



RIETI Discussion Paper Series 07-E-002

# **Progress toward a Common Currency Basket System in East Asia**

**OGAWA Eiji**  
RIETI

**SHIMIZU Junko**  
Meikai University



Research Institute of Economy, Trade & Industry, IAA

The Research Institute of Economy, Trade and Industry  
<http://www.rieti.go.jp/en/>

# Progress toward a Common Currency Basket System in East Asia<sup>\*</sup>

Eiji Ogawa<sup>a</sup> and Junko Shimizu<sup>b</sup>

First version: 12 June, 2006

This version: 6 November, 2006

RIETI Discussion Papers Series aims at widely disseminating research results in the form of professional papers, thereby stimulating lively discussion. The views expressed in the papers are solely those of the author(s), and do not present those of the Research Institute of Economy, Trade and Industry.

---

<sup>\*</sup> The authors are grateful to Doo Yong Yang, and participants in the 5th APEF International Conference on 5-6 July 2006 at Kangwon National University, Korea for their useful comments and suggestions.

<sup>a</sup> Graduate School of Commerce and Management, Hitotsubashi University and RIETI. Corresponding author. 2-1 Naka, Kunitachi, Tokyo 186-8601, Japan, Tel: 81-42-580-8859, Fax: 81-42-580-8747, e-mail: ogawa.eiji@srv.cc.hit-u.ac.jp.

<sup>b</sup> Faculty of Economics, Meikai University, e-mail: jshimizu@meikai.ac.jp.

## **Abstract**

Ogawa and Shimizu (2005, 2006a) have proposed a possible way to create an Asian Monetary Unit (AMU) as a weighted average of the thirteen East Asian currencies (ASEAN + China, Japan, and Korea) and developed AMU Deviation Indicators for a surveillance process under the Chiang Mai Initiative. Both the AMU and the AMU Deviation Indicators are important in helping the countries in the region to recognize the necessity of moving toward a common currency basket system. However, there remains an open question about how to implement this system in East Asian countries.

The purpose of this paper is to compile the latest issues of currency basket itself and to develop concrete steps toward a common currency basket system in East Asia. Particularly, we simulate possible individual currency basket weights based on trade shares of each East Asian country and convert them to G3 currency (the US dollar, the euro, and the Japanese yen) basket weights. We also investigate the discrepancies between the converted G3 currency basket weight of the AMU and the weights of the common G3 currency basket, which is to illustrate the reality of implementing a common currency basket system. We propose a possible way to shift from an individual G3 currency basket system to the AMU currency basket system. In this process, we expect that the Japanese yen would play a varying role at each stage toward monetary coordination in East Asia.

JEL classification codes: F31, F33, F36

Keywords: AMU (Asian Monetary Unit), a common currency basket system, currency convertibility

## 1. Introduction

On July 21, 2005, the Chinese government announced that the monetary authority would adopt a managed floating exchange rate system with reference to a currency basket. In recent years, so too have the monetary authorities of some East Asian countries been found to be adopting currency basket systems. Ogawa and Ito (2002) also discussed East Asian countries adopting a common currency basket regime in order to stabilize intra-regional exchange rates in a situation where these countries have increasingly close trade and economic relationships with each other. A common currency basket peg would allow both misalignment among intra-regional currencies and volatility vis-à-vis the outside currencies, including the US dollar and the euro, to be restrained.

In Ogawa and Shimizu (2005, 2006a), we proposed a possible way in which an Asian Monetary Unit (AMU), as a regional currency basket, that is, a weighted average of thirteen East Asian currencies (ASEAN + China, Japan, and Korea) following the method used to calculate the European Currency Unit (ECU) under the European Monetary System (EMS) during the period from 1979 to 1998, could be constructed. We used the AMU to calculate the AMU Deviation Indicators for each East Asian currency, which show the degree of deviation from the hypothetical benchmark rate for each of the East Asian currencies in terms of the AMU. We suggested the AMU Deviation Indicators as one of surveillance indicators at the ASEAN+3 Finance Deputy Ministers Meeting under the Chiang Mai Initiative, which would induce coordination exchange rate policy among East Asian countries in the near future.

Under the common currency basket system, the monetary authorities of the East Asian countries use the value of a basket of major international currencies outside the region as a reference to make regional coordination in exchange rate policies so as to not deviate each of the East Asian currencies from the common reference. In this way, the countries can achieve stability of intra-regional exchange rates, basically joint floating against the outside currencies. The idea of an AMU would be important in helping the countries in the region to recognize the necessity of shifting to a common currency basket system. However, there remain several questions about how to implement such a system in East Asian countries.

The objectives of this paper are to compile the latest issues of the currency basket itself and to develop concrete steps toward the common currency basket system in East Asia. Specifically, we simulate the possible individual currency basket weights based on

trade shares of each East Asian country and convert them to a G3 currency (the US dollar, the euro, and the Japanese yen) basket. We also discuss the discrepancies between the converted G3 currency basket weight of the AMU and the weights of a common G3 currency basket, which serves to illustrate the reality of implementing a common currency basket system.

The remainder of this paper consists of the following sections. Section 2 discusses objectives of a common currency basket system in East Asia. Section 3 discusses the differences between the G3 currency basket and a regional currency basket such as the AMU. Section 4 argues the effectiveness of a common currency basket system compared with an individual currency basket system. Section 5 simulates the possible individual currency basket weights based on trade shares of each East Asian country, and converts them to G3 currency basket weights. We also discuss the discrepancies between the converted G3 currency basket weight of the AMU and the weights of common G3 currency basket. Section 6 indicates the differences between the ECU and the AMU from the standpoint of their purpose and role. The Section 7 proposes a possible way to shift from an individual G3 currency basket system to the AMU currency basket system and suggests the role of the Japanese yen in this process. The final section offers concluding remarks.

## **2. The US dollar peg versus a currency basket peg**

The *de facto* dollar-pegging countries' experiences from the Asian currency crisis told us that the monetary authorities of East Asian countries should not *de facto* peg their home currency to the US dollar. Before the currency crisis, most East Asian countries adopted the *de facto* dollar peg system. However, their announced exchange rate systems did not necessarily correspond with reality. For example, the monetary authority of Thailand announced its exchange rate system as a basket currency peg system. However, in fact the dollar weight in its currency basket was estimated to be larger than 90 percent, which meant a *de facto* dollar peg system. The Asian currency crisis taught us that the dollar-peg was not the most desirable exchange rate regime in the region. As the intra-regional trade share in East Asia was larger than 50 percent in 2004 and now as high as in the European Union. Accordingly, stability of intra-regional exchange rates is becoming more important for the economic growth and stability of East Asia. Therefore, we need some mechanism to keep intra-regional exchange rates stable in the East Asia.

One way for emerging countries to stabilize their currencies is to peg to one of major currencies. For example, most of East Asian countries pegged their currencies to the US dollar before the Asian currency crisis. Usually these pegging systems were commonly adopted within the region. McKinnon (2002) argued that an important virtue of a common US dollar peg for the region is that it would reduce intra-regional exchange rate instability. However, if a country pegs its currency to the US dollar, there is a possible risk to deviate its effective exchange rate from a desirable level. It is said that such an imperfection of dollar pegging system was one of the causes that induced the Asian currency crisis.

On the other hand, pegging to a currency basket with trade based basket weights could stabilize the effective exchange rate. Actually, Kawai (2002) indicated that some East Asian countries had already adopted a *de facto* currency basket system in recent years. We estimated the weights on the US dollar, euro, and Japanese yen in a possible currency basket for each of the East Asian countries according to a Frankel and Wei (1994) method.<sup>1</sup> Table 1 shows the latest actual weights on the three major currencies for East Asian currencies in 2004 and 2005. As a result, we can divide seven sampled East Asian currencies into the following two groups: a group of the currencies that have maintained a strong linkage with the US dollar and the other group of the currencies that have increased their weights on the Japanese yen.

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. These results indicate that they had still maintained their *de facto* dollar peg system in 2005.

The latter is a group of the currencies that seem to have adopted 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 0.5787, 0.1603, and 0.2729, respectively in 2004, and they have changed to 0.5021, 0.1707, and 0.3926, respectively in 2005.<sup>2</sup> In the case of Thailand, the weights on the US dollar, the euro, and the Japanese yen were 0.7272, 0.1920, and 0.1923, respectively in 2004, and they have changed to 0.6172, 0.1301 (though statistically insignificant), and 0.3124, respectively in 2005. We can find similar movements in the cases of South Korea, Indonesia, and the Philippines. Even in the case of the Chinese yuan, the weight on the Japanese yen was statistically significant

---

<sup>1</sup> 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 also in terms of the Swiss franc.

<sup>2</sup> Since Brunei adopts the Singapore dollar peg system, we can find the almost the same movements in the case of the Brunei dollar.

(0.0935) in 2005.<sup>3</sup>

These results indicate that it might not be so difficult for at least some of East Asian countries, which have already adopted a currency basket system individually, to introduce a common currency basket system.

### **3. G3 currency basket versus intra-regional currency basket (AMU)**

It is preferable for the emerging market economies in East Asia to stabilize the exchange rates against not the US dollar but a currency basket of the US dollar, the euro, and the Japanese yen because they have strong economic relationships with not only the United States but also Japan and the EU. Such an arrangement could be called a G-3 currency basket system (Kawai (2002)).

The most apparent benefit of the G-3 currency basket system is that it keeps trade competitiveness relatively stable. Ito, Ogawa, and Sasaki (1998) suggested that real effective exchange rates of East Asian currencies would be more stable against large shocks to their trade balances if Asian currencies peg to a G-3 currency basket with the optimal weights.<sup>4</sup> Williamson (2005), Kawai and Takagi (2000), and Ogawa and Ito (2002) suggested a G3 currency basket composed of three major currencies, which include the US dollar, Japanese yen, and euro. In Kawai and Takagi (2000), they recommend that a G3 currency basket system preserves both flexibility and stability in order to promote international trade, foreign direct investments, and economic developments.

Another currency basket is a currency basket composed of regional currencies. Their basket weights would reflect the regional trade volume weights and the relative economic importance of the countries in the region, similar to the ECU (European Currency Unit) under the EMS (European Monetary System). Such a currency basket in East Asia might be called an ACU (Asian Currency Unit) or the AMU. The former is being prepared to create by the Asian Development Bank (ADB) while Ogawa and

---

<sup>3</sup> In the cases of other minor currencies, such as the Cambodian riel, the Lao kip, the Myanmar kyat, and the Vietnamese dong, coefficients on the US dollar were close to unity in 2004. Their weights on the US dollar were still close to unity but have slightly decreased in 2005 due to the announcement of the Chinese government's changing its exchange rate system on July 21, 2005.

<sup>4</sup> Also in terms of capital flows, the G-3 currency basket system has advantages over the *de facto* dollar peg system. Ogawa and Sun (2001) conducted a simulation analysis to find out if the G-3 currency basket system would have had an overwhelming effect on capital inflows to Korea and Thailand.

Shimizu (2005, 2006b) created the latter.<sup>5</sup>

A main advantage of the regional currency basket system is that it stabilizes intra-regional exchange rates. From the standpoint of regional monetary coordination in East Asia, a currency basket should consist of regional major currencies including the Japanese yen. Ogawa and Shimizu (2006b) investigated the stabilization effects of a common AMU currency basket peg system on East Asian currencies. We compared our analytical results with stabilization effects of a common G3 currency basket peg system, which shown in Williamson (2005), to obtain that a common AMU peg system would be more effective in reducing fluctuations in the effective exchange rates than the common G3 basket peg system for some of East Asian currencies.<sup>6</sup>

However, we could not yet clearly show differences between the common G3 currency basket and the AMU. In this paper, we show them by simulating both of their time series. Before the simulation analysis, we should compare the effectiveness of stabilizing effective exchange rates between a common currency basket system in the region and an individual currency basket system.

#### **4. Common currency basket versus individual currency basket**

As mentioned in section 2, there are the two different ways to adopt a currency basket; individually or commonly in the region. The former is based on own trade pattern and the latter is based on common currency basket weights within the region.

Basically a country that adopts an individual currency basket system determines its basket weights by its own individual trade composition. This is because such a trade volume based currency basket achieves the stability of its effective exchange rate. Williamson (2005) called it “tailor-made currency basket.” He compared the stabilization effects on a nominal effective exchange rate between a tailor-made currency basket and a common currency basket for several East Asian countries

---

<sup>5</sup> Ogawa and Shimizu (2005, 2006a) proposed an Asian Monetary Unit (AMU) as a surveillance indicator for the ASEAN+3 Finance Deputy Ministers Meeting's discussion of a common currency basket in East Asia. In addition, we proposed AMU Deviation Indicators which show a deviation measurement of each East Asian currency from its benchmark level in terms of the AMU. These data are updated on a weekly basis on the RIETI website (<http://www.rieti.go.jp/users/amu/index.html>).

<sup>6</sup> The common AMU peg system stabilizes the effective exchange rates more effectively for Indonesia, the Philippines, South Korea, and Thailand than a common G3 currency basket peg system.



empirically, and obtained superior performance of a common currency basket peg over a series of tailor-made currency baskets. He explained that a common currency basket peg can reduce instability of intra-regional exchange-rates. Ogawa and Shimizu (2006b) showed the effectiveness of the AMU currency basket peg in stabilizing effective exchange rates compared with the individual currency basket peg. Rajan (2002) pointed out that the common currency basket system might be favorable because the possibility of a competitive devaluation would exist if the monetary authorities can choose their own individual currency basket.

Mori, Kinukawa, Nukaya, and Hashimoto (2002) recommended a two-step approach. The first step is that each of the countries adopts an individual currency basket system. The second step is to move from the individual currency basket system to a common currency basket. Ngiam and Yuen (2002) recommended a similar approach that is called a “Cluster Approach.” They pointed out that some different clusters should adopt a common currency at first, expand the cluster, and finally unify those clusters in order to have one regional currency in the region.

These ideas suggest that any individual currency baskets could develop a common currency basket in the region. Accordingly, we do not need to insist that a common currency basket is a starting point. Rather, we should recognize that a common currency basket is good for stability of an intra-regional exchange rate.

There is a difference between them. As we mentioned above, an individual currency basket is composed of its own trade partner currencies based on its own trade weights while a common currency basket is composed of common currencies based on a common basket weight. Too much variety within an individual currency basket composition would have adverse effects on stability of intra-regional exchange rates if the monetary authorities of East Asian countries target the individual currency basket.

### **5. Converting the AMU and an individual currency basket to a G3 currency basket**

As we empirically analyzed the latest actual weights on the three major currencies for East Asian currencies in section 2 (see Table 1), most of the East Asian currencies are strongly related with the US dollar. Some of them are significantly related with the US dollar, the Japanese yen, and the euro (Singapore, Thailand and South Korea) and some are significantly related with the US dollar and the Japanese yen (Indonesia and the Philippines). Thus, East Asian currencies can be converted to 100

percent of the US dollar or some variations on a G3 currency basket.<sup>7</sup>

Suppose that country A adopts a currency basket system where currency A is pegged to a currency basket composed of the G3 currencies (the US dollar, Japanese yen, and euro), currency B, and currency C. Country B adopts a currency basket system where currency B is pegged to a currency basket composed of the G3 currencies. Country C adopts a dollar peg system where currency C is pegged to the US dollar. These exchange rate systems are shown in the following equations:

$$\begin{aligned}
 \text{CurrencyA} &= W_{A,USD} \cdot \text{USD} + W_{A,JPY} \cdot \text{JPY} + W_{A,euro} \cdot \text{euro} + W_{A,B} \cdot \text{CurrencyB} + W_{A,C} \cdot \text{CurrencyC} \\
 \text{CurrencyB} &= W_{B,USD} \cdot \text{USD} + W_{B,JPY} \cdot \text{JPY} + W_{B,euro} \cdot \text{euro} \\
 \text{CurrencyC} &= W_{C,USD} \cdot \text{USD}
 \end{aligned}
 \tag{1}$$

where  $W_{ij}$  : weight on currency  $j$  in its currency basket for currency  $i$ , Currency A, B, C, USD, JPY, and euro are exchange rates of the relevant currencies, respectively.

Then, currency A's basket weights are converted only to the weights on three major currencies as follows:

$$\begin{aligned}
 \text{CurrencyA} &= (W_{A,USD} + W_{A,B} \cdot W_{B,USD} + W_{A,C} \cdot W_{C,USD}) \cdot \text{USD} \\
 &\quad + (W_{A,JPY} + W_{A,B} \cdot W_{B,JPY}) \cdot \text{JPY} \\
 &\quad + (W_{A,euro} + W_{A,B} \cdot W_{B,euro}) \cdot \text{euro}
 \end{aligned}
 \tag{2}$$

The results shown in Table 1 are used to calculate estimated G3 currency basket weights for the seven East Asian currencies in 2004.<sup>8</sup> Table 2 shows the estimated G3 currency basket weight as well as their exchange rate systems. We regard that three of them, Singapore, Korea and Thailand adopt a *de facto* currency basket system and other East Asian countries adopt a *de facto* dollar peg system.

At first, we convert the AMU of Ogawa and Shimizu (2005, 2006a) by applying these weights and formula (2), and compare it with the common G3 currency basket of Williamson (2005).<sup>9</sup> Table 3 shows the results. Because the weight of China

---

<sup>7</sup> Fukuda (2006) also estimated the theoretical weights of the exchange rates based on trade weights for some East Asian countries.

<sup>8</sup> We apply the results of Table 1 in 2004 because we use the trade data in 2004.

<sup>9</sup> In Williamson (2005), the weight of the dollar was supplemented by trade with the rest of the Western Hemisphere, the rest of non-Japan East Asia, and two-thirds of the rest of the World, to reflect the fact that the former two regions and a large number of rest of the world countries have traditionally pegged to, or measured their exchange rates in terms of, the U.S. dollar. Similarly, the weight of the euro was supplemented by one-third of the trade with the rest of the World, reflecting the fact that a number of other currencies peg to the euro or else that their exchange rates tend to be influenced by the euro.

is the highest in the AMU, the converted US dollar weight of the AMU is 63.2 percent, which is higher than the US dollar weight of the common G3 currency basket (46.6 percent). The converted Japanese yen weight of the AMU (32.93 percent) also is higher than the Japanese yen weight of the common G3 currency basket (23.4 percent). This is because the AMU includes the Japanese yen and three East Asian currencies, which adopt a *de facto* currency basket system, as a composite currency. On the other hand, the converted euro weight of the AMU is 3.87 percent. This is far smaller than the common G3 currency basket weights (30.0 percent). This is because the euro is not a composition currency of the AMU and only three countries among ASEAN+3 adopt a *de facto* currency basket system at the moment. Figure 1 shows historical movements of both currency baskets against the US dollar from January 2000 to May 2006. Because the AMU's converted weight of the euro is so small, the AMU currency basket is relatively stable compared with the common G3 currency basket.

Because the AMU is composed of ASEAN+3 currencies, its converted weights of G3 currencies are affected by their choice of currency regime. At the moment, the converted US dollar weight is higher than the US dollar weight of the common G3 currency basket, which was calculated by actual trade volume share with the United States and the US dollar related outside countries. This is because more than half of the AMU member countries still adopt a *de facto* US dollar pegging system. If all AMU member countries gradually moves to an individual currency basket system based on their trade volumes, then their individual basket weights on the Japanese yen will be higher and their individual basket weights on the US dollar will be lower.

Next, we convert each East Asian currency's trade based currency basket weights to G3 currency basket weights. Table 4 shows the results. The second column shows "trade weights," which are calculated by trade volume (sum of exports and imports) from each country's government statistical website.<sup>10</sup> These weights add up to less than 100 percent, since they do not include all trading partners. Therefore, the weights are enlarged to make their sum 100 percent. The composition of the resulting basket is in the third column of "individual currency basket weights." The fourth column is "individual G3 converted basket weights," which are calculated by using the converting weights of each East Asian currency in Table 2.

The result for Singapore is interesting. As Singapore is said to adopt a currency basket individually, the individual currency basket weights are well balanced with the major three currencies and six Asian currencies. However, their converted US dollar weight is 68.06 percent, which is far higher than the trade based weight of the US dollar

---

<sup>10</sup> We treat the EU as the euro related trade due to data constraints.

(15.77 percent). This is because Singapore has strong trade relationships with the countries that adopt *de facto* dollar peg systems, including Malaysia, China, Hong Kong, and Taiwan.

Contrary to Singapore, the converted G3 currency basket weights of South Korea and Thailand, which also seem to adopt a currency basket system individually, are similar and well balanced. For example, Thailand has relatively strong trade relationships with Japan and the EU, and good trade relationships with Singapore and Korea. These make both the converted yen weight (27.92 percent) and the converted euro weight (18.06 percent) higher than the trade based weight of the Japanese yen (25.20 percent) and the euro (16.04 percent). Thus, the converted G3 currency basket weights of the countries are affected not only by their currency regime choice, but also by their trading partner countries' currency regime choice.

The converted G3 currency basket weights of China are 52.67, 23.04, and 24.29, for the US dollar, Japanese yen, and euro respectively. On July 21, 2005, the Chinese government announced that the monetary authority would adopt a managed floating exchange rate system with reference to a currency basket. They explained their concern not only with trade weights but also capital flow such as foreign direct investment for their basket weights. The above basket weights are calculated only from the trade weights and the possible US dollar weight could be higher if we include the element of capital flow. However, their actual US dollar weight, which was empirically estimated by Ogawa and Sakane (2006), was larger than 90 percent in 2005. These results suggest that they still adopt almost the same *de facto* dollar peg system, which is far from the basket weights based on their trade weights with major trade partner countries.

All sampled East Asian countries have strong trade relationship with China. As Shioji (2006) indicated that China's choice of its exchange rate regime interacts with the rest of East Asia's choice theoretically, China's increase of basket weight on the Japanese yen would increase other East Asian countries' basket weights on the Japanese yen through the effect of equation (2). These results indicate that a common currency basket could be developed if each East Asian country gradually moves from a *de facto* dollar peg system to an individual currency basket system based on their own trade shares.

## **6. Differences between the ECU and the AMU**

As explained, we proposed a possible way toward an Asian Monetary Unit (AMU), as a regional currency basket, that is, a weighted average of thirteen East Asian currencies (ASEAN + China, Japan, and Korea) following the method used to calculate the European Currency Unit (ECU) in Ogawa and Shimizu (2005, 2006a). However, we should recognize similarities and differences between the ECU and the AMU from the standpoint of their purpose and role.

The European Currency Unit (ECU) was an artificial basket of the currencies of the European Community member states, used as the unit of account of the European Community before being replaced by the euro. Member countries used the ECU linked to the European Monetary System (EMS), which was a limited-flexible exchange rate system, a so-called bilateral grid method. They defined bands in which the bilateral exchange rates of the member countries could fluctuate. The bands of fluctuation were characterized by a set of adjustable bilateral central parities and margins that defined the bandwidth of permissible fluctuations. This set of parities was called a parity grid as it defined parities for all combinations of the ECU constituent currencies. Typically, their band had a width of 2.25% to each side, with a wider margin for the Italian lira (6%). When a market exchange rate reached either of these intervention points, the central banks were compelled to support these rates indefinitely through open market operations of buying of the weakened currency and selling of a strengthened currency.

Although the AMU will be an artificial basket of the currencies of ASEAN +3 countries in a similar way to the ECU, it will serve only as a numeraire at the first stage. We suggest introducing the AMU as a surveillance index for the ASEAN + 3 Finance Ministers Meeting. After the Asian currency crisis, we have recognized that East Asian countries should move from *de facto* dollar peg systems to basket peg systems. The AMU is a common currency basket in East Asia and could stabilize the member countries' effective exchange rates (Ogawa and Shimizu, 2006b). Thus, we consider that the AMU is more appropriate as an anchor for East Asian currencies than the US dollar.

In the EMS, the Deutsche mark played an important role as a vehicle currency. While some main European currencies, such as the Deutsche mark, the Sterling pound, and the Swiss francs were traded in terms of the US dollar, most European currencies were quoted and traded in terms of the Deutsche mark instead of the US dollar in the European foreign exchange market. The Monetary Authorities of European countries were usually concerned with the level of exchange rate vis-à-vis the Deutsche mark. Because the Deutsche mark was basically the strengthened currency among the rest of the EMS currencies, the weakened currencies were frequently supported by coordinated intervention.

On the other hand, we have no consistently strong currencies like the Deutsche mark in East Asia. Furthermore, we have no plan at the present to establish a coordinated intervention scheme among the AMU countries. Thus, the foreign exchange market conditions in East Asia are completely different from those in West Europe at that time. However, we believe that monitoring each East Asian currency vis-à-vis the AMU instead of the US dollar should be the important first step for East Asian countries to develop regional monetary coordination. The AMU would play an important role in a coordinated exchange rate policy in East Asia.

### **7. Steps toward a common currency basket system in East Asia**

The results in the section 5 suggest that adopting an individual currency basket in each East Asian country might promote the gradual development of a common currency basket system. We should consider whether the Japanese yen should be an insider or outsider for the regional common currency basket. We expect that the Japanese yen should play a varying role at each stage toward regional monetary coordination in East Asia. The following procedure is an idea of steps toward a common currency basket system in East Asia.

In the first step, the monetary authorities of ASEAN+3 will start policy dialogue about exchange rates and exchange rate policies. At that time, the AMU and AMU deviation indicator should be used to conduct surveillance on the exchange rates and exchange rate policies as well as domestic macroeconomy at the Economic Review and Policy Dialogue (EPRD) of ASEAN+3. The surveillance process based on the AMU must be conducted by all of ASEAN + 3 which includes Japan. Accordingly, the Japanese yen should be included in the AMU.

In the second step, the monetary authorities of ASEAN+2 (China and Korea) will adopt a managed floating exchange rate system with reference to their own individual G3 currency baskets for managed floating countries. On one hand, the monetary authority of Japan might not be included in adopting a G3 currency basket system because it is difficult for it to have effective intervention in such a thick foreign exchange market such as dollar/yen market. At the same time, the monetary authorities of ASEAN+3 should continue to conduct the surveillance process by using the AMU deviation indicators.

In the third step, the monetary authorities of ASEAN+2 will shift to a managed floating exchange rate system with reference to a common G3 currency basket for

managed floating countries. At the same time, the monetary authorities of ASEAN+3 should continue to conduct surveillance by using the AMU deviation indicators. In the second and third steps, the Japanese yen is one of the G3 currencies that the monetary authorities of ASEAN+2 target in conducting their exchange rate policies.

In the fourth step, some ASEAN+3 countries (what we call “core countries”) would peg to a common regional currency basket, the AMU, in order to stabilize intra-regional exchange rates. They should conduct coordinated monetary policies in order to stabilize intra-regional exchange rates. At that time, the core countries should be limited to those that adopt the AMU peg system.

In the fifth step, some of ASEAN+3 would introduce a bilateral grid method based on the AMU to conduct a certain amount of intervention in foreign exchange markets of the relevant intra-regional exchange rates. An Asian Exchange Rate Mechanism should be established for their coordinated intervention. This is similar to the Exchange Rate Mechanism under the EMS prior to the introduction of the euro.

In the fourth and fifth steps, the currency basket should include the Japanese yen as an anchor currency. In this case, the Japanese yen should be a regional key currency in terms of its being a main international currency with convertibility and conducting disinflationary stance of monetary policy. East Asian currencies should be linked to a regional anchor and key currency such as the Japanese yen to stabilize their values and prevent a currency crisis.

## **8. Conclusion**

In this paper, we discuss the latest issues surrounding the currency basket and the development of concrete steps toward a common currency basket system in East Asia. Specifically, we simulate the possible individual currency basket weights based on trade shares of each East Asian country and convert them to a G3 currency basket. We also discuss the discrepancies between the converted G3 currency basket weight of the AMU and the weights of a common G3 currency basket.

We obtained the following results in this paper. First, we found that the AMU’s converted weights on G3 currencies were affected by the choice of currency regime in the region. At the moment, the converted US dollar weight in the AMU is higher than the US dollar weight of the common G3 currency basket. This is because more than half of the AMU member countries still adopt a *de facto* dollar peg system. Most of the East Asian countries have a strong trade relationship with China. If China increases its

basket weight on the Japanese yen rather than the US dollar, the other East Asian countries could also increase their basket weights on the Japanese yen. As a result, their currency basket weights would be closer to the AMU basket weights. These results indicate that a common currency basket could be developed if they gradually change from a *de facto* dollar peg system to an individual currency basket system based on their own trade shares.

Thus we propose a possible way to shift from an individual G3 currency basket system to the AMU currency basket system. Additionally, we expect that the Japanese yen would play a varying role at each of the stages toward the monetary coordination in East Asia.

There are several problems to be solved during the process toward a common currency basket system in East Asia. We have to consider how to keep a deviating currency within a certain fluctuation band. In addition, we must decide the way to set the certain band itself. These questions will be addressed in our future research.

#### **References:**

Frankel, Jeffrey A., and Shang-Jin Wei, 1994, "Yen bloc or dollar bloc? Exchange rate policies of the East Asian economies," in Takatoshi Ito and Anne O. Krueger, eds., *Macroeconomic Linkage: Savings, Exchange Rates, and Capital Flows*, Chicago, University of Chicago Press, pp.295-355.

Fukuda, Shinichi, 2006, "Post-crisis exchange rate regimes in East Asia," in *A Basket Currency for Asia*, edited by Takatoshi Ito (forthcoming).

Kawai, Masahiro and Shinji Takagi, 2000, "Proposed strategy for a regional exchange rate arrangement in post-crisis East Asia," *World Bank Policy Research Working Paper* no.2503.

Kawai, Masahiro, 2002, "Exchange Rate Arrangements in East Asia: Lessons from 1997-1998 Currency Crisis," *Monetary and Economic Studies* (Special Edition) December 2002.

McKinnon, Ronald I., 2002, "After the Crisis, the East Asian Dollar Standard



Resurrected,” in *Monetary and Financial Management in the 21th Century*, ed. A.H.H. Tan, Singapore: World Scientific Publishing Co.

Mori, Junichi, Naoyuki Kinukawa, Hedeki Nukaya, and Masashi Hashimoto, 2002, “Integration of the East Asian Economies and a Step by Step Approach towards a Currency Basket Regime,” *IIMA Research Report* no.2, Institute for International Monetary Affairs.

Ngiam, Kee Jin, and Hasel Yuen, 2002, “Monetary Cooperation in East Asia: A way forward,” presented in an International Seminar “Promoting Growth and Welfare: Structural Changes and the Role of Institutions in Asia,” in Santiago, Chili and Rio de Janeiro, Brazil, April 29 - May 3, 2002.

Ito, Takatoshi, Eiji Ogawa, and Yuri N. Sasaki, 1998, “How Did the Dollar Peg Fail in Asia,” *Journal of the Japanese and International Economies*, vol.12, pp.256-304.

Ogawa, Eiji, 2002, “Should East Asian countries return to a dollar peg again?” in Peter Drysdale and Kenichi Ishigaki eds. *East Asian Trade and Financial Integration: New Issues*, Asia Pacific Press, pp.159-184.

Ogawa, Eiji and Takatoshi Ito, 2002, “On the Desirability of a Regional Basket Currency Arrangement,” *Journal of Japanese and International Economies*, vol.16: pp.317-334.

Ogawa, Eiji and Junko Shimizu, 2005, “AMU Deviation Indicator for Coordinated Exchange Rate Policies in East Asia,” *RIETI Discussion Paper*, no.05-E-017.

Ogawa, Eiji and Junko Shimizu, 2006a, “AMU Deviation Indicator for Coordinated Exchange Rate Policies in East Asia and its Relation with Effective Exchange Rates,” *RIETI Discussion Paper*, no.06-E-002.

Ogawa, Eiji and Junko Shimizu, 2006b, “Stabilization on Effective Exchange Rates under Common Currency Basket Systems,” *NBER Working Paper*, no.12198.

Ogawa, Eiji and Michiru Sakane, 2006, “The Chinese Yuan after the Chinese Exchange Rate System Reform,” *RIETI Discussion Paper*, no.06-E-019.

Ogawa, Eiji and Lijian Sun, 2001, "How were capital inflows stimulated under the dollar peg system?": in Takatoshi Ito and Anne O. Krueger eds., *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, University of Chicago Press, pp.151-190.

Rajan, Ramkishan S., 2002, "Exchange Rate Policy Options for Post-crisis Southeast Asia: Is There a Case for Currency Baskets?" *The World Economy*, 25: pp.137-163.

Shioji, Eturo, 2006, "Chinese Exchange Rate Regimes and the Optimal Basket Weights for the Rest of East Asia," *RIETI Discussion Paper*, no.06-E-024.

Williamson, John, 2005, "A Currency Basket for East Asia, Not Just China," *Policy Briefs in International Economics*, no.PB05-1, Institute for International Economics.

Table 1. *De facto* currency basket weight of three major currencies

year of 2004	US dollar		euro		Japanese yen		Adj. R2
Chinese yuan	1.0003 (0.0002)	***	-0.0004 (0.0006)		-0.0001 (0.0002)		0.9999
Singapore dollar	0.5787 (0.0229)	***	0.1603 (0.0622)	**	0.2729 (0.0208)	***	0.9095
Thai baht	0.7272 (0.0273)	***	0.1920 (0.0741)	**	0.1923 (0.0248)	***	0.8962
Malaysian ringgit	1.0046 (0.0026)	***	0.0001 (0.0070)		-0.0035 (0.0023)		0.9992
Philippine peso	0.9101 (0.0230)	***	0.0004 (0.0624)		0.0661 (0.0208)	***	0.9323
Indonesian rupiah	0.7445 (0.0631)	***	0.1309 (0.1714)		0.1973 (0.0573)	***	0.6216
South Korean won	0.7557 (0.0454)	***	0.2412 (0.1233)	*	0.1905 (0.0412)	***	0.7706
year of 2005	US dollar		euro		Japanese yen		Adj. R2
Chinese yuan	0.9213 (0.01974)	***	0.0412 (0.06141)		0.0935 (0.02100)	***	0.9576
Singapore dollar	0.5021 (0.0271)	***	0.1707 (0.0844)	**	0.3926 (0.0289)	***	0.8817
Thai baht	0.6182 (0.0374)	***	0.1301 (0.1163)		0.3124 (0.0398)	***	0.8163
Malaysian ringgit	0.9869 (0.0252)	***	0.0228 (0.0784)		-0.0124 (0.0268)		0.9337
Philippine peso	0.8428 (0.0374)	***	0.0727 (0.1162)		0.1178 (0.0397)	***	0.8473
Indonesian rupiah	0.6728 (0.1161)	***	0.0910 (0.3614)		0.2305 (0.1236)	*	0.3075
South Korean won	0.5597 (0.0594)	***	0.2179 (0.1847)		0.2169 (0.0632)	***	0.5715

Calculated by authors. All exchange data are from Datastream.

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.

Table 2.

**Estimated currency regime and  
converting weights to G3 currency basket (2004)**

	Estimated currency regime	G3 currency basket weights (%)		
		US dolalr	Yen	euro
Singapore	Basket	57.19	26.97	15.84
South Korea	Basket	63.64	16.04	20.31
Thailand	Basket	65.43	17.30	17.27
China	US Dollar peg	100	0	0
HongKong	US Dollar peg	100	0	0
Taiwan	US Dollar peg	100	0	0
Malaysia	US Dollar peg	100	0	0
Philippines	Basket	93.24	6.76	0
Indonesia	Basket	85.04	14.96	0

Author's calculation.

These are from the results of 2004, Table 1. Each weight is adjusted to make its sum up to 100.

Table 3.

**The AMU and the Common G3 currency basket of Williamson(2005)**

	AMU weights (%)	Converted G3 basket weights of AMU (%)			Common G3 basket weights of Williamson (2005), (%)		
		US dolalr	Yen	euro	US dolalr	Yen	euro
Brunei	0.41						
Cambodia	0.20						
China	34.79						
Indonesia	5.12						
Japan	27.80						
South Korea	9.76						
Laos	0.08	63.20	32.93	3.87	46.6	23.4	30.0
Malaysia	5.34						
Myanmar	0.38						
Philippines	2.93						
Singapore	6.36						
Thailand	5.08						
Vietnam	1.74						

Authors calculation

AMU weights are from Ogawa and Shimizu (2006). Converted G3 basket weights of AMU are calculated by converting weights of table 2. Common G3 basket weights of Williamson are from Williamson (2005).

Table 4.

**Trade based Individual currency basket weights (base year=2004)**

<b>Singapore</b>					
Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolalr	Yen	euro
Malaysia	15.21	19.32			
EU	13.24	16.81			
US	12.42	15.77			
China	9.19	11.67			
Japan	8.93	11.34	68.06	13.12	18.82
HongKong	6.20	7.87			
Taiwan	5.15	6.54			
Tailand	4.21	5.35			
South Korea	4.19	5.32			
	78.74	100.00			
<b>South Korea</b>					
Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolalr	Yen	euro
China	16.59	24.84			
US	14.98	22.43			
Japan	14.18	21.23	59.34	21.23	19.42
EU	12.97	19.42			
HongKong	4.47	6.69			
Taiwan	3.59	5.38			
	66.78	100.00			
<b>Thailand</b>					
Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolalr	Yen	euro
Japan	18.66	25.20			
EU	11.88	16.04			
US	11.80	15.94			
China	7.92	10.70			
Singapore	5.80	7.83			
Malaysia	5.62	7.59	54.02	27.92	18.06
Taiwan	3.42	4.62			
HongKong	3.26	4.40			
Indonesia	2.87	3.88			
South Korea	2.82	3.81			
	74.05	100.00			

Authors calculation

All Trade data are from each country's government statistical website.

**Trade based Individual currency basket weights (base year=2004) continued**  
**China**

Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolar	Yen	euro
EU	15.35	21.55			
US	14.69	20.62			
Japan	14.54	20.41			
HongKong	9.76	13.70	52.67	23.04	24.29
South Korea	7.80	10.95			
Taiwan	6.78	9.52			
Singapore	2.31	3.24			
	71.23	100.00			

**HongKong**

Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolar	Yen	euro
China	43.75	54.66			
Japan	14.47	18.08			
Taiwan	6.33	7.91			
US	4.31	5.38	73.42	20.03	6.55
EU	3.94	4.92			
Singapore	3.74	4.67			
South Korea	3.50	4.37			
	80.04	100.00			

**Malaysia**

Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolar	Yen	euro
US	16.81	20.06			
Singapore	13.24	15.80			
Japan	12.75	15.21			
EU	11.76	14.03			
China	8.11	9.68	60.08	21.32	18.60
Thailand	5.10	6.09			
HongKong	4.49	5.36			
Taiwan	4.25	5.07			
South Korea	4.17	4.98			
Indonesia	3.13	3.73			
	83.81	100.00			

Authors calculation

All Trade data are from each country's government statistical website.

**Trade based Individual currency basket weights (base year=2004) continued  
Philippines**

Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolalr	Yen	euro
Japan	19.29	22.23			
US	16.64	19.18			
EU	12.27	14.14			
Singapore	7.15	8.24			
China	6.49	7.48	57.14	25.72	17.14
Taiwan	6.42	7.40			
HongKong	6.07	7.00			
Malaysia	4.72	5.44			
South Korea	4.50	5.19			
Tailand	3.22	3.71			
	86.77	100.00			

**Indonesia**

Major Trading partner	Trade weights	Individual currency basket weights	Individual G3 currency basket weights (%)		
			US dolalr	Yen	euro
Japan	18.66	29.17			
EU	11.82	18.48			
Singapore	10.23	15.99	42.24	34.93	22.83
US	10.15	15.87			
China	7.37	11.52			
South Korea	5.73	8.96			
	63.96	100.00			

Authors calculation

All Trade data are from each country's government statistical website.

Figure 1. The G3 basket and the AMU, (against US dollar, Jan 2000=1)

