 through December 1980, the SDR was switched to a basket made up of 16 currencies (subsequently reduced to 14 currencies, each accounting for 1% or more of world exports), its currency composition being subject to review every five years;

① From 1981 to date, the SDR basket has been composed of five currencies ― the U.S. dollar, the German mark, the Japanese yen, the French franc, and the pound Sterling (currently the dollar, euro, yen, and the pound, four in all).

3-2-1-4-1. A diminishing role of the SDR

Contrary to the initial expectations of all parties, "the SDR played a small and even diminishing role throughout the 1980s. (Boughton (2001) p.924)" Those who were allowed to hold and carry out transactions in SDR ("official SDR") were limited to the IMF, BIS, member states, and 16 "other holders" including the World Bank, Asian Development Bank (ADB), and the Nordic Investment Bank(NIB). The IMF, BIS and some other international organizations keep their accounts in the SDR (the NIB denominated its capital in the SDR upon establishment in 1975, but later changed to the ECU, and the euro now). In 1980 fifteen currencies were pegged to the SDR. At the end of 2005, only Libya still had its currency pegged to the SDR.

4-2. How the SDR currency composition is determined now (SDR Valuation)

"The currencies included in the SDR shall be four currencies issued by Fund members, or monetary

unions that include Fund members, whose exports of goods and services during the five-year period ending 12 months before the effective date of the revision had the largest value and which have been determined by the Fund to be freely usable currencies in accordance with Article XXX (f). In the case of a monetary union, trade between members of the union is excluded from the calculation.

The weights assigned to the currencies in the SDR basket are based on the value of the exports of goods and services and the amount of reserves denominated in the respective currencies which are held by other members of the IMF." (Press Release No. 05/265, December 2, 2005 IMF Completes Review of SDR Valuation)

The IMF announces SDR exchange rates against major currencies every day on its homepage.

Table 3. Composition of the SDR, 1969-present, (in local currency units)									
	July 69-June 74	July 1974-June 1978		July 1978-December 1980		1981-85		1986-90	
	Weight	Initial weight	Currency amount	Initial weight	Currency amount	Initial weight	Currency amount	Initial weight	Currency amount
Gold gr	0.888671								
US$		0.330	0.4000	0.330	0.400	0.42	0.540	0.42	0.4520
DM		0.125	0.3800	0.125	0.320	0.19	0.460	0.19	0.5270
Yen		0.075	26.000	0.075	21.00	0.13	34.00	0.15	33.400
FFr		0.075	0.4400	0.075	0.420	0.13	0.740	0.12	1.0200
Stg £		0.090	0.0450	0.075	0.050	0.13	0.071	0.12	0.0893
Can$		0.060	0.0710	0.050	0.070				
ILira		0.060	47.000	0.050	52.00				
DGl		0.045	0.1400	0.050	0.140				
BFr		0.035	1.6000	0.040	1.600				
SKrona		0.025	0.1300	0.020	0.110				
A$		0.015	0.0120	0.015	0.017				
DKrone		0.015	0.1100						
NKrone		0.015	0.0990	0.015	0.100				
SPtas		0.015	1.1000	0.015	1.500				
ASch		0.010	0.2200	0.015	0.280				
SARand		0.010	0.0082						
SARiyal		0.030	0.1300						
IranRial		0.020	1.7000						
	1991-95		1996-2000		2001-05		2006-10		
	Initial weight	Currency amount	Initial weight	Currenc amount	Initial weight	Currency amount	Initial weight	Currency amount	
US$	40	0.5720	39	0.582	45	0.5770	44	0.6320	
Euro					29	0.4260	34	0.4100	
DM	21	0.4530	21	0.446					
FFR	11	0.8000	11	0.813					
Yen	17	31.800	18	27.20	15	21.000	11	18.400	
Stg £	11	0.0812	11	0.105	11	0.0984	11	0.0903	
Source: Silent Evolution: the IMF 1979-1989, Chapter 18 Evolution of the SDR, http://www.imf.org/external/np/sec/pr/2000/pr0087.htm etc.									

3-2-1-4-3. The interest rate of the SDR

The IMF has changed the method of setting the SDR interest rate as follows:

(1) From July 1969 through June 1974, the IMF kept the interest rate between 1% and 2% (for instance, the "super gold tranche" position of 1969 was set at 1.5%).
(2) From July 1974 through December 1980, the IMF set the SDR interest rate at 50%, 60%, and then 80% of the weighted average of money market interest rates;
(3) From 1981 to date, the IMF has kept the SDR interest rate set at 100% of the above weighted average ("The SDR interest rate is determined weekly and is based on a weighted average of representative interest rates on short-term debt in the money market of the SDR basket currencies." http://www.imf.org/np/exr/facts/sdr.HTM).

At present the BIS accepts SDR-denominated deposits. It also issues SDR-denominated MTIs (medium-term instruments, whose outstanding issuance stood at 42,695 million SDR at the end of 2005). (BIS 75th Annual Report.)

3-2-2. Private-sector use

In this subsection the use of MUs in the private sector is described both for commercial and financial transactions except bond market activities. Considering the importance of possible application of regional monetary units to bond markets in East Asia, MU denominated bonds are discussed separately later.

3-2-2-1. EPU UA

Only in bond markets the private use of the EPU UA was somewhat successful. No record of their use in banking or commercial transactions can be traced so far.

3-2-2-2. EUA

For private-sector transactions, the European Commission opened EUA deposit accounts at commercial banks (in Belgium), but failed to spread its use among the general public. "Attempts have been made to use the UA for bank accounts and for commercial contracts. They were not successful, and the use of UA has been restricted to the Eurobond market. Large institutional investors remained out of market; the lack of monetary and commercial uses of the UA meant they had no long-term commitments in UA, because it lacked any official support and lacked a money market." (Wragg (1984) p.106)

3-2-2-3. ECU

The ECU is the only noteworthy success in the private sector's use of MUs. Through the 1980s the use of the ECU made progress, principally in financial transactions including bank deposits and lending, money market products, syndicated loans, medium-to-long-term bonds, derivatives, and foreign exchange markets. The private sector's ECU transactions reached their peak in 1991, and then the ECU market contracted sharply in the face of the 1992-93 European currency crises. The use of the ECU in commercial transactions included entry of accounting records, and trade contracts and settlements by some of Europe-based multinational companies, but only to a limited extent.

Table 4. Overview of ECU markets (balance at end-1990)

Markets	ECU(in millions)	%
Bank liabilities	92,141	88.6
MTN (medium-term note)	952	0.91
CD (certificate of deposit)	280	0.27
CP (commercial paper)	3,707	3.53
UK T-bills	2,900	2.76
BTE (Italian 12-month TB)	4,964	4.47
Money market total	104,994	100.0
Bond market	93,336	
Off-balance sheet	2,569	

(Source) "ECU the currency of Europe" p.63.

3-2-2-3-1. Banking market

A look at the composition of banks' ECU-denominated assets and liabilities such as lending and deposits reveals that interbank transactions account for an overwhelming majority. The transactions with non-bank sectors showed some increase in the balance of assets including corporate lending and housing loans. During the 1980s, ECU-denominated assets exceeded ECU-denominated liabilities. Banks composed the ECU to fund ECU assets by bundling its component currencies.

Table 5. How ECU was used and funded in private bank market

In billions of dollars:	End-1983		End-1988	
	Assets	Liabilities	Assets	Liabilities
With non-bank sector	3.9	1.1	28.4	9.7
With bank sector	8.0	8.9	90.1	94.4
Total	11.9	10.0	118.5	104.1

(Source) BIS annual reports

3-2-2-3-2. Money market products

In February 1981, Lloyds Bank became the first bank to ever issue an ECU-denominated CD (in favor of the EIB as the investor). MTNs (medium-term notes) and CPs denominated in the ECU obtained an 8.4% and 7.0% share of the MTN and CP markets, respectively, at the end of the 1990s. In October 1987, Italy's Ministry of Finance began to issue 12-month treasury securities (BTEs) through competitive bidding. Also, the British government started with monthly bidding on treasury bills (1-, 3-, and 6-month bills) from October 1988 through the Bank of England.

3-2-2-3-3. Syndicated loans (S-Loans)

The full-scale start of ECU-denominated S-Loans was marked by the 200 million ECU loan to Credit National syndicated in 1981(a five-year loan, at a 0.5% interest margin, guaranteed by the French government, with Credit Lyonnais acting as lead manager). The ECU adopted on this occasion was a "closed basket ECU" (the currency composition remains fixed, even when the composition of the official ECU changes). After a subsequent 10-million ECU loan to GIE SpA in 1982, all S-Loans shifted to the "open basket ECU" (the currency composition is adjusted to be identical with that of the official ECU, when it is changed) method.

Table 6. ECU denominated syndicated loans

	Number of deals	Amounts of ECU-denominated issues (in billions of US dollars)	Total S-Loans issued in the market (in billions of US dollars)
1980	1	0.02	na
1981	1	0.2	na
1982	8	0.35	146.6
1983	23	1.05	95.3
1984	54	2.08	189.6
1985	56	2.04	156.1
1986	21	1.26	52.4
1987	39	4.58	91.7
1988	44	4.33	125.5
1989	56	4.85	121.1
1990	48	5.60	118.2

(Source) " ECU the currency of Europe" p.65; "Composite Currencies SDRs, ECUs and other instruments" p.117

3-2-2-3-4. Derivatives

Since the late 1980s, ECU-related derivative products began to be developed, and the derivatives market rapidly expanded over the early 1990s. ECU currency swaps and ECU interest swaps were transacted over the counter. With regard to futures, on the other hand, FINEX (the Financial Instrument Exchange of the New York Cotton Exchange) introduced ECU/US$ exchange rate

contracts in January 1986, LIFFE (the London International Financial Futures Exchange) introduced 3-month ECU interest futures in October 1989 and ECU bond futures in March 1991, and MATIF (Marche a Terme International de France) began to deal in ECU bond futures in October 1990.

Table 7. The main ECU contract specifications

	Bond futures		3 m/s interest rate futures	ECU/US dollar futures
	LIFFE	MATIF	LIFFE	FINEX
Underlying instrument	6-10 year bond 9% coupon	6-10 year bond 10% coupon	3 m/s ECU I/B deposit	ECU/ US dollar exchange rate
Unit of trading	ECU200,000	ECU100,000	ECU 1million	ECU100,000
Quotation	per ECU100 nominal	per ECU100 nominal	100.00 minus implied interest rate	US cents per ECU
Minimum price movement	ECU0.01	ECU0.02	ECU0.01	0.01cent/ECU
Delivery month	Mar Jun Sep Dec	Mar Jun Sep Dec	Mar Jun Sep Dec	Mar Jun Sep Dec
Settlement	6-10 yr eligible bond	6-10 yr eligible bond	cash	ECU delivery

（出所）"ECU the currency of Europe" p.97

3-2-2-3-5. Foreign exchange markets

First traded in the Italian foreign exchange market in 1981, by 1985, the ECU came to be traded in the foreign exchange markets of all EC member states, with the exception of West Germany. Later West Germany accorded the ECU virtually the status of a foreign currency under a Bundesbank notice issued on 16 June 1987.

Table 8-1. The ECU status in foreign exchange markets (as of October 1985)

EC member states	Belgium-Luxembourg	Denmark	West Germany	Netherlands	U.K.
Status of ECU	Classed as a currency	Treated as a currency	Unit of account	Treated as a currency	Treated as a currency
Official instrument granting this status	IBLC rules	Implicit recognition	Monetary law, BB Directive Article 2 (b)	De facto	De facto
Official quotation in forex market	Fixing	Fixing	None	Fixing	Na
Exchange control regulations	Two-tier market Regulated market (convertible) Free market (fin'l)	Exchange control	Interpretation of monetary law	Virtually abolished since laws of 1 April 81 and 1 July 83	No exchange control except (see below)
Main provisions a) concerning the resident non-bank sector	ECU comprises only regulated BFr & LFr -operations pass through free or regulated market depending on type	Between residents: -prohibition of transactions in foreign currencies -ECU denomination permitted but payments must be in DKr -Negotiation of securities in ECU or in another authorized currency if payments in DKr (rest omitted)	-ECU liabilities may not be contracted between residents* -ECU (considered as its components) liabilities to non-residents permitted provided payment currency is not DM -ECU liabilities possible vis-à-vis supranational jurisdiction	-Obligation to declare operations with non-resident banks if they exceed DGl5000 or the equivalent values -Payments arising from trade transactions must be reported to DNB -Control on transfers above DGl10 million for a term of more than 2 years	
b) concerning resident financial institutions	-If ECU deposits exceed credits, the convertible BFr thus available may not be on lent. -A net spot position in foreign exchange may not be held on the regulated market	-Gross external position not regulated -Not external position of approved intermediaries is regulated within certain limits	-ECU deposits may be received from non-residents provided currency of constitution and withdrawal is not DM -Compulsory reserves on ECU liabilities with under four years to run*.		-Building societies may not make portfolio investment in ECU*

(Note) Measures concerning only the ECU are marked *.
(Source) "The Private ECU Market: Some Issues" p.22

Table 8-2. The ECU status in foreign exchange markets (as of October 1985)

EC member states	Ireland	Italy	Greece	France
Status of ECU	Treated as a currency	"Valuta di conto valuatrio" a currency	Treated as a currency	Classed as a currency
Official instrument granting this status	De facto	Ministerial decree	De facto	Letter Nr.15891from Treasury Director
Official quotation in forex market	Na	Fixing	Fixing	Fixing
Exchange control regulations	Control on all operations with other countries	Every authorized acquisition of currencies requires a deposit with the Bank of Italy	Control on all operations with other countries	Exchange control- investment currency market
Main provisions a) concerning the resident non-bank sector	-All gold and foreign currency operations must be handled by an approved intermediary -Residents have only limited access to external markets unless Minister authorizes otherwise -Subscriptions may be made to loans issued by European institutions whatever the currency	-Apart from some exceptions, residents may not hold foreign currency deposits. -ECU may be used for all authorized financial and commercial operations -The non-interest bearing deposits do not apply to subscriptions to ECU bonds issued by European institutions*		-ECU securities issued by Community institutions which are exempted from the investment currency rules* -ECU denominated imports may be covered by forward purchases (6 m/s maximum)
b) concerning resident financial institutions	-Forward market access for trade transactions only -the lending of Irish pounds to non-resident financial institutions to cover a position oned in ECU is tolerated.	-ECU belongs to the group of European currencies -Bank's overall position by group of currencies must be balance day by day	-Dra deposits may be received from non-resident financial institutions for up to 6months at free interest rate* -Forward purchase & sale (3 m/s) to non-residents of authorized convertible Dra* -Funds in Dra and foreign currencies may be borrowed on foreign markets to cover positions opened in ECU*	-Foreign currency (including ECU) assets and liabilities must be kept within foreign exchange position -Must borrow FFr from non-residents to constitute basket in ECU* If ECU deposits exceed placings the FFr share of the surplus may be lent to non-residents* -The FFr share of ECU credits granted to residents is not subject to credit ceilings, nor to the compulsory reserves requirements*

(Note) Measures concerning only the ECU are marked *.
(Source) "The Private ECU Market: Some Issues" p.22

3-2-2-4. SDR

The SDR was first created in 1969, but the private sector had no reason to use it because it was defined as equivalent to 0.888671 grams of gold (which was equal to US$1.00). After the SDR's definition was changed in 1974 to the basket of 16 currencies, SDR-denominated financial products began to be developed. However, the development of the SDR market in the private sector was quite limited because (1) banks had practical difficulty in bundling 16 component currencies into the SDR or disintegrating them, (2) the IMF failed to provide enough support for the SDR used by the private sector, and (3) no system existed for SDR fund settlement.

The 1981 simplification of the SDR basket into a 5-currency basket was immediately followed by a sharp rise in the U.S. dollar against other currencies. The situation caused borrowers and investors to shy away from both funding and investing in the SDR because of the high weight of the dollar contained in it. In contrast to the 16-currency SDR, the SDR made up of five major currencies was easy to bundle or disintegrate. If an institutional investor builds a portfolio for each of the SDR's five component currencies, it will obtain the same economic effect as when building a portfolio of the SDR itself without any settlement difficulties. Thus, the SDR's reason for private investment and funding was weakened. The private-sector market for the SDR became extinct in the first half of the 1980s.

A research paper which can be accessed on the IMF homepage describes as follows: "The existence of an official asset that was in fixed supply, had a rate that was imperfectly related to market valuation, and was subject to complex rules discouraged the growth of a commercial market for a similar but more user-friendly private asset. Without official support or even much encouragement from the Fund, private agents had little incentive to mimic the official SDR in their own instruments. An effective linkage would have required more flexible pricing of the official SDR and the maintenance of a more open market for it (Boughton (2001) pp. 935-936)."

3-2-2-4-1. Bank deposits

Since 1975, commercial banks started to provide an SDR-denominated deposit service. In London in 1981, more than 30 banks accepted mainly 3-month and 6-month SDR term deposits by the millions. The size of the SDR bank deposit market is estimated to have reached 5.0-7.0 billion SDR. All SDR-denominated deposits were disintegrated into component currencies for investment, and foreign exchange risks were hedged in forex markets.

4-2. Certificates of Deposit (CDs)

The first ever SDR-denominated CD was issued in June 1980. Thereafter, until around 1983, it is estimated that 350-550 million SDR's worth of CDs were issued in London. In 1981, seven London-based banks agreed to the standard SDR-denominated CD format. The First National Bank of Chicago set up the First Chicago Clearing Center to resolve problems related to the physical delivery of instruments. There was virtually no secondary market, and the primary market also ceased to function by the mid-1980s.

4-3. Syndicated loans (S-Loans)

The first SDR-denominated S-Loan was arranged in April 1981 for the Swedish Kingdom. It was a loan of 500 million SDR with a 5-year term and an interest margin of 3/8% -1/2%, with Morgan Guaranty Trust Co. of New York acting as lead manager (it was combined with a U.S. dollar-denominated tranche amounting to US$800 million). A total of six SDR S-Loans (worth about 1.1 billion SDR) were arranged over the next year (1982) before the market disappeared.

3-3. Currency basket bonds (MU(monetary unit) denominated bonds)

In the postwar period up to today, four types of currency basket bonds of some significance have been issued. These are the EUA bond (categorized into EUA17 type and EUA9 type), Eurco bond, ECU bond (*note*) and the SDR bond.

(*Note*) From December 1970 to March 72 four issues of "ECU (European Currency Unit)" bond were placed in the market for the ECSC, South Africa, ENEL with the Italian government guarantee, and Brazil for the total amount of 165 million ECU. Although the name is identical with ECU bonds issued during the EMS (European Monetary System) period, the definition of the "ECU" of these four issues was "a unit of account of which the value is irrevocably fixed for the life of loan at [a certain amount of the original 6 EEC member states, e.g. DM3.66 or DGl3.62 etc.]. These were actually bonds with a multi-currency clause, which enabled investors to choose currencies for subscription, interest payments and redemption. These "ECU" issues were pseudo-currency basket (unit of account) bonds with a fatal design defect (Toogin geppoo (August, 1973) pp6-14).

Table 9. Issuance of international bonds denominated in basket currencies, 1971-1998 In billions of US dollars			
	SDR	EUA/ECU	All currencies
1971	0.0	0.1	3.1
1972	0.0	0.0	10.5
1973	0.0	0.2	8.7
1974	0.0	0.2	9.2
1975	0.0	0.4	21.6
1976	0.0	0.1	34.2
1977	0.0	0.0	34.7
1978	0.0	0.2	35.7
1979	0.1	0.3	38.1
1980	0.0	0.1	36.9
1981	0.3	0.4	48.7
1982	0.0	2.0	75.6
1983	0.0	2.2	75.9
1984	0.0	3.2	109.4
1985	0.0	7.4	164.4
1986	0.0	7.0	222.9
1987	0.0	7.6	175.6
1988	0.0	11.2	227.4
1989	0.0	12.3	263.8
1990	0.0	17.8	293.1
1991	0.0	32.5	318.4
1992	0.0	21.2	355.8
1993	0.0	6.5	405.6
1994	0.0	8.6	541.6
1995	0.0	5.2	521.8
1996	0.0	8.5	983.1
1997	0.0	12.7	975.3
1998	0.0	97.3	1,121.1
Source: Dealogic, Euroclear, ISMA, Thomson Financial Securities Data, BIS KAJI Sahoko (1 Feb. 2006, MOF ajiakeizai kinyuu no shomondai nikansuru senmonnbukai dai21kai, shiryou 2)			

3-3-1. EUA-denominated bonds

There were two types of EUA (European Unit of Account)-denominated bonds: EUA17 (EPU UA) bonds that were linked to gold value and EUA9 bonds that were no longer linked to the gold. EUA 9 bonds can be further classified to the one linked to the parity of EC currencies and the one whose

value is defined as a basket of EC currencies.

3-3-1-1. EUA17 bonds (1961-71)

During the Bretton Woods period of fixed exchange rates, from 1961 to 1971 the EPU UA (unit of account) denominated bonds were placed in total 41 issues for 500 million UAs. By naming the EPU UA bonds a UA17 type bond, the bond market made a distinction from EUA9 type bonds that emerged after 1973. The value of the UA was identical to that of the unit of account adopted by the former EPU (with 17 member currencies), and was equal to 0.88867088 grams of fine gold. In other words, the value of EUA17 bonds was basically gold-linked (that is, if the gold parity of 17 component currencies were to be changed or broken, the value of a EUA17 bond would be equal to the currency with a minimum change (the most stable currency)). When the Bretton Woods System collapsed, the EUA17 bonds were repaid in the Swiss Franc, the currency that maintained the gold link to the last. The gold link clause was very costly to the issuer, and it is reported some bonds had to be redeemed at over 170 % of the original value (Johnson (1991) P. 198).

- The first EUA17 (EPU UA) bond was issued in January 1961 by SACOR (a Portuguese oil refinery) for 5 million UA with a coupon of 5.75% for a 17-year term issued at 99% of the face value, with Kredietbank acting as lead underwriter.

3-3-1-2. EUA9 bonds (1973-82)

When major currencies moved to a floating rate regime in 1973, a new formula of unit of account bonds was devised, which the market started to call EUA9 type bonds. The value was no longer linked to the gold (unlike the case of the EPU UA), but to the parity of EC member currencies in the snake or EMS. During 1973-82 a total of 55 bonds were issued for 1,093 million EUA.

- The first example of the new formula EUA9 type bond was Bass Carrington Limited bond issued in March 1973 for 30 million UA with a coupon of 7%, for an 18-year term, at 98.5% of the face value, with Credit Commercial de France and Kredietbank S.A. Luxembourgeoise acting as lead underwriters.

The value of initial EUA9 bonds, at least, was defined in a rather similar manner as EUA17, related to the parity of each EC currency. This type of EUA9 bonds had nothing to do with the official EUA, a currency basket defined by the Council Decision 75/250/EEC of 21 April 1975. As to the EUA9 bond of currency basket type, the author has not been able to identify a concrete example of issues. The literature states, however, that “Belgian banks, in particular, began to use the unit of account 9, defined on the basis of a basket of the nine currencies of the countries which made up the European Community at that time. Although this market had a considerable success, the “currency basket” which was its mainstay had a major flaw; no supranational body (*note*) had authority over it or gave

its moral backing to this currency." (Johnson (1991) p.198)

(*Note*) Among EC institutions, ECSC issued an EUA17 type bond in 1966 (20 million EUA, 53/4%, 10 years), but no EC institution is recorded to have issued any EUA9 bond. The majority of issuers of EUA9 bonds were sovereign and public sector institutions (Denmark, Finland, France, Iceland, Ireland, Italy, Norway, Sweden, Canada and Panama) with some private sector issuers from the Netherlands, Portugal, United Kingdom, and United States etc.

3-3-2. Eurco bonds

The value of the Eurco (European Composite Unit) was the sum of a basket of EC9 member currencies. While EUA bonds referred to above were basically bonds denominated in a unit of account linked not to a currency basket, but to the value of gold or the parity of currencies (with a possible exception of some EUA9 bonds), a Eurco bond marked the first bond denominated in a currency basket. However, Eurco bonds, which were purely private-sector bonds, were short-lived. During 1972-73, a total of 3 bonds were issued for an amount equivalent to US$ 130 million.

The Eurco, as announced by N.M. Rothschild & Sons, was composed of DM 0.90, £ 0.075, Ffr 1.20, Lit 80, Dfl 0.35, Bfr 4.50, Lfr 0.50, Dkr 0.20, and IR £ 0.005. The Eurco was computed on the basis of each country's GNP and trade amounts in such a manner that the currency of a country with a larger GNP was given a lower weight and that of a country with a smaller GNP a higher weight.

- The EIB issued the first Eurco bond in September 1973 for 30 million Eurco with a coupon of 8.375% for a 15-year term at 99.5% of the face value, with N.M. Rothschild & Sons acting as lead underwriter.

3-3-3. SDR bonds

3-3-3-1. Limited issuances of the private sector's SDR bonds

The first SDR-denominated bond was issued by Alusuisse International NV in June 1975 for 50 million SDR with a coupon of 9%, for a 5-year term, at 100% of the face value, with Credit Suisse White Weld Ltd. acting as lead underwriter. During 1975-81 a total of 13 bonds were issued for 563 million SDR.

Payment for SDR bonds and redemption of its principal and payment of interest thereon were made in U.S. dollars. The Euroclear was engaged in the SDR bond settlement.

3-3-3-2. Causes of poor development of the private SDR bond market

3-3-3-2-1.Lack of demand for SDR bonds as a financial product

(1) An institutional investor who needs SDR-denominated assets can easily build a portfolio of 5 (currently 4) component currencies.

(2) An SDR bond has great foreign exchange volatility against major currencies.
(3) An ECU bond, which does not include the dollar, is a more useful vehicle for diversified investment in Europe than SDR bonds.

3-3-3-2-2. Lack of public support

(1) The IMF provides no support for the development of the private SDR market (such as financial transactions and bond markets).
(2) The private SDR market does not develop simply because the official SDR exists and the IMF announces daily SDR exchange rates (the existence of the official SDR may be a necessary, but not a sufficient condition).

3-3-4. ECU bonds

3-3-4-1. The rise and fall of the private ECU bond market

3-3-4-1-1. Period of steady development

From 1981 through 1989, since the first ECU bond was issued in April 1981 by SOFTE (an Italian telegraph company) for 35 million ECU, with a coupon of 13%, at par value, for a 7-year term, the ECU bond and FRN (floating rate note) market developed steadily, and in 1989 a total of US$ 41.8 billion worth ECU denominated securities (international and domestic bonds, treasury bills and notes) were issued in a single year.

3-3-4-1-2. Booming period

From 1990 through the first half of 1992, the ECU bond market boomed following the announcement of the Delors Report and the launch of the first stage of EMU. Jumbo issues were repeated in the ECU domestic and euro markets by the governments of the U.K., France, Italy, Spain and Belgium. In 1991 a total of US$ 65.1 billion worth of ECU securities were issued and the market balance reached the equivalent of US$ 176.1 billion at the close of the year.

3-3-4-1-3. Period of decline

From the second half of 1992 through 1995, when the European currency crisis caused the ERM (exchange rate mechanism) to widen the fluctuation margin of member currencies and gave rise to skepticism about the future of a single currency, activities of the ECU bond market declined rapidly.

3-3-4-1-4. Revival as a de facto euro bond

From 1996 through 1998, after the conversion rate of 1 ECU into 1 euro was officially decided, and the economic convergence progressed in the second stage of EMU, the ECU bond changed its basic

character from a mere currency basket bond to a de facto euro bond, anticipating a turnover to a single currency in the third stage of the EMU starting in 1999.

During 1981-97, a total of 1,218 bonds were issued for an amount equivalent to US$168 billion (Dammers (2006) p.82). Payments for ECU-denominated bonds and redemption of its principal and interest thereon were made principally in ECUs. The Euroclear and Cedel were engaged in the ECU bond settlement.

3-3-4-2. What were causes of the success of the ECU bond market?

3-3-4-2-1. The fundamental background

The existence of the official ECU, the practical (not necessarily full) convertibility of its component currencies, and the smooth functioning of the ERM under the EMS played the most fundamental roles.

3-3-4-2-2. Attractiveness as a financial product

a. ECU bonds provided investors and borrowers in and out of the EC area with financial instruments of a good balance of interest rate and exchange risks.
b. ECU bonds served as a means of diversified investment for European assets.
c. Risk-hedging instruments were available (foreign exchange markets, MATIF, LIFFE, etc.).
d. Unlike other MUs, ECU could be used as "foreign currency" with a help of widespread ECU bank deposits and a reliable fund settlement system in the ECU.

3-3-4-2-3.-Support by the EC and member states

a. the recognition of the ECU as a foreign currency by EC member states
b. the preferential treatment in respect of foreign exchange control
c. the existence of relatively efficient infrastructures including clearing and payment systems
d. EC institutions and member states' active participation in the ECU bond market (60% in 1986 or 90% in 1991 of issuers were the public sector and international organizations) and support to improve the liquidity of the ECU market, etc.

For further details of the private ECU and its bond market, please refer to the section 2-2-2 "The Development of the Private ECU" in the "Research Papers and Policy Recommendations on Regional Coordination of Policy Measures Forward: Financial Market Liberalization and Capital Market Development" by the Institute for International Monetary Affairs, March 2006.

3-4. Lessons for East Asia

3-4-1. Private RMU bonds without official support may be possible, but…

It may be possible to sporadically design and issue bonds denominated in RMUs (Regional Monetary Units) in the near future, or even at present, in East Asia. However, having studied the vicissitudes of MUs, in particular in Europe, in the past half century, it is doubtful if such an RMU bond market can be expected to grow to a meaningful mass without satisfying certain conditions.

As the history of Eurco bonds, EPU UA (EUA17) bonds, EUA9 bonds shows, RMU denominated bonds can be devised purely by private commercial financial institutions without any official support (the term "support" does not mean any fiscal expenditure, but visible commitment by public authorities to encourage the use of RMUs and to enhance the confidence in RMU bonds), but they seem to be destined to be short-lived or limited in their market development. On the other hand, the success of ECU bonds and the failure of SDR bonds teach us the importance of the support by public authorities in charge for RMU bond markets to grow. It should be noted that the official support is necessary, but it alone is not sufficient for the sustainable market development of an RMU bond market.

3-4-2. Conditions for the sustainable growth of an RMU bond market in East Asia

3-4-2-1. Existence of an official RMU

Among MU denominated bonds of currency basket type, the only successful case was the private ECU bond, whose currency composition was identical with the official ECU, and which enjoyed the continuous support by the EC and member states. The private SDR bond market was short-lived only with thirteen issues (note: the BIS issues MTIs (medium-term instruments) for official SDR holders today) without support by the IMF. The Eurco bond, a privately devised MU bond in the early 1970s, ended only with three issues. In East Asia, today or in future, there should be no reason why the history does not repeat itself.

3-4-2-2. Convertibility of component currencies of an RMU

It is important for financial institutions engaged in RMU operations to be able to bundle (and unbundle) RMU funds in foreign exchange and money markets of component currencies. In case of the private ECU, not all the component currencies of the ECU were fully convertible in the 1980s, and many member states maintained foreign exchange regulations (France, Italy, Portugal, Greece, Ireland

etc.). While those countries maintained capital account restrictions in general, they exempted ECU related operations (preferential treatment) in such a way as both resident and non-resident financial institutions could have an access to foreign exchange and money markets of ECU component currencies. In East Asia where many countries maintain capital account controls, the preferential treatment of RMU should be worth considering.

3-4-2-3. Stable exchange rates for the currencies that compose an RMU

RMU bonds are attractive for fund-raisers and investors so far as currency risks are foreseeable to a certain extent, and only when the foreign exchange risk is likely to stay within a limited margin, the market rate of interest can be considered acceptable for funding or investment purposes. The ECU bond market developed steadily within the framework of the EMS, but after the European currency crisis the market contracted sharply. In East Asia where there is no common exchange rate regime, it should be advisable to discuss the future vision of "a more closely coordinated regional exchange rate mechanism consistent with both financial stability and economic development" (section 3.2.5 of *Final Report of the East Asia Study Group* (2002) p.49) in parallel with the issue of the RMU.

3-4-2-4. Support by the member states of ASEAN+3

The encouragement and support of a private RMU by public authorities (ASEAN+3 and its member states) is indispensable to clarify the official long-term commitment and thereby to enhance the market confidence in RMU bond markets. In the case of the private ECU (not only bonds but in general) following measures were taken by the EC and member states:

a. opening of ECU deposit accounts with commercial banks by EC institutions
b. fund raising (bond issues, syndicated loans, and later treasury bills) by EC institutions and member states
c. the preferential treatment of ECU related operations in foreign exchange regulations
d. the acknowledgment of the private ECU legally or de facto as a "foreign currency" and its fixing in foreign exchange markets
e. the involvement of the European Commission and BIS in establishing the ECU inter-bank clearing and settlement system, and support of the ECU liquidity by the UK and French governments
f. the existence of the official ECU (its use as a booking unit of EC institutions, the daily announcement of ECU exchange rates by the European Commission etc.)

3-4-3. Weights of component currencies in an official RMU

The weights of the ECU were politically determined in a flexible manner subject to some specific criteria. The official criteria were member country's share of the Community GNP, intra-Community trade and the EMS financial support system. However, the economic criteria served only as broad indicators. According to the European Commission, "New weights are not automatically determined by the 'arithmetical average' supplied by these indicators; they result from an 'agreed average'." When an official RMU is to be created in future in East Asia, the experience of adjustments of the weights of ECU component currencies should be taken into account.

The currency composition of the EUA (predecessor of ECU) and ECU were changed only two times in 1984 and 89, after it was fixed originally in 1975. It should be noted that the frequent adjustment of the RMU composition causes difficulties for financial institutions to avoid subsequent exchange rate risks, and might harm the confidence of investors in RMU financial instruments.

3-4-4. The use of an RMU within the framework of ASEAN+3

In the postwar Europe there has been a long history of using MUs before the adoption of the ECU. The EPU UA was used by various institutions, not only during the period when the EPU was in force, but long after it was terminated in 1958. The ECSC, Euratom or the EIB used the EPU UA as a booking unit for the financial statements and in denominating payments. There is a record of the European Court using the EPU UA to fix the amount of fine ("orders the defendant to pay the sum of 100 EPU units of account to each pf the applicants," Judgment of the Court of 12 July 1957, Joint cases7/56, 3/57 to7/57).

It would be worth discussing to start to use an official RMU within the framework of ASEAN+3, when its secretariat is established eventually. The bookkeeping and payments of the ASEAN+3 secretariat should be denominated in an official RMU, and its use can be expanded in other activities of the ASEAN+3 such as payments for various projects (including research projects) and denominating the post Chiang Mai Initiative credit facilities in an official RMU.

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CHAPTER 4

HOW CAN WE INCREASE THE USE OF RMUs AND DEVELOP RMU DENOMINATED FINANCIAL INSTRUMENTS IN ASIA?

Chapter 4 : How Can We Increase the Use of RMUs and Develop RMS Denominated Financial Instruments in Asia?

This chapter will first study the possible use of RMUs in the public and private sectors in general, then the possible use of the RMU denominated financial instruments in the private sector.

The analysis will start by reviewing the significance of developing and widening the use of RMU denominated financial instruments. Then it will show that judging from the precedent of the ECU, there would be a kind of sequencing in the development of RMUs, from official to private use and from long-term to short-term financial products.

Based on these observations, the possible use of the public RMUs will be examined. Then the conditions to enhance private RMUs will be studied. The study will confirm that such conditions are not ripe in Asia, and based on that premise, the authors will examine the necessary conditions that would encourage their use in the most promising areas, which are bonds, loans and index trading. Through this process the chapter will consider the implications of the various means to spread the use of RMU denominated financial instruments.

4-1. How does the development of RMU denominated financial instruments lead to the improvement of Asian financial and capital markets?

4-1-1. General characteristics of RMUs

The characteristics of RMUs are as follows.

(a) diversify foreign exchange risks

Because RMUs are composites of multiple currencies, foreign exchange risks can be diversified. The deviation of foreign exchange rate of any one currency within the group of composite currencies of RMU against the RMU is lower than that of the currency against another member currency.

In this regard, some argue that the use of RMUs would be limited as the regulators would not allow the financial institutions to book and keep RMU denominated assets and liabilities because the hedging instruments are limited. However, the use of RMUs should be allowed as long as the risk is appropriately managed by financial institutions. In addition, regulators could recommend the use of

RMUs by applying some preferential treatment in the supervision of financial institutions.[16]

(b) provide the weighted average interest rate of component currencies

Weighted average interest rate of component currencies could be offered as interest rates for financial instruments. As long as foreign exchange risks are within acceptable bounds, the countries with relatively low interest rates among the Asian economies can conduct their fund management in the RMU denominated financial instruments, thereby being able to benefit from higher interest rates than if management operations were conducted in their own currencies. On the other hand, by raising funds through RMU denominated financial instruments, those with relatively high interest rates can raise funds with lower interest rates than through financial instruments in home denominations.

Because of these characteristics, the use of RMUs in Asia would contribute to solving the problems that Asian financial and capital markets have, as were revealed in the Asian currency crisis. Let us examine the possibilities.

4-1-2. Problems in Asian financial and capital markets revealed by the Asian currency crisis

One of the key problems that the Asian currency crisis of 1997-98 exposed was the fact that the Asian financial and capital markets could not carry out their function of bridging the abundant savings in Asia and the irrepressible investment demand within the region.

Before the crisis, the Asian savings flowed to the financial institutions and markets in the developed countries outside Asia and those financial institutions and investors provided the capital funds to Asian governments, financial institutions and corporations. In such cases, capital was raised in the US dollar and other non-regional currencies and the fund raisings were mostly short-term. These funds were utilized in real and financial investments in Asia, which meant that the funds were managed in the home currencies for mid to long term investments. As a result, the entities that were provided with the funds had to carry foreign exchange and interest risks, but they did not fully appreciate that fact nor did they manage the risks properly. One reason for such shortcomings was the fact that many of the Asian countries had been adopting a de-facto US dollar-peg foreign exchange rate system and had not been fully cognizant of the risks involved.

The risks were realized once funds were withdrawn from Asia abruptly. Thailand had to abandon the

[16] See Tharman Shanmugaratnam (2006) Asian Monetary Integration: Will It Ever Happen? P. 15 "prudent supervisors will also want to make sure that financial institutions, particularly banks, when using an ACU as a currency of denomination for loans or other assets, will not face currency mismatches vis-à-vis their national currencies, which have typically been the currencies of denomination of banks' liabilities. So prudent supervision is also likely to hinder the advancement of an ACU."

de facto dollar-peg system and the effect spread quickly to other countries, developing into a currency crisis. If the savings and investment in Asia had been bridged, these risks, even if realized, would not have developed into a major crisis and the consequential losses could have been contained within a manageable magnitude.

There are mainly two major ways to avoid the recurrence of such risks. The first is for the private and public sector players in Asia to take every possible step to manage risks. For example, the regulations that rule the health of financial institutions and corporations could be improved and an exchange rate system that is more flexible than the dollar-peg system could be introduced. This would enable the players in the foreign exchange market to be more sensitive to foreign exchange risks. The second way is to create a framework to intermediate between savings and investment. Since such a financial intermediary function is precisely the function of financial and capital markets, this second way would really mean improving and better organizing the financial capital markets in Asia. The markets that are being discussed here include both the domestic markets and across the border markets within the region.

4-1-3. Facilitating the use of RMUs would contribute to the improvement of Asian financial and capital markets.

Asian Bond Market Initiative (ABMI) and Asian Bond Fund (ABF) are the steps to tackle aforementioned problems and the governments and market players have made the effort to improve their home markets in order to better organize the Asian financial and capital markets. The authors would like to emphasize that the steps to promote the use of RMUs would also contribute to the improvement of Asian financial and capital markets and their functions.

As the precondition to promote the use of RMUs, or more precisely, the use of RMU denominated financial instruments, measures must be taken to make the financial products denominated in the Asian local currencies convenient to use and trade with low costs. Unless such criteria are met, RMU denominated financial instruments would not achieve adequate convenience and low trading costs. Various measures to promote the use of RMUs would increase the momentum to advance the use of the ABMI, ABF and other measures.

4-1-4. The use of RMUs would facilitate the bridge between savings and investment in Asia

Since RMU denominated financial instruments would consist only of currencies within Asia, both the fund raisers and fund managers in the region would be able to take advantage of the characteristics of RMUs which is diversifying foreign exchange risks and providing the weighted average interest rates.

Needless to say, the Asian countries differ from one another and their economic and financial systems are in various stages of development. There are countries that have relatively high interest rates and there are economies that are in the development stage with a huge appetite for investment. It would be possible for these countries to raise funds at lower interest rates than using home currency denominated instruments by utilizing RMU denominated financial instruments. On the other hand, there are countries that have relatively low interest rates and economies that are more mature and have abundant savings, while there are not many possibilities for an increase in investment demand. These countries can conduct their fund management with RMU denominated financial instruments at a higher interest rate than with the home currency denominated instruments.

If RMU denominated financial instruments are convenient to use, the transaction costs are sufficiently low and the foreign exchange rates move within the acceptable margin of risks for market participants, RMU denominated financial instruments should provide effective means to move funds from the latter to the former countries efficiently. If such efficient utility were acknowledged in the Asian financial and capital markets and demand for RMU denominated financial instruments should increase, that would create the momentum to improve the markets in order to enable such instruments to be used more conveniently at lower cost. If transactions in RMU denominated financial instruments should expand as a result, it would strengthen the role of the Asian financial and capital markets as the bridge between savings and investment in the region.

4-1-5. The use of RMUs would decrease the mismatch of foreign exchange positions in Asia

RMU denominated financial products would provide the weighted average foreign exchange and interest rates of Asian currencies. These would be ideal products for extra-regional investors wanting to invest throughout Asia. If the products were to be appreciated widely outside the region as being highly convenient for investment throughout Asia and extra-regional investors were to purchase these products, then they would facilitate the flow of funds into Asia without the Asian fund raisers having to incur the associated foreign exchange risks. If RMU denominated inflow should increase within the non-Asian to Asian capital flow, and if RMU denominated transactions should spread into the cross-border transactions between Asia and outside Asia, the ratio of foreign exchange risks that the Asian region has to bear would decrease and that of other regions would increase. This would be another aspect of improving the functions of the Asian financial and capital markets.

Denominating financial instruments not in a single currency but in a RMU is, by itself, not difficult, but market participants do not have a deep appreciation of the possibilities of RMU denominated transactions. However, considering the significance of the utilization of RMUs and RMU denominated financial instruments, from a mid to long term perspective, it is highly beneficial to

consider the use of RMUs in transactions. The next section will analyze how realistic RMU denominated transactions are and what needs to be done to increase the possibility of RMU denominated transactions from multiple angles.

4-2. Sequencing for the development of RMUs

4-2-1. Europe's experience with ECU

As chapter III depicts the experience of Europe with ECU, there are official and private uses of RMUs. As part of the official use, RMUs can be utilized as denominations for financial statements of public institutions such as governments and governmental institutions in the region as well as international financial institutions and regional financial institutions and as the vehicle currency for inter-governmental asset and liabilities agreements. RMUs can be used in the private sector as the denomination for current account and financial and capital market transactions.

The following observations can be made by looking at the various RMUs that existed before the birth of the ECU in 1979.

(a) When there was no official use of the RMU, then the private RMU was one-off.
(b) Even when there was an official RMU, the use of RMUs that did not have an official support (such as the SDR) was limited.
(c) RMUs that were used for official purposes as well as having official support (such as the ECU) were able to achieve a certain degree of success.

Private RMUs can be used to open RMU denominated bank accounts by public institutions, to issue RMU denominated bonds by public and private institutions, for RMU denominated syndicated loans as well as for lending and deposit transactions. If such uses of a RMU spread, then the demand for fund settlement in the RMU denomination would increase as well and the settlement system for the RMU denominated funds would be developed. In parallel to this, foreign exchange and money market transactions in the RMU would increase. As a result, RMU foreign exchange and money markets were created and the RMU was traded as if it were another currency, like the mark, franc or sterling.

4-2-2. From official use to private use

So called sequencing can be observed from the way in which RMUs developed in Europe.

First, the utilization of RMUs starts with official use and expands to private use. Through official use, a single RMU is chosen. Then the private sector experiments start if such an official RMU can

be applied to private financial transactions. As a result, the private sector begins to use this RMU and its use further develops. The essential step in this sequencing is where and how a single RMU is chosen. As will be explained later, if there were more than one RMU, it would be difficult to conduct transactions in RMU denomination efficiently. It is also natural to assume that it would be difficult for the private sector to choose one RMU. That is likely why the sequencing in Europe was mostly for private use to follow official use.

In East Asia, although there is a general agreement to support the research and examination of a currency basket, there is no clear understanding among the member countries about the ideal future foreign exchange rate system for East Asia.

Because of this unique circumstance, it is necessary to study the ways in which the private RMU would be promoted before the official RMU was launched.

4-2-3. From long-term to short-term financial instruments

The second rule of sequencing is that in the private RMU, the utilization expands generally from long-term to short-term financial instruments. The establishment of the RMU denominated fund settlement system plays a major role in this sequencing because without it, the sales payments of RMU denominated financial instruments would have to be made, not in RMUs, but in one specific currency or combination of currencies. Once the RMU denominated fund settlement system is created, funds denominated in RMUs can be exchanged with ease which would lead to RMUs being used in short-term transactions as well. Such a scenario seems to reflect the way RMUs developed in Europe, where they were first used mainly for bonds, loans and deposits. Then the RMU denominated fund settlement system was created, after which RMUs were used in foreign exchange and money market transactions.

4-3. The potential official use of RMUs

In order to find ways to promote RMUs, let us examine their potential official use and the areas that Asia should start with.

4-3-1. RMUs as a deviation indicator to achieve intra-regional exchange rate stability

As the integration in the region progresses, it is important to ensure the stability of foreign exchange rates among the currencies in the region. In order to stabilize foreign exchange rates among the regional currencies, it is necessary to have an indicator that would measure the foreign exchange deviation in the region. The deviation ratio of the component currencies' foreign exchange rates

against the RMU from the central rate would serve as an appropriate deviation indicator. The currency that has a heavier weight in a RMU has a tendency to fluctuate against RMU less than currencies with smaller weights. This should be noted when surveillance of the economic and financial situations in the region is conducted and when the foreign exchange stabilization mechanism is put in place.

RMUs can also be used as an indicator to measure the external value of the regional currencies as a whole. RMU is expected to fluctuate against the currencies outside of the region. The misalignment of external value (deviation from the equilibrium rate) and excessive volatility, however, have a negative impact on the regional economy. Hence, it is important to keep an eye on the external value of RMUs in order to manage the region-wide foreign exchange rate policy smoothly.

If RMUs are acknowledged as playing a central role in the region's foreign exchange system and if the currency authorities of the region pay enough attention to maintaining a stable intra-regional value and monitor the trends of its extra-regional value. RMU's attractiveness and credibility as the denomination for official and private transactions would greatly increase. Evidently, maintaining stability of the value is important for the currency of denomination. The fact that the ECU was chosen as the central ingredient in the EMS in Europe enhanced the credibility of the ECU and the use of the ECU in private transactions.

4-3-2. RMUs as an account unit for multilateral institutions and systems

As can be drawn from the European experience, it would be practical to start by using RMUs as the unit for accounting such as in financial statements, budgets and account settlements. It is not reasonable to jump start to something like an official ECU which began in Europe in 1979 when there is nothing to base the leap from.

Which of the regional public institutions would be a good candidate to use RMUs as the presentation currency for financial statements? One possibility is the possible permanent secretariat for the strengthened Chiang Mai Initiative (CMI). Other possibilities are the public institutions in the region such as the ADB. By encouraging various public institutions to use RMUs, they would become more widely accepted. Another method is to use RMU denomination in the budget and account settlement reports for activities where expenses occur under the ASEAN+3 framework. For example, the budget for this research project could be in RMU denomination.

Needless to say, as a prerequisite for such developments, it is necessary to choose a single official RMU. There would be too much confusion if there were more than one RMU that could be used for the above purposes. In order to determine the RMU to be adopted, it would be necessary to obtain a

consensus among the Asian countries. But since the economies in the region are at various stages of economic and financial development, it is highly possible that countries would have differing ideas of the way in which the weights should be calculated and their attitudes towards RMUs would be affected by the result of the weight calculation, in other words by how high or low the weight of their currency would be. The European experience shows that weights were politically (not arithmetically) fixed based on broad economic indicators. It may be difficult to agree on the one official RMU to be adopted in the near future in East Asia, but it is important to prepare the ground for such a debate.

4-3-3. RMUs as a denominator for foreign exchange intervention and credit mechanism by the authorities in the region

RMUs could be used as a denominator for credit and debt contracts or payment and receivables among the governments in the region. For example the ceiling for the existing CMI swap agreements could be denominated in RMUs.

In the future when the mechanism to maintain foreign exchange rate stability in the region was established, it would be necessary to develop the lending and borrowing system among the governments including arrangements among the financial and monetary authorities in case of intervention. RMUs could be used as the denominator in such a case.

Here we would like to emphasize that if the contract currencies are RMU denominated when the currency authorities lend and borrow funds for market intervention in order to stabilize the foreign exchange rates among the regional currencies, the risks for the repayment of funds caused by foreign exchange rate fluctuation would be decreased.

For example, let us say that there is a downward pressure on the currency of country B against the currency of country A. If country B borrows the funds for intervention from country A in A currency denomination, and if the intervention were successful and the B currency's exchange rate against the A currency were stabilized or bounces back, then the repayment burden of the B country measured in B currency would not increase or it could even decrease. However, if the intervention is not a success and the B currency's value against the A currency continues to fall, the burden of repaying the intervention fund measured in B currency would increase because the intervention fund was in A currency denomination. If the borrowing of the intervention fund were in RMU denomination and country B had borrowed the equivalent amount in A currency, then the increase in the repayment burden caused by the exchange rate fluctuation between the two currencies would decrease. This is because if the borrowed fund were in RMU denomination, both country A and B would share the

foreign exchange risk burden.

By denominating contracts in RMUs not only in short-term lending and borrowing to finance intervention funds but also in mid to long-term lending, the risk of the repayment burden and the risk that the repayment receivable would alter because of foreign exchange fluctuation would be shared by the creditor and debtor countries.

It is necessary to be highly aware of the fact that denominating credit and debt agreements in RMUs not only has a symbolic importance but also creates the mechanism under which the foreign exchange risks among the regional currencies are shared by regional countries.

4-3-4. RMUs as a reserve asset

In Europe, the central banks paid 20% of their gold holdings and 20% of their dollar reserves to the European Monetary Cooperation Fund (EMCF) and held the equivalent ECU as foreign reserve. In a similar manner, Asia may be able to create RMU denominated foreign reserves. For that to be realized there has to be a deep trust and acknowledgement of the RMU by the governments outside of the region as well as governments within the region. In order to gain that trust, there must be substantial trust in the component currencies of the RMU. Component currencies would have to meet certain criteria of convertibility and the country issuing the currency must have a credit rating above a certain level.

4-3-5. Which official RMU use is promising?

Judging from the current situation in Asia, it is hard to imagine, for the time being, that an agreement could be reached among the regional countries on one official RMU after debating the component currencies and their weights. So the various utilization ideas discussed above are unlikely to be realized in the near future. However, it is beneficial for member countries to start a debate on this issue.

If an agreement could be reached to create one official RMU, then it could begin to be used as the value indicator to measure foreign exchange rate stability in the region (since it may not be ripe yet to create the mechanism for foreign exchange rate stability soon, the RMU would be used within the framework of surveying the economic and financial situations of the member countries) and as the accounting unit for the public institutions and systems in Asia. It would take more time from then to use the RMU as the denominator for credit and debt contracts among regional governments or to use it as foreign reserves because such developments would require further deepening of the cooperative relationship among the financial authorities of the region.

4-4. Conditions that facilitate the private use of RMUs

Here the conditions that would facilitate the private use of RMUs are examined.

4-4-1. Convenience, low cost of transaction and information, and stability of the value of RMUs

The following conditions should promote the use of RMUs when taking account of the role of currencies in an economy and of the fact that RMUs are composite currencies with no enforcing power.

(a) Convenience and the low transaction/information cost of RMUs

Generally speaking, if RMU denominated transactions are convenient enough and the transaction/information costs low enough, then the entities that aspire to make use of the characteristics of RMUs, which are diversifying foreign exchange risks and providing the average interest rate of the region, will consider RMU denominated transactions. If RMU denominated transactions should expand as a result, it would create a favourable condition where there would be further improvement of convenience and transaction/information costs, which in turn would increase RMU denominated transactions. The conditions to maintain the convenience and low cost of transactions and information in RMU denomination must be examined.

(b) The cost of transactions and information in RMU must be lower than the cost of combined transactions in individual currencies

If it is cheaper to purchase the financial instruments denominated in component currencies according to their weights than to purchase RMU denominated financial instruments, there is no benefit in buying RMU denominated instruments.

(c) Transaction and information cost of individual component currencies of RMUs must be sufficiently low

Sometimes it is necessary to buy or sell individual currencies in order to cover the foreign exchange positions created by the trading of RMU denominated financial instruments. In that case, the costs associated with the trading of individual currencies must be sufficiently low.

(d) Stabilization of the value of RMUs

Stability of a currency value in an economy is pursued, and in the same manner, if the value of a RMU

is stable then its attraction as a currency would increase. Since RMUs will be composites of Asian regional currencies, foreign exchange stability among the regional currencies would contribute to the stability of RMUs' intra-regional value.

The following practical condition would contribute to meeting the conditions mentioned above.

4-4-2. A single RMU should prevail in the region

There must be only one single RMU prevailing in the region. If there are different kinds of RMUs, the transaction volume of each would be small, there would be low convenience and transaction and information costs would increase. The cost of creating a fund settlement system for RMUs would increase as the number of RMUs increase. There would be a psychological downside as well. If there are multiple RMUs, then it would take more time for them to be generally accepted as currency units than if there was one RMU.

Looking at the experience of Europe, there is no doubt that the use of the ECU increased when RMUs were merged as the ECU in 1979 (except for the green rate that was used in the Common Agricultural Policy).

As this example shows, even if all RMUs that exist in markets are not merged into one, it is at least necessary to have only a single RMU prevailing in the region in order to promote the private use of the RMU efficiently.

4-4-3. Convertibility of RMU component currencies

The entities that conduct RMU denominated transactions out of foreign exchange risk management perspectives, would need to sell or purchase component currencies individually in order to square the excess foreign exchange holdings created by the transaction. When the volume of RMU transactions and the foreign currency holdings that result from such transactions are limited, the institutions may use the non-deliverable forward (NDF) market abroad and be able to cope with the situation to some degree even if the home foreign exchange market for the currency could not be used. However, if the volume of the foreign exchange holdings is large, then it would be necessary for the resident or non-resident holder to be able to access the foreign exchange market and money market of the currency freely and be able to trade. So the currency must be convertible at least to that extent. Also, cash deliveries of currencies is possible only in foreign exchange markets, not in NDF market.

It is clear that as is generally accepted, ideally, convertibility of the component currencies should be established. However, because Asian countries are in different stages of development in their

economies and in their financial systems, there are countries where the local currency is convertible and there are others where that is difficult. In countries where currencies are not convertible, economic development and improvement of financial systems should be pursued, and currency convertibility should occur as a result of that endeavor. The Asian currency crisis showed us that it is not desirable, in view of preventing currency crises, for currencies to become convertible before adequate economic development is achieved or before financial systems reach a competent level.

We should note that there is a way of allowing convertibility of a currency on a limited basis. For example, sales and purchase of component currencies by residents and non-residents could be permitted to adjust the foreign exchange positions related to RMU transactions.

We should assume that it would be difficult for currencies that could not be allowed convertibility even to adjust the foreign exchange position related to RMU transactions to be component currencies in RMUs for private use.

The core-RMU scheme is an idea to create a core-RMU with major currencies that meet certain provisions as the components of a currency basket. These component currencies would have to have minimum convertibility, but the problem in East Asia is that such currencies are very limited.

In order to solve this problem it is first of all necessary to expand the volume and the depth of the financial markets in each member countries. However, there is currently a limit to the number of countries that have developed markets, especially short-term financial markets. Development of such markets as well as inter-bank short term money and repo markets for banks is necessary but there are only a few countries where short-term benchmark rates are established.

Also there seems to be a lack of shared statistical data on the volume of inter-bank short-term money markets and repo markets. One possibility is for the ASEAN+3 countries to have the establishment of short-term benchmark rates as a shared policy objective. There is also a possibility of monitoring the performance of the inter-bank short-term markets and repo markets periodically using a shared format.

Secondly, there are some currencies whose convertibility could only be realized when regional financial cooperation had been strengthened, for example, by developing a mechanism for supplying liquidity in emergencies in East Asia. RMUs composed of multiple currencies with convertibility could only be realized when regional financial cooperation had been strengthened such as by establishing a permanent secretariat with surveillance functions in addition to strengthening the financial market infrastructure of member countries.

4-4-4. Official use of RMUs

The official use of RMUs has the psychological effect of creating confidence in RMUs in the private sector by spreading the understanding that RMUs have been endorsed by the currency authorities. Even if the public sector does not make any concrete commitments, it would still spread confidence in the private sector about the value and the use of RMUs.

Various RMUs that had been used officially were merged into the ECU in 1979. This served as the opportunity for the private sector to increase the use of RMUs. It is important to note that because RMUs had been used in the public domain, that led to the use in the private sector and then to the expansion of their use.

4-4-5. Official involvement in the development of the private use of RMUs

Official involvement in the private RMUs is another condition that promotes their use. It is not desirable to implement preferential treatment that has excessive or even large economic costs because of the question of durability and from the point of balance between cost and benefit that such treatment could bring on the regional economy. But if there were demand for private RMU, it would be desirable for the public sector to extend its involvement. Public support would be effective and essential for the promotion of the RMU-denominated transactions not only at the initial stage but also at the later stage. Some concrete means of involvement that the public sector could extend are the issuance of short and long-term RMU denominated public bonds, preferential treatment regarding the Foreign Exchange Control Law (for example means to exempt RMU denominated transactions as special exceptions from regulations on non-residents' access to money markets and foreign exchange markets.), legally treating RMUs as foreign currencies (including those in the foreign exchange market), supporting the creation of a fund settlement system for RMU denominated transactions, and exempting withholding tax on the income of RMU denominated bonds for non-residents.

4-4-6. Establishing a RMU fund settlement system

When trading in RMU denominated long-term financial products, the transaction could be operated smoothly by conducting the settlement not in a RMU denomination but in a specific currency. However, with regards the transactions of short-term RMU denominated financial instruments, where there are frequent exchanges of funds in a short time such as in short-term financial markets or foreign exchange markets, it would be inconvenient if there is not a RMU fund settlement system. A RMU fund settlement system is not indispensable for RMU denominated transactions but it would greatly encourage them, especially short-term transactions.

4-4-7. Stability of exchange rates among RMU component currencies

If a RMU is used as a denominator, stability of its value would have to be maintained. When foreign exchange rates among the regional currencies are more stable, the issuers and holders of RMU denominated financial instruments would have less need to guard against foreign exchange risks and there would be less risk of diminishing the benefit of the average rate of interest in Asia by fluctuations in the exchange market. The necessity to hedge foreign exchange risks and the associated costs would also decrease. As this scenario indicates, stable exchange rates among the RMU component currencies would greatly enhance the attractiveness of using RMUs.

Various measures to stabilize the regional foreign exchange rates are likely to be pursued within the Asian regional framework. Improvement in stability would promote trade in goods and services in the region and would also promote the private use of RMUs.

After the European currency crisis of 1992-93 when regional foreign exchange stability was severely damaged, the use of the ECU decreased precipitously. Its recovery was only possible when there was a realistic assumption that the ECU would become a single currency. This experience indicates how important the stability of foreign exchange rates among the RMU component currencies is, especially for the private use of RMUs.

4-5. Premise for studying the possibility of the private use of RMUs in Asia

Following are necessary conditions to promote the private use of RMUs because of their convenience, low trading costs and value stability.

- There should be a single and not multiple RMU prevailing in the region.
- Convertibility of RMU component currencies.
- Official use of RMUs
- Official involvement in the private use of RMUs
- RMU fund settlement system
- Foreign exchange stability among RMU component currencies

Of these conditions, it is difficult to assume that “there should be a single and not multiple RMU prevailing in the region.”, or that “official use of RMUs” or “RMU fund settlement system” will be achieved in Asia soon. It would be possible to achieve “convertibility of RMU component currencies” if the component currencies were well selected. On the other hand, whether “official involvement in the private use of RMUs”, and “foreign exchange stability among RMU component currencies” would be achieved would depend on future developments.

Based on this analysis, the authors would like to propose the following three premises for studying the private use of RMUs.

4-5-1. A single prevailing RMU would not be a precondition.

It is difficult to presuppose that the three conditions; "There should be a single and not multiple RMU prevailing in the region", "Official use of RMUs", and "RMU fund settlement system" would be met at the same time. Among the three, the most important is "There should be a single and not multiple RMU prevailing in the region." However, just because this condition cannot be met, it does not mean that it is meaningless to study the private use of RMUs. For example, in Europe there were multiple RMUs existing in parallel until the birth of the ECU in 1979. Hence, it is not irrelevant to study the possibility that multiple RMUs would be used in the private sector as a preparatory stage before a more full-fledged RMU come into use.

4-5-2. The composition and weight of component currencies of RMUs should be decided by the relevant parties that use RMUs in the private transactions.

Since official use of RMUs cannot be assumed, the component currencies and their weights would be decided by the relevant parties. This would mean that there would be multiple types of RMU denominated financial instruments circulating in the markets. It would be ideal if the component currencies and their weight for various RMUs were decided with a prospect that these RMUs would be merged into one single RMU in the long-term and that both the public and the private sector would use the same single RMU. But in reality the composition and weight of component currencies would depend on how the relevant parties use RMUs. It would be up to those parties to decide whether to apply a wide type or core type of RMUs. But caution should be taken when adopting a wide type of RMU since it is likely to include currencies that could not be traded easily. It may be more difficult to manage the risks inherent in the issuance and purchase of financial instruments denominated in such RMUs.

4-5-3. Payment for RMU denominated transactions should be made in a specific currency or a combination of several currencies in the initial stage.

Since the creation of "one single RMU prevailing in the region" cannot be assumed, it would be difficult to presuppose the existence of a RMU denominated settlement system. This means that it would be necessary to settle RMU denominated transactions in the equivalent amount of Asian currencies that have adequate convertibility such as the Japanese yen, the Hong Kong dollar or the Singapore dollar, or in major global hard currencies such as the US dollar or the euro. When transactions are between the residents of the Asian region, it would also be possible to use the local

currency for settlement even if the currency does not have convertibility, provided that there is no domestic regulation against such transactions.

In actual transactions, the relevant parties would decide the currency for settlement. For example, in bond transactions, the currency of use for issuance, redemption, interest payment would be determined by the prospectus drawn at the time of issuance. Currency of use for settlement of trade after issuance but before redemption would be decided by the parties involved in the trade.

Creation of a RMU denominated fund settlement system should be examined when there is a prospect of determining one single RMU prevailing in the region in the future.

4-6. Transactions that are most promising in developing the private use of RMUs

4-6-1. Financial use is more promising than commercial use

RMU denominated transactions can be divided into commercial and financial, and of the two, financial use seems more promising.

Looking at the possibility of denominating trade contracts in RMU as a means of commercial use, many traders are likely to be reluctant to change contracts to RMU denomination for the following reasons.

(a) The weight of the dollar is high as an invoicing currency in the region.
(b) It is highly possible that the currency of contract is chosen from among the home currency, the trading partner's home currency and major currencies like US dollar by considering the balance of power between the relevant parties and comparing how convenient each currency is.
(c) Traders want to fix their profit in their home currencies and are likely to want to avoid complicating their risk management or profit calculations by denominating contracts in RMUs.

The choice of currencies in trade transactions usually reflect the balance of power between the relevant parties based on the profit and risks from the transaction, the desire to minimize transaction costs and habit from past transactions. Since these factors do not change in a short time, it is common that it takes a long time to change the invoicing currency. Hence, it would take considerable time to denominate the currency of trade contracts in RMUs. Perhaps for similar reasons, ECU denominated trade contracts did not spread as much as in financial and capital transactions.

The RMU debate has only begun in Asia and it would take even longer for RMUs to be adopted for commercial use in Asia since even the definition is not clear and RMUs have not yet been recognized

as currencies.

In comparison, the use of RMUs is more promising in financial transactions because RMUs have such characteristics as risk diversification which is a key factor in financial transactions.

4-6-2. RMU use in bonds, loans and index trading is promising.

The possible areas of RMU use are trade financing, stocks, bonds, loans, short-term financial market instruments and index trading. In which of these areas would it be possible to develop the use of RMUs without assuming that there would be a single RMU?

In trade financing, the risk hedge function would be effective only if trade contracts were denominated in RMUs since trade financing would be based on those contracts. As mentioned above, changing the invoicing currency to RMUs would not be easy. So RMU denominated trade financing is not a promising prospect.

Stocks are basically denominated in the home currencies. Since there are no foreign currency denominated stocks, RMU denominated stocks would be unthinkable since RMUs would be a foreign currency. If settlements are made in home currencies, stocks probably have to be denominated in home currencies as well. There are exceptions, like depository receipts, but the volume is very limited.

The use of RMUs in short-term financial market instruments would be attractive if it were possible to exchange RMU denominated funds frequently. But since a RMU denominated fund settlement system is not on the horizon, the use of RMUs for such products is not promising either.

On the other hand, RMU denominated bonds and loans seem more promising. It would be possible to trade in RMUs if there was an agreement that the denominator for single currency denominated bonds and loans would be switched to RMUs, interest rate for coupons and yields would be determined by the weighted average of the component currencies, and an appropriate currency would be chosen for settlement of trade payment since there is no RMU denominated money market and settlement would be conducted in the equivalent amount in that currency. The phase 2 of ABF2 provides something close to the economic benefits of RMU denominated bonds because it diversifies the investment of funds provided by private investors to sovereign bonds denominated in various Asian currencies. In that sense, RMU denominated bonds could, in effect, be said to exist. From this observation, RMU denominated bonds seem promising. RMU denominated loans are also promising because although the form of transaction is different, the economic benefits are similar.

The use of the ECU in the private sector began with bonds and loans, then spread into other areas.

This European experience indicates that it is beneficial to study the possibility of RMU denominated bonds and loans.

Another possibility is index trading by using RMUs as the index. In Singapore and Hong Kong, there are already seeing transactions that settle the differences through Asian bond index and other means on the day of maturity without the transfer of actual assets. Though the market volume is small, it is used by investors. This type of transaction looks promising as well.

4-7. Feasibility of RMU denominated bonds

This section will deal with RMU denominated bonds. Though loans have a similar economic benefit with a different form of transaction, we will concentrate on bonds here.

As stated above, it would be possible to trade in RMUs if there were an agreement that the denominator for single currency denominated bonds and loans would be switched to RMUs, interest rate for coupons and yields would be determined by the average weight of the component currencies, and trade payments would be calculated into a single currency and settlements made in the equivalent amount in that currency. It would not be difficult to change the denominator of bonds and loans into RMUs. The following are the means that should be taken to promote RMU denominated bonds.

4-7-1. From issuers' perspective

(a) Necessary steps to promote issuance by governments and leading corporations

Judging from investor demands, issuance of RMU denominated bonds by governments, governmental organizations, and financial institutions and corporation with high credibility would be the catalyst to promote RMU denominated bonds.

Taking a look at where governments stand, they do not see the need to issue RMU denominated bonds. But in the case of Europe, the ECU was highly promoted by the large-scale issuance of government bonds. So it would be meaningful to issue RMU denominated government bonds if governments could raise funds more efficiently and would be able to hedge risks better by issuing RMU denominated bonds for governmental projects.

From the policy perspective of nurturing RMU denominated bond markets, should governments, governmental organizations, ADB and other regional public institutions study the possibility of issuing bonds in RMU denomination? The Hong Kong SAR Government and its predecessor did issue bonds even though the government fiscal balance was in surplus in order to develop the local bond markets.

As for financial institutions and corporation with high standing, they should consider the use of RMU denominated bonds if there are investment projects where it would be possible to raise funds and hedge risks efficiently by issuing bonds in RMU denomination.

(b) The experience of ABF and application of ABC bond scheme

In the second phase of ABF 2, funds are raised from the private sector and are invested in bonds denominated in Asian currencies and issued by Asian governments and governmental organizations besides Japan. If such funds should spread into the private sector, the issuance of beneficiary certificates would have the same economic benefit as the issuance of RMU denominated bonds. Professor Takatoshi Ito proposed ABC bonds even before the ABF 2. His scheme is to transfer the bond holdings denominated in Asian currencies to a special purpose company (SPC) and for that company to issue RMU denominated bonds. This is another way of promoting RMU denominated bonds.

4-7-2. From the investor's perspective

(a) To gain the interest of investors from countries with relatively large financial and capital markets and high savings balances.

Attracting the interest of investors from countries with relatively large financial and capital markets and high savings balances would be very effective in promoting RMU denominated bonds. This would mean that it is important to win the interest of Japanese investors since the volume of Japanese financial and capital markets and the balance of savings are far larger than those in other Asian countries. Japan also stands out for its low interest rates. This means that RMU denominated bonds which offered the average interest rate in Asia would be potentially very attractive to Japanese investors. However, there is a "home bias" among these investors and financial instruments should be tailored with such a bias in mind. For example, in the second phase of ABF 2, "The launch of the yen-denominated Japanese feeder fund for the PAIF" was conducted to invite investment from Japanese investors and it was sold by Japanese securities companies to Japanese investors.

Needless to say, it is necessary to target the investors of countries besides Japan that have good sized financial and capital markets as well as national savings. It is essential to have a RMU denominated bond sales strategy that takes "home bias" into account.

(b) Implanting the impression that buying RMU denominated bonds would mean buying Asia

In order to promote RMU denominated bonds, it is also important to implant the impression in the minds of investors from outside the region, especially those from developed countries, who could

become major investors, that buying RMU denominated bonds would mean buying Asia and encourage them to actively purchase RMU denominated bonds. This line of promotion is effective when judging from the European experience. Investors bought ECU bonds with the impression that they were "buying the EU" or that "buying German mark bonds meant buying Germany but buying ECU bonds would mean buying at the average interest rate of Europe, and ECU bonds had higher returns than German mark bonds."

(c) Means to emphasize the attraction of RMU denominated bonds by using the lack of convertibility of Asian currencies and the high transaction costs in financial and capital markets

Instead of buying RMU denominated bonds, there are ways of buying the individual bonds of component currencies according to the weight of those currencies in the RMU. Asian currencies that have adequate convertibility are limited and the transaction costs (which can be calculated from the spread of the buying and selling prices of bonds denominated in Asian currencies are quite dear. However, the investment strategy to buy bonds denominated in component currencies instead of RMU denominated bonds is not easy to carry out and do not necessarily show high investment performance.

These circumstances indicate that if environment that allows RMU denominated bonds to be traded freely were created and if transaction cost from trading could be maintained low enough, there is a possibility to promote RMU denominated bond issuance and trading. One measure that governments can take would be to apply preferential treatment from foreign exchange control laws so that both residents and non-residents would be able to trade freely. It would also be helpful to encourage governments to maintain adequate amount of bond issuance in order to lower the transaction costs of RMU denominated bonds. Limiting the number of issues and increasing the issuance volume of each issue would also be important. Exempting withholding tax from non-residents would also contribute to the lowering of transaction cost.

(d) Securing the investment suitability status for RMU denominated bonds

If RMU denominated bonds are admitted as eligible assets for pension funds, insurance companies, and investment trust funds to invest in, the number of investors in RMU denominated bonds would increase. When RMU denominated bonds are acknowledged in general as investment object and once highly credible entities begin to issue bonds in RMU denomination, there would be a wide-spread understanding that RMU denomination means suitable for investment.

(e) RMU denominated bonds as foreign reserves

Governments can diversify the currencies in the foreign reserve holding by purchasing RMU

denominated bonds (government bonds). Holding RMU denominated bonds means, in practical terms, holding Asian currencies that are the components of RMUs besides holding the dollar, the euro and the yen. This is the benefit that central banks who are members of EMEAP gained by investing part of their foreign reserve in the ABF. (IMF acknowledges the investment in the ABF as foreign reserve: The key was to take the appearance of "dollar denominated bond to BISIP".) It should be possible to use the RMU denominated bonds held by currency authorities for intervention in foreign exchange market to stabilize regional foreign exchange rates in the future.

As the share of Asia grows in the global economy, there would be increasing demand from extra-regional governments to hold Asian currencies as part of their foreign reserve provided they meet certain criteria as foreign reserve currencies. From the overall perspective of a national economy, if a country wants to build up its external purchasing power stably, it is wise to hold the currency of the trading partner from which the country imports most as this would be effective in limiting the influence of foreign exchange rate fluctuation on the real value of the external purchasing power. If RMUs meet the conditions to be a reserve currency, then there is sufficient possibility that extra-regional countries would consider including RMUs as part of their foreign reserve.

Needless to say, it should not be overlooked that foreign reserve management is made independently by each country.

4-7-3. From the standpoint of bond settlement system

There is no difference between the settlement of RMU denominated bonds and the bonds denominated in one of the currencies if the settlement is made by converting the RMU into one of the currencies that are available at the moment and the settlement is made in that specific currency. Except for some technical factors, the existing settlement system could be utilized. As for the funds settlement system, it would be explained later.

In view of the characteristics of the RMU denominated bonds, it is probable that issuers would come from either in the public sector or in the private sector whose interest rate of the currency is comparatively high in the region, and that purchasers would be either in the public sector or in the private sector whose interest rate of the currency is low. It would be issued in the form of international bonds, therefore, and the settlement system that handles international bonds and foreign currency bonds could be fully utilized.

Even if there are cases that the current system could not meet the needs of the RMU denominated bonds, it does not necessarily lead to the perception that it is an impediment to the expansion of RMU denominated bond transaction in the future. As long as there are enough needs that request the

issuance and sales/purchase of RMU denominated bonds, the relevant settlement system could be developed. If there are needs of businesses, settlement system could come later following the businesses.

4-7-4. Strengthening of the market infrastructure

(a) Transparency and reliability of the information

In order for the market transactions of RMU denominated bonds to be conducted smoothly, it is necessary that market participants are provided in an efficient manner, the transparent and reliable information on the foreign exchange rates, interest rates and bond yield that support the RMU denominated bonds in terms of its foreign exchange rates, coupon rate and IRR (Internal Rate of Return). If RMU and RMU denominated bonds come up with a large turnover and with popularity such as the use of benchmark, it is preferable that transparent and reliable information is provide to the market participants in an efficient manner.

At the same time, it is indispensable to help market makers that provide such price information to the market participants.

(b) Linkage with other markets

If there is a short-term money market and secondary market of bonds denominated in RMU, and RMU-denominated interest rate swap market, issuer and investors of the RMU-denominated bonds could cope with the interest rate risk. In addition, those markets provide the instruments that the investors which receive the redemption of the bonds could utilize until they invest in the new bonds that would be issued. Furthermore, if RMU is traded in the foreign exchange market, risk management of the issuers and investors of the RMU-denominated bonds would be easier.

Index trading of RMU would also provide the issuers and holders of RMU-denominated bonds with services that make it possible for issuers and investors of RMU-denominated bonds to cope with such risks.

If a link is established between RMU-denominated market and the other market, the convenience and attractiveness of those markets should improve.

(c) Improvement of statistics

It is necessary for statistics on the RMU-denominated market to be improved as they provide the basic information for the development of the RMU-denominated market. It is necessary to keep in mind the necessity to improve statistics on RMU.

4-7-5. Actions to develop bond market in Asia such as ABMI and ABF

Although it is required here in this chapter to consider how to increase the use of RMU-denominated financial instruments, it is important for AMBI and ABF that continue to develop bond markets in Asia including each local bond market, to develop further.

The recent modification on the withholding tax and foreign exchange law in Thailand, Malaysia etc. could be considered as the relevant achievements.

4-7-6. Actions to establish fund settlement system and money market in RMU

As is shown in the experience of ECU, the convenience of RMU-denominated financial instruments would improve and its market would expand if its fund settlement system is established. However, it could not be presumed that there is a single RMU. In addition, there is not any single RMU that make a market which is large enough to bring convenience and sufficiently low transaction cost. Under these circumstances, it is difficult to establish a RMU fund settlement system.

Efforts to create one RMU that would bring a market that is large enough to materialize convenience and sufficiently low cost as well as the research for its preparation would make much sense.

4-7-7. Actions to liberalize capital controls

Liberalization of capital control should be implemented in a sequential way relevant to the stage of development of economy and financial infrastructure. In that case, number of Asian currencies that has enough convertibility to be a composite currency of a RMU should increase and it could support the spread of RMU-denominated financial instruments in the market. For example, the lending of Irish pounds to non-resident financial institutions to cover a position in ECU was tolerated by Irish financial authority although lending of Irish pounds to non-residents were prohibited by law.

4-8. Possibility of RMU index transactions

In Singapore and Hong Kong, there are financial instruments the settlement of which is made by the difference of the original transaction price and market price, such as Asian currency indexes. Although its market size is small and public awareness of the instruments is limited, some investors buy and sell such indexes. As it does not precede the underlying instruments in cash, it would not be affected by the foreign exchange control law of the country in most cases which is similar to NDF (Non-deliverable forward).

As there are some needs on the side of the investors to take the overall foreign exchange risk and

interest risk on the Asia as a whole so that they can pursue profit by speculation or hedge risk, such transactions could be concluded when there are market makers who issues such indexes and there are a certain number of market participants. In fact, those indexes are designed taking into account the needs of such customers and a certain number of customers have been involved already. It is reported that some U.S. hedge funds and investors seem to be utilizing this index so that they could hedge their portfolio that has stocks of U.S. corporations who have much exposure to Asia, which has a positive co-relationship with the foreign exchange rates of Asian currencies.

If currency index transactions become popular furthermore, it could lead to the spread of RMU-denominated financial instruments. For the investors that make investments in each country respectively, however, some pointed out that index transactions are not attractive. In addition, what is important is what kind of currency index is offered and it could be considered to recommend the use of RMU indicator as one of the indexes.

4-9. Prospect and policy implications at the moment

In view of the above analysis, prospect and policy implications at the moment are as follows.

Further use of RMU is expected to contribute to the development of financial and capital market in Asia, help bridge the saving and investment within Asia, and reduce the foreign exchange risk that Asia has.

Public use of RMU could include measurement to achieve stability of intra-regional foreign exchange rates, accounting unit of official institutions and systems in Asia, denomination unit of receivable and payable between the governments in the region, RMU as the investment of foreign reserves etc. Discussion among the governments should be required on what kind of RMU should be utilized and what the purpose of the use of RMU would be.

In order for the private use of RMU to increase, a certain degree of convenience, low transaction cost and stability of its value are necessary. It is preferable that there is only one RMU that are widely used, composite currencies of RMU are convertible, RMU is officially used or public support to the use of RMU such as the preferential treatment in foreign exchange control law and in the taxation, RMU funds settlement system has been established, and foreign exchange rates among the composite currencies of RMU is stable.

Especially effective condition among those seems that there is only one RMU that are widely used. However, it would be difficult to meet with this condition for the time being. Therefore, it is necessary that there are such preconditions in studying the private use of RMU: composite currencies

and their weights should be decided by the relevant parties, and settlement of the RMU-denominated transactions is conducted by the specific currencies that are available.

Under these circumstances, financial transactions should be more promising than commercial transactions in the sense that it would contribute to the wider use of RMU in the private sector, as the change of invoice currency to RMU would not be easy. Especially in financial transactions, bond, loan, index transactions would be more feasible compared with short-term instruments as the establishment of RMU funds transfer system could be difficult for the time being.

Especially when we limit our scope in RMU-denominated bonds, it would make sense to make efforts to make RMU-denominated bond issuance, by utilizing the bond settlement system that is available. In that case, to explain the function of RMU, such as the diversification of foreign exchange risk and the attractiveness of a weighted average interest rate of the composite currency, would help in picking up the needs of the clients.

CHPTER 5

ROADMAP to RMU

Chapter 5 : Roadmap to RMU

5-1. Goal

This study focused on several different ways of forming basket currencies. Which basket is appropriate depends on its purposes. In Chapter 1, two purpose of introducing RMUs are explained. First, RMUs are used for macroeconomic surveillance. Second, RMUs can become a composite currency for financial products. For the first purpose, all currencies of the group in that surveillance will be conducted should be included. For the second purpose, only currencies that meet several criteria, including convertibility, should be included. However, in the end, the two groups should converge, as developing countries will grow faster than developed countries. The difference between developed, high-income countries—Japan, Korea, and Singapore—and middle-income developing countries—China, Thailand, Malaysia, Indonesia, and the Philippines—will become less and less in every respect of the economies, in particular the maturity of money and capital markets. Below, we will illustrate how the convergence would occur—a roadmap. The roadmap proposed in this chapter is structured in multiple steps (multi-speed approach), so that the monetary integration process is driven mainly by those member countries that fulfill necessary conditions first, and other countries participate in the process in an appropriate style as their development stages allow.

5-2. Roadmap

5-2-1. Path 1. Surveillance path

The surveillance on the exchange rate policy—using the deviation index from the basket value—can start immediately. The AMU—developed by Ogawa and Shimizu—based on PPP-based GDP show the relative positions of the Asian currencies among themselves. The Ogawa-Shimizu AMU is called AMU-1 in this paper. The AMU-2, based on market-exchange-rate GDP, reflect the market weights of countries. Both approaches have advantages and disadvantaged. Any weighted averages of AMU-1 and AMU2 are conceivable if any of the two are too extreme in comparison of the exchange rate.

As the economy develops, the domestic, non-tradable prices tend to increase faster than tradable prices, and the nominal exchange rate tends to appreciate. This has been a pattern of rapidly growing economies, such as Japan in 1960s, 70s, and 80s. The tendency of the real exchange rate appreciation is often referred to as the Balassa-Samuelson hypothesis. Therefore, the PPP-exchange rate and the market exchange rate would converge to each other. The difference between AMU-1 and AMU-2 due to differences in weights will narrow down as the time progresses and the developing

economies become more advanced and mature. This would be automatic adjustment due to economic growth and development. Therefore, the difference in dash-A and dash-B RMUs should not be too emphasized from the medium-term viewpoint.

Which coverage of countries is appropriate for surveillance depends on the group willingness of conducting internal surveillance. The coverage of countries is rather exogenous in this case. For the political reason or the economic-dependence reason, the group is given. Then, the RMUs can be calculated. The group of countries has to agree on how to use the indicator and ask a professional research group to establish and maintain such an indicator. The group has to endorse the indicator as a surveillance mechanism.

Stage 1: Surveillance

The first stage would be just surveillance. Drawing an attention to the fact that one currency is deviating from the group average may be one aspect of the country's economic and political health. The deviation may be explained by the medium-term trend that may reflect the productivity differences or growth potential—a benign deviation or a malicious deviation. For example, deviation toward appreciation may be benign if the appreciation is based on productivity growth and capital inflows that correctly evaluate the growth potential of the economy. Appreciation due to foreign direct investment (FDI) is most likely benign, while appreciation due to short-term capital inflows may be a sign of accumulating vulnerability. Deviation toward depreciation could also be two types. If depreciation associated with deteriorating domestic demands and relaxed monetary policy, it may stimulate exports in the near future, and that would not be a concern. However, if the speed of depreciation is accelerating, this may be a cause of concern. Then the reason for depreciation has to be examined carefully. Therefore, the deviation indicator is only one of several variables that should be used in surveillance. At least, it is useful as a flag to look into details of the phenomena behind it.

Several stages of surveillance path to monetary integration are proposed:

- Stage 1: one tool in macroeconomic surveillance: deviation may be benign or malicious
- Stage 2: Use as an Early Warning signal
- Stage 3: policy coordination and joint intervention to keep the deviation within the band
- Stage 4: narrow the band (cf. ERM, stage I)
- Stage 5: fix the exchange rates (cf. ERM, stage II)
- Stage 6: Single currency (cf. Euro)

The first stage can be implemented now. The ASEAN+3 Finance Ministers Meeting have

surveillance function and they can regarded as the first stage already. The test of the current framework is whether the surveillance mechanism can pick up a warning sign of the crisis in the future. The third stage is to extend surveillance functions to some actions, such as using monetary and fiscal policy to correct the deviation in the exchange rate from the basket value. However, the group has to be quite comfortable, when entering this stage, in judging the deviation of the exchange rate as a warning signal. Economic development of the member countries should be similar by this stage of surveillance.

From stage 4, it will be similar to experiences of the ECU-ERM-EURO in Europe. As described in Chapter 3 of this study, experiences of Europe are rich source of lessons. When the group of countries becomes comfortable in maintaining the band around the RMU, the width of the band can be narrowed. Our stage 4 corresponds to the ERM, stage I. Stage 5, which corresponds to Stage II of the ERM) is really crucial in moving the exchange rates toward irrevocably the fixed exchange rate. Stage 6 is the stage of monetary integration, just like introducing the Euro in January 1999.

5-2-2. Path 2 Private-sector transaction path

The first stage of the transaction path is to create a financial product that has basket currency denomination and to have the product sold and traded in some market. The basket-currency denominated assets have advantage for investors who seek diversification. Since the Asian countries now have diverse exchange rate regimes, their movements vis-à-vis the US dollar vary a lot. The RMU-based bonds for example will have a feature that their value vis-à-vis the US dollar is average of several currencies, and their interest rate to be an average of interest rates of those currencies (interbank interest rate, medium-term bond interest rate, or long-term bond interest rate).

Unless all component currencies are freely traded without too much transactions cost, the RMU cannot be composed or de-composed. The market infrastructure of each component currency and RMU has to be strengthened and developed.

At present, all transactions are free from controls in the following currencies (vis-à-vis major globally traded currencies): Japanese yen, Korean Won, Hong Kong dollar, and Singaporean Dollar (recall Chapter 1). Therefore Core-RMU-hard should be composed of those four currencies. Two additional currencies, Thai baht and Chinese RMB are almost free from capital controls in current account transactions. Capital account transactions of these currencies have substantial controls, but for current account transactions they are relatively free from controls. The Core-RMU-soft should include these two currencies.

Therefore, the following arrangement is possible for stage 1,:

Core-AMU-hard: Japan, South Korea, Hong Kong, and Singapore;
Core AMU-soft: Japan, South Korea, Hong Kong, Singapore, China, and Thailand

The following stages depend on who would qualify the hard group or the soft group. Expansion of the membership should be made according to the strict standard of elimination of exchange controls and market depth. As more countries qualify for the soft group to hard group, the distinction between the two will disappear.

The private sectors need to be convinced of the use of the basket. Investors would be interested in holding these assets if (1) Stability of intra-regional exchange rates is established; (2) transactions costs become low; and (3) there exists the official benchmark.

The evolution of private-ECU markets (Section 3) is quite helpful to understand what is needed in promoting the private use of an RMU. By reviewing monetary units in the past 50 years--EPU Unit of Account, EUA（European Unit of Account), Eurco (Eruropean Composite Unit), ECU and SDR--it is clear that the official support/encouragement is indispensable for the sustainable development of financial products denominated in MUs. There were several private MU denominated bond issues without corresponding official MUs such as Eurco or EUA, but they were all short-lived and limited in their use. SDR failed to grow in private fields due to the lack of the official support by the IMF and its poor attractiveness as financial products. Only the ECU proved to be successful.

The particular movement in Asia that is relevant here is the Asia Bond Fund and Asia Bond Market Initiatives. In the Asian bond market, the Executives ' Meeting of East Asia-Pacific Central Banks (EMEAP) has already created a basket bond market. (See：http://www.emeap.org for details.) The EMEAP created Asia Bond Fund (ABF) and the Asia Bond Fund 2 (ABF 2). The latter has two sets of funds: ABF Pan-Asian Bond Index Fund (PAIF) and eight Single-market Funds. The PAIF can be regarded as a basket bond funds, a first step toward a private-market transaction path. This is also an important step because of official involvement, just like the private-market ECU was supported by official-use of ECU.

A sequence of stages toward full integration in terms of private-sector use of RMUs is not as clear as that of the surveillance path, since the sequence is basically up to the private sector. However, the following stages may be a natural sequence, if the past trends of the income and structural reforms continue into the future:

- Stage 1: Current status
- Core-RMU hard: Japan, Hong Kong, SAR, South Korea and Singapore

- Core-RMU soft: Core-RMU hard + China and Thailand, with expectations that they will remove all current account transactions, and so perceived by the market, in the matter of months.
- Stage 2: Malaysia, the Philippines and Indonesia join the soft group, removing the remaining exchange controls related to current account transactions.

** the following stages are projections only, and exact progression depends on efforts of respective governments:

- Stage 3: China and Thailand joins the hard group. The two countries completely remove the restrictions on capital account transactions, domestic restriction discriminating foreigners in asset and stock ownership.
- Stage 4: Brunei joins the soft group
- Stage 5: Cambodia, Viet Nam, Lao, Myanmar joins the soft group, unifying the exchange rates; establishing credibility around domestic currencies; removing foreign exchange controls related to all current account transactions.
- Stage 6: Brunei, Malaysia, the Philippines and Indonesia joins the hard group
- Stage 7: Cambodia, Viet Nam, Lao, Myanmar joins the hard group. The ASEAN10+3+Hong Kong joins the Core-RMU-hard group, so that the differentiation of "core" will disappear.

Although the private-sector transactions path assumes most of the efforts are conducted by private sector participants. However, there is a role of the public sector. First, building the market infrastructure is obviously of high priority. Second, removing controls without disturbing the markets is important, so that more countries move from the soft group to the hard group. If an outright liberalization is difficult, it may be possible that the authorities exempt capital market transactions related to the RMU products. Liberalization should come in the capital market first, and then money markets. Third, it is important that the officials commit to use an RMU accounting or assets so that the private sector can refer to as a benchmark. The ABF2, a product created by the official sector, is a good example. It could be just a daily announcement of the basket currency value. Fourth, a vision, or preferably a commitment, for the ultimate goal in the future is important.

5-3. Institutional Support

It should be emphasized that the above-mentioned stages are possible only when the governments become serious in building capacity in human capital as well as institutions. Statistics have to be reliable and policy decisions have to be made in a transparent manner.

In parallel to the progress in policies of the national governments, the regional surveillance mechanism and associated cooperative mechanism have to be established. In order to strengthen capacity of regional surveillance, it is necessary to establish regional secretariat for the group that qualify for the hard group and/or soft group.

It is understandable that some developing countries are hesitant to remove all the capital account restrictions in light of experiences of the currency crises in 1997-98. It is important to distinguish a liquidity crisis and a fundamental crisis (insolvency). A liquidity crisis can be helped by short-term official lending and currency swap, as designed by the Chiang Mai Initiative. A fundamental crisis cannot be helped by short-term injection of liquidity, which may become counterproductive if ease of pains makes necessary structural reforms delayed. The fundamental crisis has to be avoided by early warning, persuasion, and reform.

In order to distinguish the two kinds of crises, the region has to have a mechanism of surveillance. If the crisis is in the form of pure liquidity crisis, the regional mechanism, an expanded Chiang Mai Initiative, should help countries in a liquidity crisis, by providing a large amount of liquidity. The regional surveillance mechanism must be capable of detecting and recommending appropriate policies to the government of a country that is heading for a crisis due to wrong policies. It is needed to have permanent institutions to conduct frank discussions regularly, and persuasions and peer pressures in the institution must be effective. The International Monetary Fund has been playing a role of such a mechanism. It is possible to justify establishing a regional institution, if the region is aiming at regional integration that would result in the single market and internal exchange rate stability to promote trade and investment. The European Union has a history of establishing independent regional institutions.

5-4. Other Policy Recommendations

5-4-1. Authorities should explore the sequential steps in conducting surveillance.

Authorities should explore the following steps in conducting a surveillance:

(ⅰ) define a RMU for surveillance purpose

(ⅱ) Announce RMU everyday

(ⅲ) use RMU deviation indicators in macro surveillance

and

(iv) develop Early Warning System (EWS) based on RMU and other variables

Authorities should monitor RMU deviation and changes in deviation as RMUs are appropriate in identifying misalignment and volatility of the relative value of Asian currencies within the region. When monitoring RMU deviation, currencies with sustained deviation and currencies of rapidly deviating from the center may be monitored closely. If there is a deviation, its causes should be identified as worrisome or benign.

In this regard, it would make sense to develop econometric model of EWS based on RMU and other variables.

5-4-2. For Transaction – official support and private-sector innovation

Private RMU-Core bonds without official support may be possible, but having studied the vicissitudes of MUs in particular in Europe in the past half century, it is doubtful if such an RMU bond market can be expected to grow to a meaningful mass without satisfying certain conditions. As the history of Eurco bonds, EPU UA (EUA17) bonds, EUA9 bonds shows, RMU denominated bonds can be devised purely by private commercial financial institutions without any official support, but such bonds seem to be destined to be short-lived or limited in their market development. On the other hand, the success of ECU bonds and the failure of SDR bonds teach us the importance of the support by public authorities in charge for RMU bond markets to grow.

It should be noted that the official support is necessary, but it alone is not sufficient for the sustainable market development of an RMU bond market. Several ideas could be further pursued in order to increase the use of private RMU without the official RMU and innovation by private sector is required as well.

5-4-3. Ideas to promote the use of RMUs

There does not seem to be any official agreement among the officials in the region as to the content of the future foreign exchange regime and policy including the use of regional currency basket unit. It indicates, therefore, that a further research is necessary on how to promote the use of private RMU at the stage where no official RMU exists. Several ideas could be considered as follows:

- Denomination of bond issuance by the governments of ASEAN+3. Issuance of RMU-Core denominated bonds by the Governments of ASEAN+3 countries could be highly recommended.
- Denomination of swap arrangements under CMI.

- Bookkeeping (accounting unit) of ASEAN Secretariat, Asian Development Bank, ADBI etc.
- Preferential treatment of RMU-Core related operations in foreign exchange regulations
- Allowing RMU-denominated assets as average risk assets in a supervisory framework
- Acknowledgment of the private RMU-Core legally or de facto as a "foreign currency" and its fixing in foreign exchange markets
- Daily announcement of RMU; use of RMU in budget by the ASEAN Secretariat linked to the ASEAN+3 Ministries of Finance and Central Banks when it is established

It would be worth discussing to start to use an official RMU within the framework of ASEAN+3, when its permanent secretariat is established eventually. The bookkeeping and payments of the ASEAN+3 secretariat should be denominated in an official RMU, and its use can be expanded in other activities of the ASEAN+3 such as denominating the post Chiang Mai Initiative credit facilities in an official RMU and payments for various projects (including ASEAN research projects).

5-4-4. Preferential treatment by the financial supervisory authorities on the use of RMU

As RMU is composed of plural currencies, it could contribute to the diversification of foreign exchange risk. Volatility of foreign exchanges rates of RMU is lower than those of the individual composite currencies of RMU.

In this regard, some argued that the use of RMU would be limited as the regulators would not allow the financial institutions to book and keep RMU-denominated assets and liabilities as the hedging instruments are limited[17]. However, use of RMU should be allowed as long as the risk is appropriately managed by the financial institutions. In addition it could be considered that regulators could recommend the use of RMU by applying some preferential treatment in the supervision of financial institutions.

5-4-5. Convertibility of the component currencies

It is extremely important for component currencies of RMU to have a certain degree of convertibility.

The idea of Core-RMU is to have major currencies in the region to be the composite currencies of the basket. However such convertible currencies are limited to only a few at the moment. In this regard, the followings could be proposed.

[17] See Tharman Shanmugaratnam (2006) Asian Monetary Integration: Will It Ever Happen? P. 15 "prudential supervisors will also want to make sure that financial institutions, particularly banks, when using an ACU as a currency of denomination for loans or other assets, will not face currency mismatches vis-à-vis their national currencies, which have typically been the currencies of denomination of banks' liabilities. So prudential supervision is also likely to hinder the advancement of an ACU."

It is important for financial institutions engaged in RMU operations to be able to bundle (and unbundle) RMU funds in foreign exchange and money markets of component currencies. In case of the private ECU, not all the component currencies of the ECU were fully convertible in the 1980s, and many member states maintained foreign exchange regulations (France, Italy, Portugal, Greece, Ireland etc.). While those countries maintained capital account restrictions in general, they exempted ECU related operations (preferential treatment) in such a way as both resident and non-resident financial institutions could have an access to foreign exchange and money markets of ECU component currencies. In East Asia where many countries maintain capital account controls, the preferential treatment of RMU in terms of foreign exchange regulation should be worth considering.

In addition, it is necessary for the countries in the region to develop the domestic financial market, especially its interbank money market and repo market. It is important for the domestic financial market to increase its size and depth further, but the countries whose short-term money market has well developed are quite limited at the moment. In this regard, the development of interbank money market and repo market is necessary. However, only few countries have developed short-term reference dates for financial transactions. How far the liberalization of interest rates goes and to what extent the open market operation by the central bank is conducted differs from country to country. In addition, there does not seem to be any common template to gauge the size of the interbank money market and repo market. In this regard, to establish a short-term reference rate could be a common goal for the countries in the region18, and to update the size of the interbank money market and repo market periodically would make sense.

5-4-6. Regional financial cooperation for wide-spread convertibility

Most of the currencies in the region would not be convertible unless the regional financial cooperation is further strengthened in addition to the strengthening of the domestic financial system and the development of the financial market. In this regard, further strengthening of the regional financial cooperation including the expanded CMI in size and triggering mechanism, establishment of a permanent secretariat of CMI and further regional financial cooperation such as reserve pooling is extremely important.

[18] In Korea, KORIBOR started in 2004, but its usage is quite limited. In Malaysia KLIBOR has been quoted for some time but its use is still limited. In Thailand, there are two benchmark interest rates, namely. In China, quote of SHIBOR started very recently.

5-4-7. RMU-Core denominated currency index could be considered.

There are several currency indexes available that are provided by some financial institutions. Some overseas investors including some hedge funds seem to be buying and selling those indexes to a certain extent. In this regard, the spread and popular use of currency indexes might contribute to the RMU denominated financial instruments. However, its impact could be limited as most of the investors that have exposure to individual market do not seem to be interested. What kind of indexes should be utilized would be of importance and it could be considered that the use of RMU-Core should be taken up as one of the index.

The encouragement and support of a private RMU by public authorities (ASEAN+3 and its member states) is indispensable to clarify the official long-term commitment and thereby to enhance the market confidence in RMU bond markets.

5-5. Conditions for the sustainable growth of an RMU bond market in East Asia

5-5-1. Existence of an official RMU

Among MU denominated bonds of currency basket type, the only successful case was the private ECU bond, whose currency composition was identical with the official ECU, and which enjoyed the continuous support by the EC and member states. The private SDR bond market was short-lived only with thirteen issues (note: the BIS issues MTIs (medium-term instruments) for official SDR holders today) without support by the IMF. The Eurco bond ended only with three issues. In East Asia, today or in future, there should be no reason why the history does not repeat itself.

5-5-2. Stable exchange rates of the composite currencies of an RMU-Core

In this regard, further development in the area of policy dialogues among the ASEAN+3 should help. RMU bonds are attractive for fund-raisers and investors when currency risks are foreseeable to a certain extent. The ECU bond market developed steadily, but the market contracted sharply after the European currency crisis. In East Asia where there is no common exchange rate regime at the moment, it should be advisable to discuss the future vision of “a more closely coordinated regional exchange rate mechanism” consistent with both financial stability and economic development.

5-5-3. Daily publication of RMU-Core exchange rates on a public website

Such an official action should enhance the confidence in and use of RMU-Core through better awareness among the general public.

European Commission announced ECU exchange rates daily and it helped the people to recognize the

ECU from the early stage. Similar publication system could be built in easily but it should be endorsed by one of the official institutions such as ASEAN Secretariat or a possible virtual secretariat for ASEAN+3 Finance Ministers Meeting.

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