

# Do EMU Countries Have the Same Business Cycles? : A Lesson for Regional Monetary Integration in East Asia

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## **Do EMU Countries Have the Same Business Cycles?\*** **—A Lesson for Regional Monetary Integration in East Asia**

Sadayoshi Takaya

### **Abstract**

This paper studies the synchronization of business cycles in the EMU and East Asia using a band-pass filter. This is because from the point of view of the Optimum Currency Area criteria, this synchronization is an important factor in the introduction of a common regional currency. In this paper, policy coordination, such as fiscal constraints and cooperative monetary policies, is considered as an important factor in synchronization. Therefore, we suggest that policy coordination will be necessary if East Asia intends to introduce a common regional currency.

keywords: Synchronization of Business Cycles,  
Economic and Monetary Union, Asian Monetary Integration

### Index

1. Introduction: synchronization of business cycles and the EMU
2. Estimation of the synchronization
3. Results of the estimation
4. Estimation for the synchronization of Asian business cycles
5. Lessons from the introduction of the Euro for Asian monetary cooperation

### References

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## **1. Introduction: synchronization of business cycles and the EMU**

The introduction of the Euro in 1999 has affected the economic structure and characteristics of the countries using the Euro. These changes are manifested as a “convergence” of the economies of the member countries. These convergences include the following four aspects: (1) the convergence of institutions, (2) policy convergence, (3) the convergence of nominal variables, and (4) the convergence of real variables. Since the ratification of the Maastricht Treaty in 1993, several common institutions, for example, the European Central Bank (ECB), were established. Macroeconomic, monetary, and fiscal policies converged as a result of this treaty and the Stability and Growth Pact. In addition, the nominal economic variables, inflation rates, nominal long-term interest rates, and nominal exchange rates converged in the late 1990s as a result of the convergence criteria.

The former three aspects of convergence may be considered to produce real economic variables, a representative example of which is the real growth rate of the GDP or the industrial production. Undoubtedly, if the Economic and Monetary Union of Europe (EMU) has achieved the convergence of real economic variables, it will be easy for the ECB to control the Euro area economy using a single monetary policy. Through the convergence of the real growth rate or the synchronization of business cycles, the ECB is able to implement a monetary policy aimed at absorbing the exogenous shocks throughout the Euro area. However, there are two controversial views regarding the common currency area: one is that synchronization is increased through intra-trade intensity<sup>1</sup>, and the other is that synchronization is decreased through the centralization of a specific industry in a country or a region<sup>2</sup>. The former is related to the Optimum Currency Area (OCA) criteria, which includes free labor mobility, the divergence of products, the openness of the member countries, etc. The latter is related to the economics of scale or spatial economics. In order to investigate the difficulties involved in policy

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<sup>1</sup> See Frankel and Rose (2002).

<sup>2</sup> See Krugman (1991).

implementations, empirical studies on synchronization would be necessary both before and after the introduction of the Euro.

A recent study proposed the “endogeneity of the OCA,” that is, the OCA criteria would be satisfied *after* the introduction of the common currency. If this hypothesis holds, the synchronization may have increased after 1999. If the increase in synchronization occurred after the introduction of the Euro, the endogeneity hypothesis is correct. Our study, too, contributes to the empirics of the “endogeneity of the OCA” hypothesis because it empirically analyzes the synchronization that occurred before and after the introduction of the Euro.

Previous studies on the synchronization of business cycles in the EMU include those conducted by Artis and Zhang (1995), Ramos et al. (2003), and Kalemli-Ozcan et al. (2003). Artis and Zhang (1995) suggested that the formation of the Exchange Rate Mechanism (ERM) contributed to the synchronization in the EMU. On the basis of the evidence of country-specific shock reduction, Ramos et al. (2003) argued that the synchronization was caused by policy coordination in the EMU. Kalemli-Ozcan et al. (2003) suggested that the financial integration in the EMU reduces the symmetry of international macroeconomic fluctuations because of the increased risk-sharing opportunity. Thus far, the pattern of the synchronization has been inconclusive.

However, the recent differences in the business cycles in the EMU, such as the Spanish economy boom and the recession of the German economy, are significant as they cannot be accommodated by the common monetary policy. If the difference diverges, the common economic policy may not be able to control economic fluctuations, and as a result, the Euro area will face the risk of sustainability.

Consequently, we will investigate business cycle synchronization using a rolling estimation to determine the changes in the synchronization. If the synchronization increases, the probability of sustainability may also increase. In contrast, if the synchronization decreases, the probability of sustainability may decrease.

Furthermore, the differences in the business cycles in some regions—with the exception of the EMU—for example, East Asia, may cause currency crises. When the disequilibrium in the current account or the balance of payments increases as a result of the fundamentals of economy, speculators take advantage of opportunities to attack the currency on account of this disequilibrium.

In this paper, we explore the synchronization of the business cycles in the EMU in order to investigate the methods of implementing economic coordination and/or cooperation in East Asia. In section 2, we present the methods used to estimate the synchronization. Section 3 presents the results of the estimation. Section 4 explains the estimation of the synchronization in East Asia, and in section 5, we conclude our investigation and indicate the course of future economic coordination in East Asia.

## **2. Estimation of the synchronization**

### ***Data***

The rolling OLS method as we mentioned above is applied to the industrial production series of selected major EMU countries. In particular, the data used in the empirical analysis are the monthly growth rates of the industrial production from 1986:1 to 2003:12, drawn from the *International Financial Statistics* CD-ROM by the International Monetary Fund. The European countries investigated in this paper are Austria (AT), Belgium (B), France (F), Germany (DE), Ireland (IR), Italy (IT), the Netherlands (NE), Portugal (P), Spain (E), and the United Kingdom (UK). The Asian countries investigated in this paper are Korea (K), Indonesia (IN), Malaysia (M), the Philippines (PH), and Thailand (TH). The aggregate variable for the Euro area industrial production used in the estimations is derived from the values reported in the ECB monthly data.

### ***Modeling the growth cycles***

In this study, we use a band-pass filter to model the business cycles. In particular, the Christiano-Fitzgerald full sample asymmetric filter is applied because of its generality.

There are several types of frequency filters that can be applied to business cycles: the Baxter-King (BK) filter, the Christiano-Fitzgerald (CF) fixed-length symmetric filter, and the Christiano-Fitzgerald (CF) asymmetric full sample filter. These filters are used to isolate the cyclical component of a time series by specifying a range for its duration. The band-pass filter is a linear filter that calculates a two-sided weighted moving average of the data wherein the cycles in a "band," given by a specified lower and upper bound, are "passed" through or extracted, and the remaining cycles are "filtered" out.

The fixed-length symmetric filters employ a fixed lead/lag length. In this filter, the fixed number of lead and lag terms to be used while computing the weighted moving average must be specified. The symmetric filters are time-invariant since the moving average weights depend only on the specified frequency band and not on the data. The BK filter is less effective than the CF filter; these two filters differ in the objective function used to select the moving average weights.

The BK filter is obtained by band-pass filtering the time series of the GDP growth to eliminate all the frequencies of the data that are higher or lower than the business cycle frequencies.

The filter BPF( $n, m, j$ ) is a weighted moving average of the order  $j$ , such that

$$y_t^* = \sum_{i=-j}^j a_i y_t \quad (1)$$

where  $y$  denotes growth rate, and suffix  $t$  represents time, and  $a$  weight. The weights are the Fourier transform of the frequency domain representation of the series, in which the frequencies higher than  $2\pi/m$  and lower than  $2\pi/n$  are set to zero. 2 [Note: See Editor's Note #4.] The control size of the symmetric moving average filter is then fixed at 12. For this reason, while employing the BK filter, artificial data is added at the beginning and the end of the series before performing a moving-average filtering using autoregressive (AR) backcasts and forecasts.

In contrast, the asymmetric full sample CF filter is the most general type of filter, in which the weights on the leads and lags are allowed to

differ. The asymmetric filter is time-variant, with the weights both depending on the data and changing for each observation.

While choosing between these two methods, it should be noted that the BK filter requires the same number of lead and lag terms for every weighted moving average. Thus, a filtered series computed using observations of the leads and lags would omit observations from both the beginning and the end of the original sample. In contrast, the asymmetric filtered series does not have this requirement, and can be computed to the extremes of the original sample. Consequently, we employed the CF asymmetric filter in our study.

**Table 1. Correlation Matrix**

Correlation Matrix (1986Jan.-1992Dec.)										
	AT	BE	FR	DE	IR	IT	NE	PR	ES	UK
AT	1.000									
BE	0.459	1.000								
FR	0.635	0.893	1.000							
DE	0.872	0.612	0.612	1.000						
IR	-0.490	0.226	0.050	-0.190	1.000					
IT	-0.034	0.628	0.684	0.063	0.582	1.000				
NE	0.554	0.122	0.219	0.583	-0.349	-0.056	1.000			
PR	0.779	0.007	0.118	0.728	-0.489	-0.386	0.616	1.000		
ES	0.089	0.273	0.356	0.275	0.248	0.484	0.272	0.067	1.000	
UK	-0.179	0.405	0.204	0.055	0.836	0.478	-0.167	-0.236	-0.105	1.000

Correlation Matrix (1993Jan.-1998Dec.)										
	AT	BE	FR	DE	IR	IT	NE	PR	ES	UK
AT	1.000									
BE	0.709	1.000								
FR	0.923	0.670	1.000							
DE	0.837	0.618	0.911	1.000						
IR	0.099	0.020	-0.037	0.020	1.000					
IT	0.874	0.805	0.912	0.745	0.119	1.000				
NE	0.486	0.269	0.633	0.723	0.443	0.590	1.000			
PR	0.193	0.627	0.128	0.195	0.617	0.372	0.300	1.000		
ES	0.940	0.702	0.932	0.894	-0.018	0.863	0.594	0.124	1.000	
UK	0.507	0.017	0.549	0.420	0.163	0.501	0.580	-0.304	0.582	1.000

Correlation Matrix (1999Jan.-2003Dec.)

	AT	BE	FR	DE	IR	IT	NE	PR	ES	UK
AT	1.000									
BE	0.854	1.000								
FR	0.895	0.628	1.000							
DE	0.968	0.847	0.885	1.000						
IR	0.537	0.265	0.488	0.497	1.000					
IT	0.948	0.868	0.913	0.970	0.443	1.000				
NE	0.921	0.791	0.929	0.872	0.521	0.938	1.000			
PR	-0.614	-0.610	-0.432	-0.425	-0.395	-0.495	-0.661	1.000		
ES	0.833	0.921	0.582	0.788	0.181	0.787	0.714	-0.700	1.000	
UK	0.850	0.539	0.878	0.758	0.701	0.779	0.873	-0.698	0.578	1.000

First, we survey the correlation of the growth rates of the EU countries in order to find out the changes in the correlation. Table 1 presents the correlation matrix of three samples, that is, from January 1986 to December 1992, from January 1993 to December 1998, and from January 1999 to December 2003. As indicated by Table 1, positive signs increased with the passage of time, and in general, the correlation coefficients, too, increased. Accordingly, the synchronization may have increased as the economies prepared for the introduction of the Euro.

### **Estimation method**

A comparison of the correlation coefficients by a division of time periods is rough or inaccurate because the business cycles of the member countries may be equally affected by the business cycles of non-member countries, and the United States in particular. Therefore, it is necessary to estimate the synchronization in order to exclude the effects of the business cycles in the extra-EU area.

The equation of the estimation is as follows:

$$y_{i,t}^{BP} = \alpha_0 + \beta_1 y_{eu,t}^{BP} + \beta_2 y_{us,t}^{BP} + u_{i,t}, \quad (2)$$

where  $y_{i,t}^{BP}$  denotes the growth rate of the industrial production of country  $i$ , filtered by the band-pass filter;  $y_{eu,t}^{BP}$ , that of the EMU;  $y_{us,t}^{BP}$ , that of the United States, and  $u_i$  is an error term.

Equation 1 indicates that the band-pass filter applied to the growth



rate of country  $i$  is regressed by the filter of the EMU and the United States. If  $\alpha_1$  is significant and positive, the growth rate of country  $i$  is synchronized with that of the EMU area. If  $\alpha_2$  is significant and positive, the growth rate of country  $i$  is synchronized with that of the United States.

Using this estimation, we will investigate the synchronization of business cycles in the EMU. An estimation conducted using fixed time periods cannot reveal the dynamic changes in the value of the coefficient. However, as was noted in the arguments regarding the endogeneity of the OCA<sup>3</sup>, monetary integration may effect the criteria of the OCA. If the endogeneity is applied to the EMU, the synchronization of the business cycles may gradually increase. In order to obtain evidence of the evolution of synchronization among the EMU countries, we executed a recursive ordinary least squares (OLS) based on equation (1).

Using a recursive OLS equation (1) is repeatedly estimated using increasingly larger subsets of the sample data. If there are coefficients in the vector that are to be estimated, then the first observation is used to compute the first estimate of equation (1). The next observation is then added to the data set and the observations are used to compute the second estimate. This process is repeated until all the sample points have been used, thereby yielding estimates of the vector. At each step, the previous estimate can be used to predict the successive value of the dependent variable. When suitably scaled, the one-step ahead forecast error resulting from this prediction is defined as a recursive residual.

Here, the secular changes in the coefficient are estimated in order to investigate the synchronization of the business cycle of a member country with the overall cycle of the EMU. In order to ensure data availability and a reasonable regression, the estimation period spans 36 months.

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<sup>3</sup> See Frankel and Rose (1998) for the endogeneity of the optimum currency area.

### 3. Results of the estimation

The results of the rolling OLS are presented in Figures 1 to 10. In figures, BETA1 denotes  $\beta_1$ , BETA2  $\beta_2$ . Also, TSTAT1 means t-value of  $\beta_1$ , TSTAT2 t-value of  $\beta_2$ . With the exception of Belgium and Spain, in whose case the coefficients  $\beta_1$  were almost the same as  $\beta_2$  during the late 1990s,  $\beta_1$  was higher than  $\beta_2$  for most countries since the late 1990s. During the mid-1980s,  $\beta_1$  was largely positive and higher than  $\beta_2$ . Accordingly, synchronization had emerged during the 1980s, but has been increasing in degree since the late 1990s.

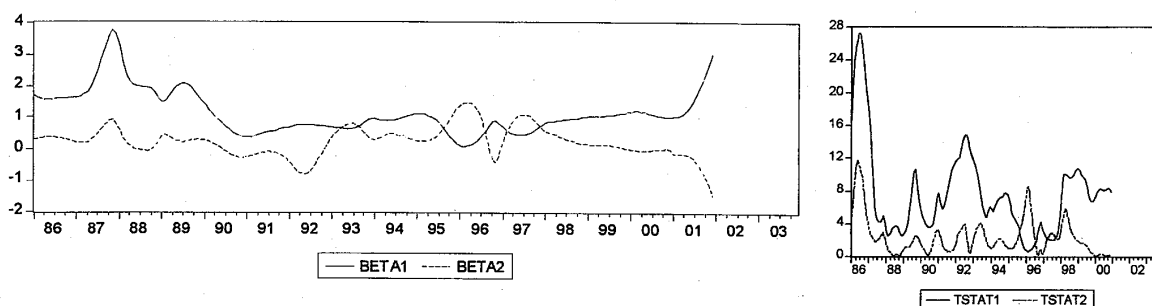


Figure 1. Austria

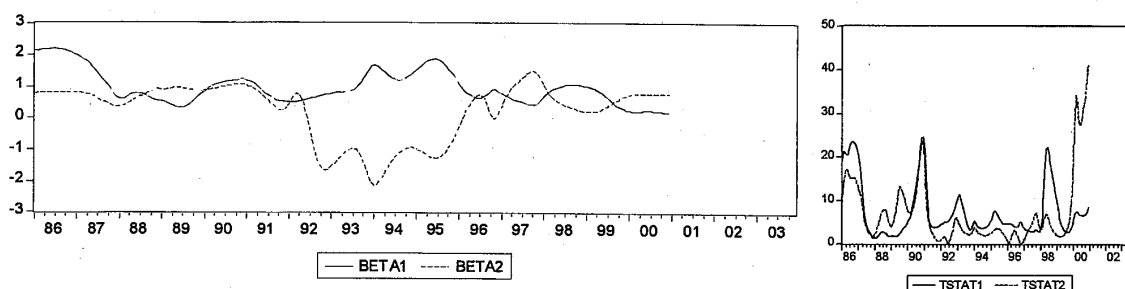


Figure 2. Belgium

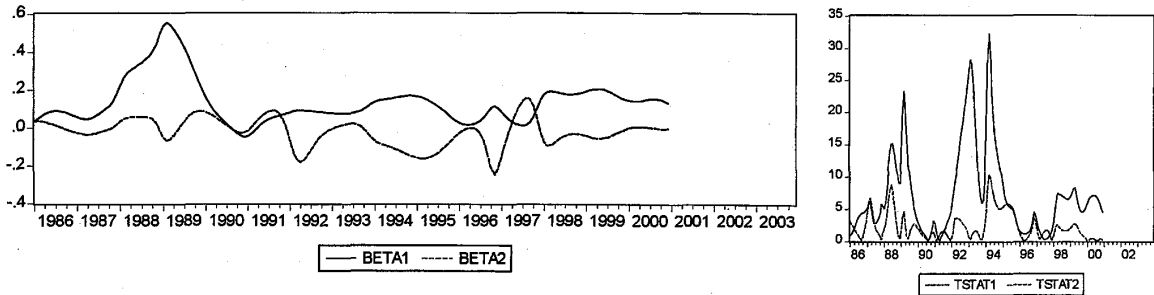


Figure 3. Finland

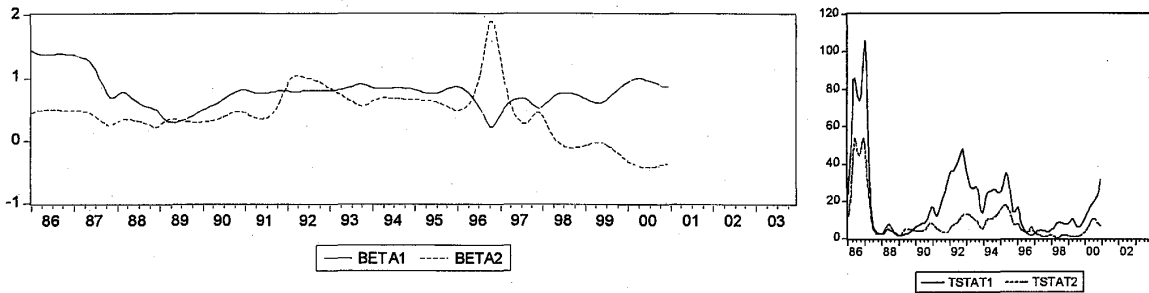


Figure 4. France

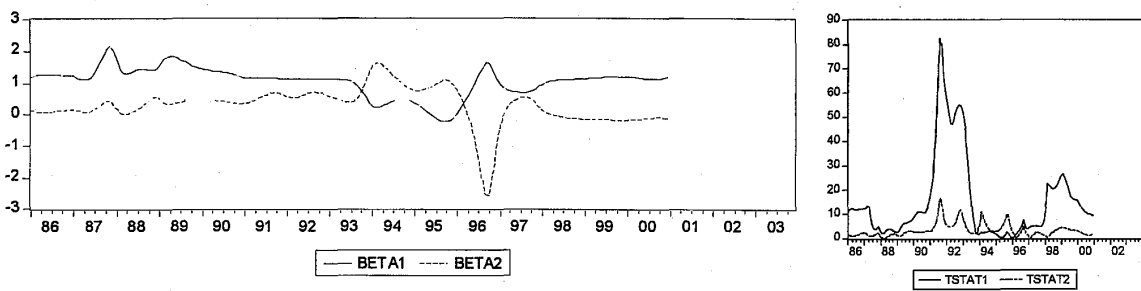


Figure 5. Germany

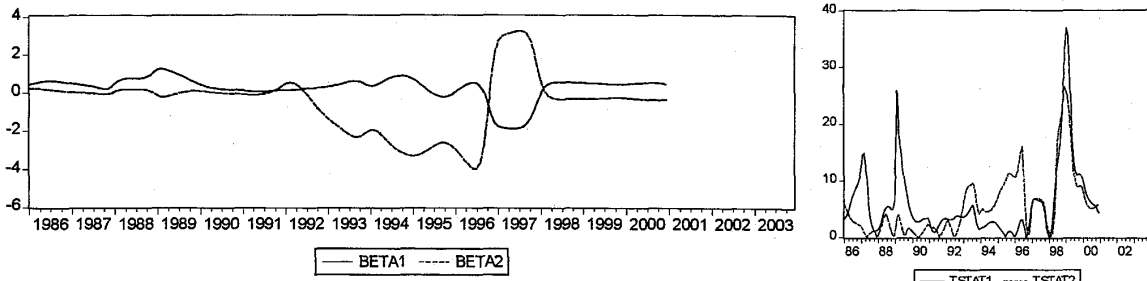


Figure 6. Ireland

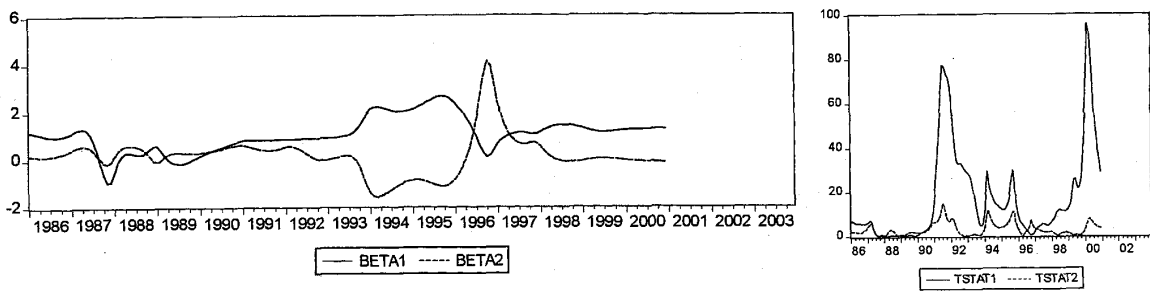


Figure 7. Italy

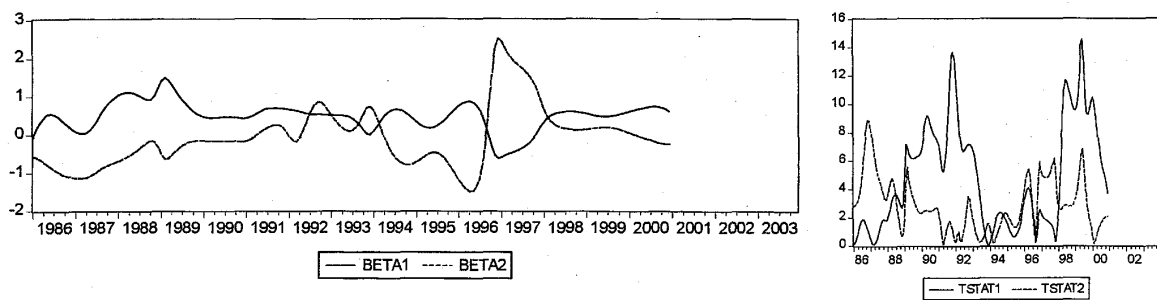


Figure 8. Netherlands

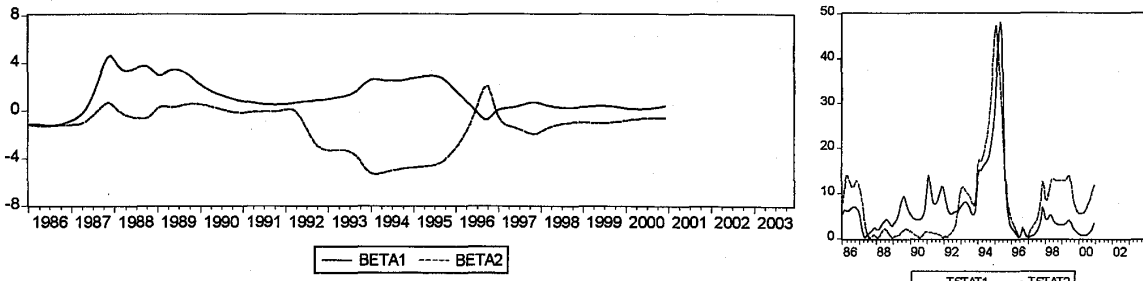


Figure 9. Portugal

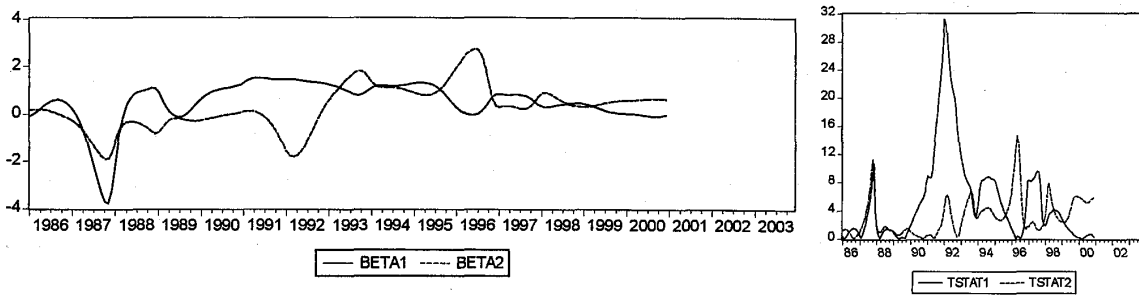


Figure 10. Spain

The synchronization of business cycles in the Euro area was attained prior to the introduction of the Euro. Accordingly, the common currency was introduced using the convergence criteria described by the Maastricht Treaty. However, the synchronization was the result of internal flows of trade and investment, which were prompted by concentrated political efforts toward the establishment of a single market in the EU. These experiences were responsible for the stringent criteria for the common currency and the monetary policy.

Some of the factors responsible for the synchronization in the EMU are as follows: (1) the increase in the intra-trade ratio of the member countries because of the single market act, (2) the convergence of the aggregate demand policies through policy coordination under the ERM and the convergence criteria of the Maastricht Treaty, and (3) the perfect liberalization of capital mobility in the EMU since 1991. Since the EU, formerly known as the EC, has proceeded toward the establishment of a single market in which the mobility of goods, capital, and labor is free, the economies within the EU have been interdependent since the 1980s. In particular, as their macroeconomic policies converged after the ratification of the Maastricht Treaty, the fluctuations of demand in the member countries have become synchronized.

**Table 2. Evolution of Intra-trade in EU**

	Austria		Belgium		Denmark		Finland	
year	Export	Import	Export	Import	Export	Import	Export	Import
1980	0.647	0.678	n.a.	n.a.	0.685	0.697	0.592	0.508
1997	0.749	0.771	0.768	0.723	0.692	0.740	0.601	0.605
2004	0.715	0.813	0.772	0.735	0.694	0.725	0.580	0.670
	France		Germany		Greece		Ireland	
year	Export	Import	Export	Import	Export	Import	Export	Import
1980	0.566	0.525	0.620	0.558	0.548	0.469	0.791	0.757
1997	0.626	0.603	0.624	0.609	0.591	0.672	0.673	0.552
2004	0.649	0.686	0.639	0.601	0.552	0.579	0.625	0.631
	Italy		Netherlands		Portugal		Spain	
year	Export	Import	Export	Import	Export	Import	Export	Import
1980	0.574	0.509	0.774	0.592	0.662	0.486	0.551	0.338
1997	0.591	0.632	0.789	0.605	0.807	0.754	0.715	0.658
2004	0.592	0.598	0.795	0.530	0.798	0.770	0.728	0.665
	UK							
year	Export	Import						
1980	0.510	0.487						
1997	0.529	0.495						
2004	0.549	0.519						

Table 2 presents the intra-trade ratio for three years—1980, 1987, and 2004. According to this, the ratio in 1980 was high and almost the same as those in 1997 and 2004; however, the ratio increased by 10% from 1980 to 2004. Therefore, intra-trade may not be the main factor responsible for the synchronization. On the other hand, capital movement within the Euro area has been perfectly liberalized since 1991. Consequently, the interest rates of the member countries have converged, resulting in a similar capital cost in the countries within the Euro area. It is possible that opportunities for investments in the area have been equalized for each firm. If so, the outputs in the Euro area could move in the same direction. Policy coordination in the Euro area or the EMU had been conducted by the member countries under the ERM and the Maastricht criteria. In particular, the latter required fiscal constraints and financial convergence. Consequently, liberalization and policy coordination may create similar tendencies in the aggregate demand of each member. If business cycles have been dominated by the aggregate demand, capital movement and policy coordination may be the most important factors responsible for the synchronization in the EMU.

#### **4. Estimation for the synchronization of Asian business cycles**

In this section, we estimate the synchronization of the average Asian growth rate of industrial production and that of each East Asian country by using the rolling OLS method that we applied in the previous section. Here, based on the experiences of the EMU, we formulate some lessons for Asian monetary integration.

The data used here is the industrial production data from the IFS CD-ROM, which we rearranged using the CF asymmetric full sample filter, as in the previous section. Further, using the augmented Dickey-Fuller test, we determined that the data obtained from the results of this analysis are stationary.

**Table 3.**

Correlation Matrix (1994Mar.-1997Dec.)						
	IND	KOR	MAL	PHIL	SING	THAI
IND	1.000					
KOR	0.098	1.000				
MAL	-0.165	0.827	1.000			
PHIL	-0.338	0.364	0.306	1.000		
SING	0.634	-0.094	-0.584	-0.172	1.000	
THAI	0.488	0.141	-0.383	0.311	0.747	1.000

Correlation Matrix (1998Jan.-2001Dec.)						
	IND	KOR	MAL	PHIL	SING	THAI
IND	1.000					
KOR	-0.625	1.000				
MAL	-0.037	0.733	1.000			
PHIL	-0.778	0.389	-0.101	1.000		
SING	0.753	-0.222	0.107	-0.353	1.000	
THAI	-0.795	0.483	-0.042	0.929	-0.363	1.000

Correlation Matrix (2002Jan.-2004Dec.)						
	IND	KOR	MAL	PHIL	SING	THAI
IND	1.000					
KOR	0.546	1.000				
MAL	0.716	0.963	1.000			
PHIL	0.412	0.506	0.640	1.000		
SING	-0.236	0.659	0.507	0.420	1.000	
THAI	0.389	0.044	0.256	0.841	-0.066	1.000

In order to summarize the characteristics of the business cycles of the East Asian countries, we utilized the correlation matrix of the growth rate of the modified industrial production. The rates have been correlated among the countries using the correlation matrix presented in Table 3. If it is assumed that, in general, these countries are interdependent on account of their trade and investment flows, then the results obtained from the matrix are plausible. However, a majority of the East Asian countries have exported goods to Japan and the United States and have received investments from them. Therefore, it is possible that the business cycles of the East Asian countries have been influenced by those of Japan and the United States.

Consequently, since the exact correlations are being investigated, it is necessary to control this influence. Thus, while using the rolling OLS method, the growth rate of Japan and/or the United States is included as an explanatory variable.

The results are presented in Figures 10 to 15. These figures indicate



that the correlations of the growth rates of the East Asian countries have been increasingly higher, and that those between each of these countries and the United States, lower. However, the degree of synchronization is less than that in EMU.

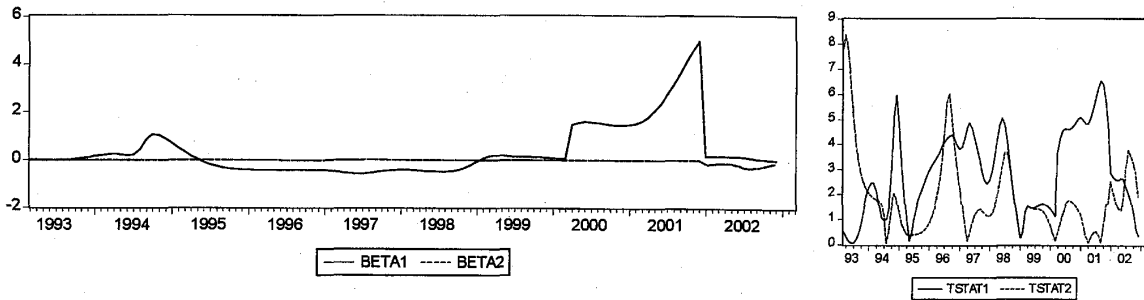


Figure 11-1. Indonesia (with Japan)

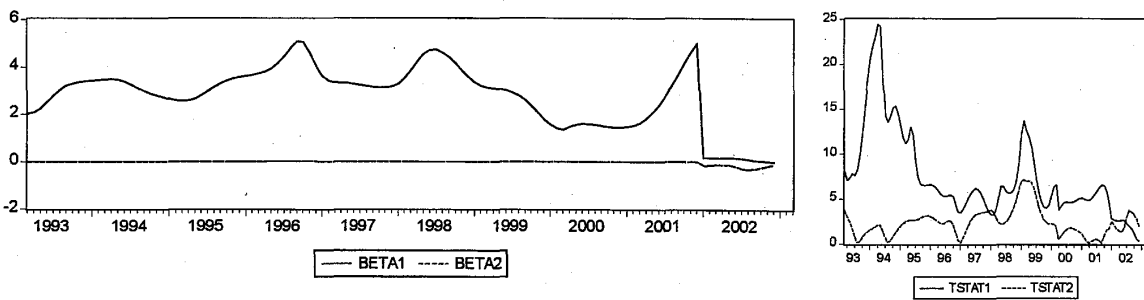


Figure 11-2. Indonesia (with the U.S.)

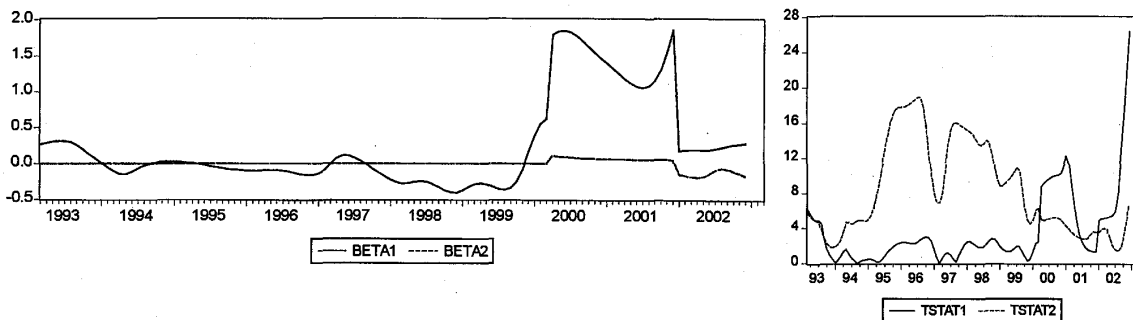


Figure 12-1. Malaysia (with Japan)

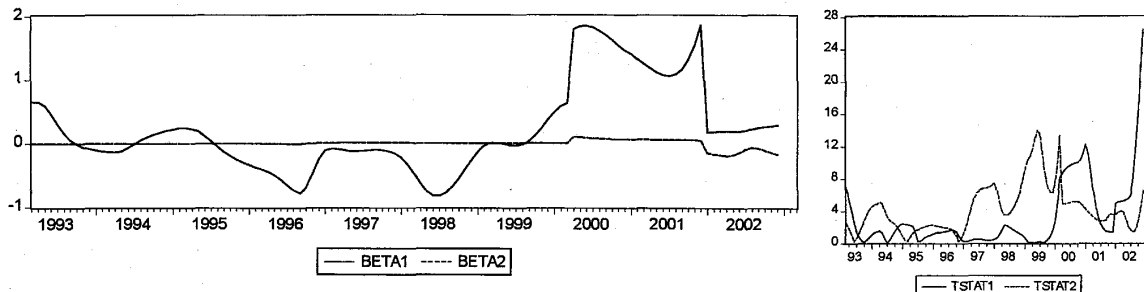


Figure 12-2. Malaysia (with the U.S.)

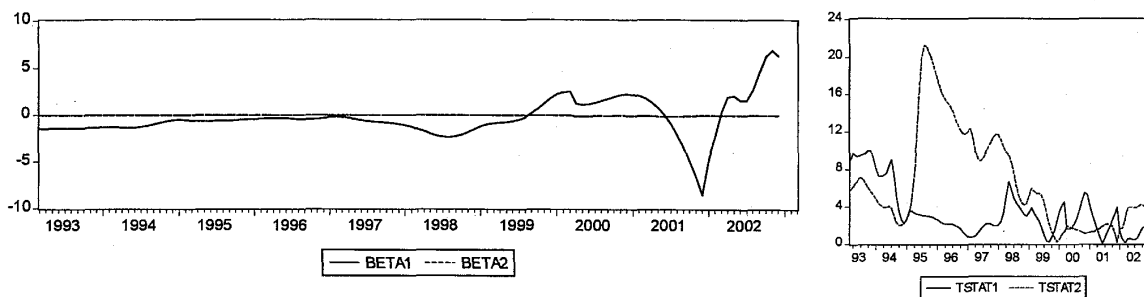


Figure 13-1. Philippines (with Japan)

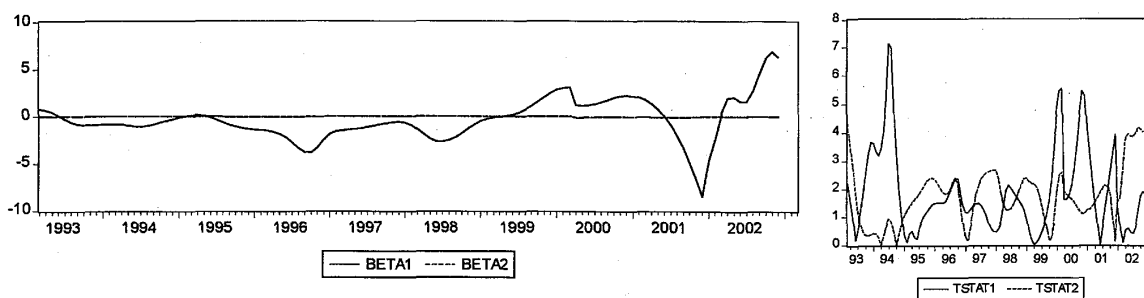
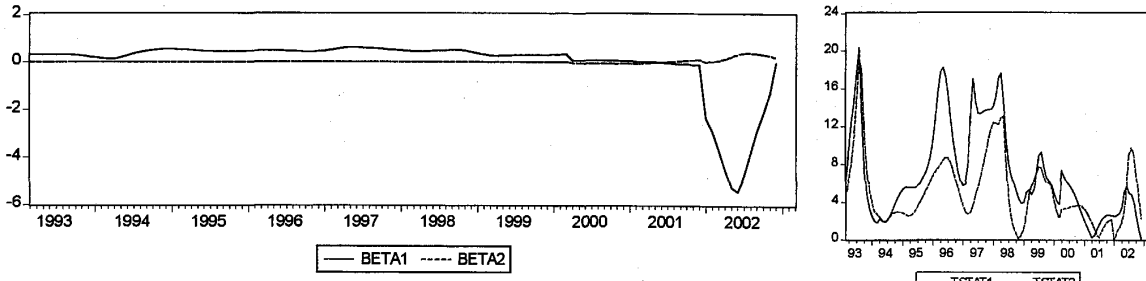
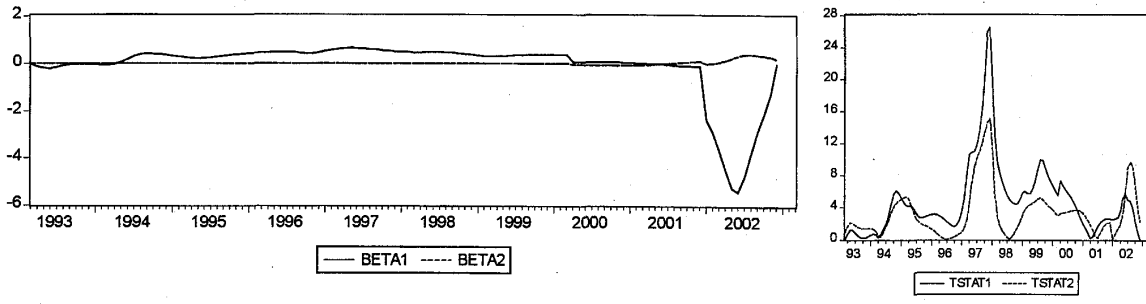


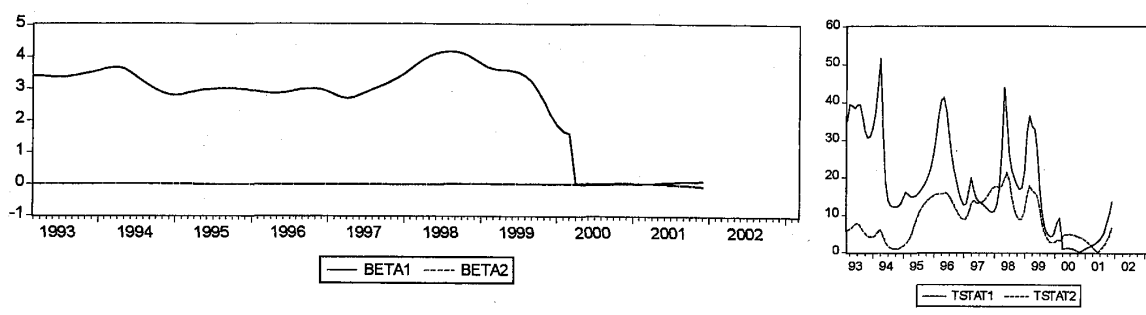
Figure 13-2. Philippines (with the U.S.)



**Figure 14-1. Singapore (with Japan)**



**Figure 14-2. Singapore (with U.S.)**



**Figure 15-1. Thailand (with Japan)**

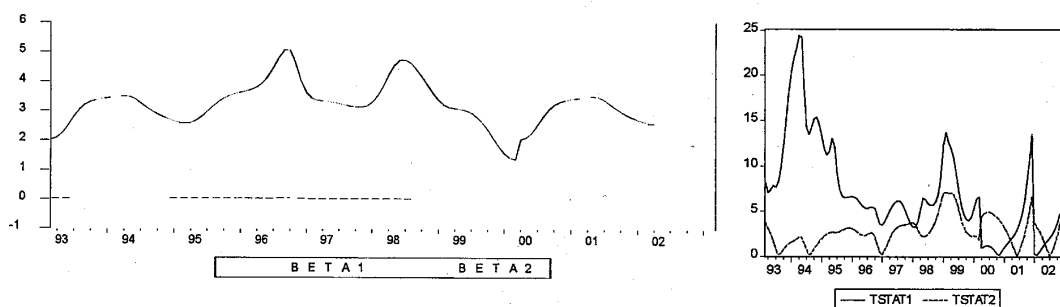


Figure 15-2. Thailand (with the U.S.)

As indicated by Table 4, the intra-trade in East Asia has been increasing since the 1990s; this may be one of the reasons for the degree of the correlation of the business cycles in the East Asian countries. Further, a majority of the East Asian governments had permitted the liberalization of capital mobility during the 1990s, resulting in massive capital inflows to some East Asian countries such as Indonesia, Malaysia, and Thailand, which experienced a currency crisis in 1997. However, policy coordination has not yet been carried out to same degree as that in the EMU. Therefore, the lack of correlations in the aggregate demand of the East Asian countries may be the reason that the synchronization of the business cycles in East Asia is lower than that in the EMU.

Table 4. Evolution of Intra-trade in Asia, and of trade with the U.S.

year	China				Indonesia				Japan				Korea		
	Export		Import		Export		Import		Export		Import		Export	US	Asia
1981	0.348	0.069	0.109	0.218	0.164	0.193	0.232	0.135	0.264	0.257	0.264	0.177	0.147	0.267	0.090
1997	0.749	0.771	0.768	0.723	0.692	0.740	0.601	0.605	0.626	0.603	0.624	0.609	0.591	0.672	0.673
2004	0.715	0.813	0.772	0.735	0.694	0.725	0.580	0.670	0.649	0.686	0.639	0.601	0.552	0.579	0.625

year	Malaysia				Philippines				Thailand			
	Export		Import		Export		Import		Export		Import	
1981	0.399	0.131	0.269	0.146	0.190	0.311	0.172	0.229	0.277	0.129	0.202	0.130
1997	0.591	0.632	0.789	0.605	0.807	0.754	0.715	0.658	0.529	0.495	0.280	0.139
2004	0.592	0.598	0.795	0.530	0.788	0.770	0.728	0.665	0.549	0.519	0.361	0.077

## 5. Lessons from the introduction of the Euro for Asian monetary cooperation

We estimated the correlation of the business cycles in East Asia and in the EMU, and concluded that the synchronization in East Asia is less than that in the EMU. However, the economic integration among the East Asian countries will increase on account of their Free Trade

Agreement (FTA). If the governments of the East Asian countries encourage this integration, the exchange rate stability may be as important to these countries as the ERM was to the EU. Furthermore, the exchange rate stability is important because most of the East Asian countries are small and have open economies.

Is cooperation among the East Asian countries in the field of monetary policy necessary for the stability of the exchange rates? The answer to this question is "yes." This is because the synchronization of business cycles has increased and is likely to grow in the near future. The OCA criteria may be satisfied in these countries to the same extent that it was in the Euro area countries following the introduction of the Euro.

Our investigation suggests that economic policy coordination is one of the important factors responsible for the synchronization of business cycles in the EMU. For example, Darvas, Rose, and Szapary (2005) empirically found that the fiscal divergence of the member countries brought about the business cycle synchronization in the EMU. If the framework for policy coordination is consolidated in East Asia, the correlation of the cycles may increase.

How do the Asian countries cooperate with regard to their economic policies? According to the experiences of the EMU, a two-step approach would be appropriate—the first stage dealing with monetary policy cooperation, and the second stage, with fiscal policy cooperation. The first stage of cooperation concerns the exchange rate policy or the monetary policy. During the 1970s, the European countries struggled to create a common unit of currency and achieve exchange rate stability in order to establish a stable economic area with a common currency.

In the second stage, fiscal constraints and/or fiscal cooperation was achieved by the EMU. The convergence criteria and the Stability and Growth Pact required constraints on the fiscal deficit and debt of the countries who were candidates for the introduction of the Euro. Therefore, in order to equalize changes in the aggregate demand, the

governments' expenditures in Euros are almost the same. This may be responsible for the recent correlation of the business cycles.

If the East Asian countries intend to achieve a greater integration with each other, it is preferable for them to adopt a two-step approach similar to that of the EMU in order to promote policy coordination among themselves. When the East Asian countries are in the first stage of cooperation, should they peg their currencies to the U.S. dollar or to a basket currency? As several economists have suggested, it is preferable for these countries to peg their currencies to a basket currency because their economies will have a greater correlation with each other than with the economy of the United States.

However, a common currency composed of the local currencies poses a problem, namely, the local currencies are less liquid. Therefore, at present, the East Asian economies have no other option but to peg their currencies to a basket currency composed of currencies other than those of their countries, for example, the U.S. dollar or the Euro. Despite the increase in intra-trade, pegging the East Asian currencies to those of other countries would result in unstable trade because the region would be exposed to exogenous shocks. The best currency strategy for the East Asian countries in the future would be to peg their currencies to a basket currency composed of those of the countries within this region. Similarly, in order to promote the stability of the economy of the region, the ERM was composed of the currencies of the countries within the region. If the Asian countries choose to peg their currencies to a basket currency from outside their region, it is advisable for them to eventually switch to a basket currency from within their region.

The second stage involves the coordination of fiscal policies<sup>4</sup>. Since fiscal spending or taxes are closely associated with the preferences of the taxpayers, which influence the behavior of politicians, political

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<sup>4</sup> This coordination includes fiscal constraints like those in the EMU, and/or fiscal transfers such as the Common Agriculture Policy in the EU or the local allocation tax in Japan. Although we could have argued which of the two would be more suited to East Asian cooperation, this is beyond the scope of this study.

incentives on the part of the candidate countries that will engage in regional integration and establish a common currency are crucial for fiscal policy cooperation. Even the EMU, after having introduced a common currency, faces difficulties in constraining fiscal expenditure and achieving tax coordination between each of its members. As the political incentives toward economic and political integration in East Asia are less than those in the EMU, this region faces greater difficulties in achieving fiscal coordination. If East Asia intends to promote perfect regional integration, including perfect mobility of goods, capital, and labor, it must undertake fiscal coordination in the second stage.

In Asia, the synchronization was effected by economic openness and private incentives and not by political incentives and efforts. However, as we have discussed, political communication or incentives are vital to policy coordination, which is an important factor in achieving synchronization.

If the East Asian governments undertake a more intensive cooperation in their monetary and exchange rate policies in order to introduce a common currency, political incentives will be necessary. In the case of the EMU, the European Commission and the leading countries, France and Germany, stimulated the provision of political incentives. East Asia will also require political incentives in order to establish a single market or perfect integration. The synchronization is merely a basic condition for intensive monetary cooperation and the establishment of a common currency.

However, it is necessary to note that economic and financial stability will be established after the introduction of a common currency. Does the fact that the business cycles correlate ensure the stability of an economy in the common currency area? The symmetry in the business cycles results in the stability of the real economy, enabling it to absorb exogenous shocks easily. Such an economy can be easily controlled by a single monetary policy. However, from another point of view, it may be argued that this symmetry also leads to the correlation of financial markets, or financial variables, interest rates, and stock

prices. Financial institutions and investors in the global financial markets may adopt risky positions merely because the financial market is stable.

This situation may be unstable because financial institutions prefer a portfolio with a high leverage in order to allow their financial structures to be vulnerable to exogenous shocks (e.g., oil price shocks) and/or endogenous shocks (e.g., the “bubble bursts” of stock prices). Financial integration leads to synchronization and creates financial markets with a low level of activity, such as those in the in EU countries; this may result in financial instability because of the high leverage of financial institutions.

In East Asia, bank loans have been the main channels for domestic finance. This is also the reason behind the Asian currency and financial crises. The Executive’s Meeting of East Asia-Pacific Central Banks (EMEAP)<sup>5</sup> has undertaken initiatives for promoting communication between its members, enhanced technical cooperation, and the establishment of the Asian Bond Market (ABM). Further, since the Chiang Mai Initiative, swap agreements have been executed by the East Asian central banks; these have the possibility of evolving into an Asian Monetary Fund (AMF) shortly. As noted, although both are steps toward the first stage of cooperation, the AMF and ABM provide an appropriate framework for the development of monetary cooperation and financial stability in East Asia. The East Asian countries should turn their steps toward policy coordination with the aim of achieving perfect integration.

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<sup>5</sup> See the homepage (<http://www.emeap.org/>) of the EMEAP.



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