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Monetary Integration in East Asia: Issues of Economic and Policy Convergence in a Comparative Context

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ABSTRACT

In recent years, Asian policymakers have considered the possibility of promoting closer financial integration and, possibly, monetary union. This paper considers the economics of the decision to form a currency union in East Asia using the European experience as a benchmark. We also compare the appropriateness of an East Asian currency union to MERCOSUR. In sum, we find that a core group of five East Asian countries appear to meet the convergence criteria set out in the Maastricht Treaty, whereas some of the others are moving toward that goal. The macroeconomic indicators tend to be strong and symmetric.

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Key Words: Monetary integration; ASEAN; Economic Integration; East Asia.

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**Monetary Integration in East Asia:
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I. Introduction

The success of the euro has inspired interest in monetary integration in various parts of the world. This paper explores the economic feasibility of establishing a common currency in the countries that make up East Asia, which we define here to be the ASEAN¹ and “ASEAN+3”² groups. ASEAN has been especially active in fostering economic integration through the ASEAN Free Trade Area (AFTA) and in recent efforts to create an ASEAN Economic Community (AEC). However, as financial cooperation is also unfolding at the East Asian level, we offer the broader unit of analysis.

The pros and cons of a common currency have been extensively surveyed in conjunction with the euro (see, for example, De Grauwe 2007 for a survey). On the negative side, a participating country must give up independent exchange-rate and monetary policy (since neither ASEAN nor

¹ The ASEAN Member Countries are: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

² The “ASEAN+3” group includes the ASEAN Member Countries plus the Northeast Asian countries of China, Japan, and South Korea.

the ASEAN+3 groups are customs unions, they need not relinquish commercial policy). There might also be limitations on fiscal policy. Moreover, they are forced to accept a similar target point on the Philipps Curve. On the positive side, there are reduced transaction costs, increased competition, and related efficiencies inherent in the process of economic and monetary union.

This paper is not concerned with relative merits of monetary and financial integration. Nor does it investigate the political readiness of East Asia to move down that road. But it could not be overemphasized that political readiness is a prerequisite to the adoption of a common currency. Our concern is the following: given political readiness, we assess the economic preparedness of East Asian countries to move in the direction of closer monetary integration or monetary union should they decide to do so.

Two sets of criteria have been applied to determine whether a group of countries is ready for a joint currency and a common central bank and monetary policy to go with it. The first set dates back to Mundell (1961) and the original optimal currency area (OCA) literature. It revolves around the internal flexibility of the economy. This helps determine the degree to which the economy can address external imbalances and adjust to the external shocks by domestic measures and without devaluation or revaluation of its currency, for the country loses the tools of exchange rate policy and independent monetary policy. Included in this set of criteria are wage and price flexibility as well as lubricated mobility of resources within countries. Although at the time of European monetary integration most economists did not consider the EU an OCA, the successful introduction of the euro suggests that the EU experience can be a useful yardstick for East Asia. The second set of criteria, known as “convergence criteria” ascertains that such

imbalances would not arise in the first place. It ensures that the countries comprising the common currency zone are similar to one another in: domestic inflation rates and interest rates (not to exceed 1.5 percent above the average of the three best-performing countries); ratio of annual government deficit to GDP (not to exceed 3 percent); ratio of public debt to GDP (not to exceed 67 percent); and have experienced a long period of stable exchange rates *vis-à-vis* each other. This is the set of criteria that we apply in this paper to ASEAN and ASEAN+3. We also compare these results to the situation in a somewhat similar developing-country regional trading group, MERCOSUR.

II. Economic Convergence Criteria

Symmetric business cycles were used frequently in the literature evaluating whether the EU constituted an OCA. The higher the correlations of business cycles, the less cost associated with the abandonment of an independent monetary policy.³ Figures 1a and 1b and 2 show real GDP growth in East Asia on an annual (1980-2005) and quarterly (Q1 1994 to Q3 2006) basis. There appears to be a convergence of growth rates, particularly for the ASEAN countries, beginning with the Asian Crisis in Q3 1997.

In order to capture the extent to which key variables are correlated across countries and time, we calculate in Table 1 the associated correlation coefficients for the quarterly data for a more restricted set of countries for which even more recent data are available and correlate them with an ASEAN5+3 aggregate. We correlated individual countries' growth rates with the East Asian average. We use 1997-1998 period to break the two time series, as it corresponds to the Asian Crisis period. The GDP growth rates of all East Asian economies experience an increase in the

³ This section draws from Plummer and Wignaraja (2006).

magnitude and statistical significance of the associated correlation coefficients with other countries and East Asia over time⁴. Hence, while there is no rule of thumb that tells us exactly how high the correlations should be in order to have an OCA, the region is moving in this direction.

This conclusion is generally consistent with existing literature. Perhaps the most comprehensive works on the subject thus far have been undertaken by Bayoumi and Eichengreen (1999) and Bayoumi, Eichengreen and Mauro (1999). They use a variety of indicators consistent with the OCA literature, from analysis of intra-regional trade to correlations of aggregate supply shocks, to compare the EU prior to Maastricht and Asia/ASEAN today. They find that, in general, Asia comes as close to meeting OCA criteria as Europe did. Tang (2006) focuses on symmetry of supply and demand shocks and speed of adjustment in evaluating possible configurations of monetary union across major Asian economies. He finds that smaller subgroupings of economies in Asia (e.g., Malaysia and Singapore; ASEAN more generally; Hong Kong and Taiwan) fit the OCA criteria better than a general Asian monetary union. Kose, et.al. (2003) use overall output (real GDP) as the key macroeconomic variable for the ASEAN-5, Korea, and Taiwan. The results show fairly high (positive) cross-correlations of output between most ASEAN countries and between individual countries and the Asian aggregates.

With respect to economic integration, intra-regional trade in East Asia has also been growing at a robust rate (Figure 2). In 2005, no East Asian economy did less than 40 percent of its trade with the region, and intra-regional trade for the region as a whole came to approximately 56 percent in 2006. This is on par with NAFTA but somewhat less than the EU, whose intra-regional trade

⁴ Using annual data, we generate the same results.

share comes to about two-thirds of its total trade. Still, NAFTA has been a preferential trading arrangement since 1994 and the EU has engaged in discrimination in favor of its member-states for a half-century (and even longer, if one counts the European Payments Union), whereas the rise in intra-regional trade in Asia has been essentially market-driven. Indeed, the only significant free-trade area in East Asia prior to 2000 was AFTA, and AFTA is only now being implemented fully. In short, economic integration is proceeding at a rapid pace in East Asia, and is expected to continue to do so.⁵ This is another economic factor in favor of monetary union.

III: Policy Convergence Criteria

To what degree would East Asia have to align macroeconomic policies in order to form a monetary union? We use below the general criteria spelled out in the Maastricht Treaty as the relevant policy variables pertinent to this analysis.

a. Inflation

A condition of accession to the euro zone is that the country's inflation rate (prior to accession) should not exceed that of the average of the three lowest inflation countries by more than 1.5 percent. Table 2 presents average inflation for the 1990s (which include the years of the Asian Crisis 1997-99) and for 2000-06 for each of the ASEAN and ASEAN+3 countries.

Countries meeting this criteria in 2007 are: Korea, Singapore, Thailand, the Philippines and Malaysia. All of their inflation rates are between 2 and 3 percent, while the other countries are above 4 percent.

⁵ See, for example, ADB (2008).

b. Interest Rates

Interest-rate data are much more difficult to come by than inflation rates and, especially for developing countries in which sovereign-debt markets tend to be shallow, less reliable. Nevertheless, Table 3 offers recent data on interest rates in East Asia. Of the countries that met the inflation criteria, Korea, Singapore, Thailand, and Malaysia also meet the interest rate criteria. However, note that the interest-rate data are suspect.

c. Public Finance

Maastricht Criteria annual deficit of 3 percent of GDP or less, which was the key convergence indicator of public finance in the case of the euro (and continues to be so under the Stability and Growth Pact)⁶, was met in 2007 by: China, Korea, Singapore, Thailand, the Philippines, Malaysia, and Indonesia, with Laos and Cambodia coming close. There are essentially the same countries meeting the inflation criteria, with the exception of China. Moreover, in recent years all East Asian countries for which data are available maintained a public debt under 67 percent of GDP, which is close to the 60 percent dictated by Maastricht (certainly better than most EU member-states prior to monetary union).

d. Exchange Rate Stability

There is no equivalent of a European Monetary System (EMS) in East Asia; hence, we are unable to apply the Maastricht convergence criteria that required no exchange-rate realignment in the EMS for at least two years prior to monetary union. Nevertheless, the degree of exchange-

⁶ This had to be the case, as countries like Italy and Belgium, who had debt to GDP ratios of well over 100 percent of GDP, could never have met the Maastricht-set maximum of 60 percent.

rate variability is important from the perspective of policy convergence. Hence, we ran pairwise correlation coefficients of monthly exchange rate movements for the periods 1980-1997 (pre-Asian crisis) and 1999-2007 (post-crisis). The results are summarized in Table 6a and 6b, respectively. There does not seem to be any monotonic increase in the correlation of exchange-rate changes across East Asia, especially for the case of Indonesia which had a prolonged economic and political crisis that began in 1997. However, for most other countries, the correlation coefficients continue to be very high. In large part, this is a reflection of the high weight that East Asian countries continue to place on the US dollar in managing their exchange rates.

In sum, there appears a core group of five countries which meet the Maastricht Criteria and in that sense are ready of a common currency, even without preparation: Korea, Singapore, Thailand, the Philippines and Malaysia. This is similar to a situation in Europe in which a core group of countries in the EU met the criteria, whereas others either adopted appropriate measures to move towards meeting the criteria.

Finally, it is useful to compare the East Asian situation to other developing regions considering closer economic cooperation. The most obvious candidate would be the Common Market of the Southern Cone (MERCOSUR). MERCOSUR formed a customs union in 1991 and has expressed interests in deepening regional financial cooperation. We reproduce the policy convergence tables (Tables 2-6) for the MERCOSUR countries and Venezuela, which is in the throes of joining MERCOSUR, in the appendix. With the possible exception of fiscal balances to GDP ratios, which have been under control in MERCOSUR mainly because of the recent

positive trend in global commodity prices, and exchange-rate volatility, East Asia seems to be better prepared, both in terms of absolute and relative numbers.

IV. Conclusion

Adoption of a common currency is a political decision. This paper inquires into the economic foundations that may back up such a decision.

A core of five East Asian countries appear to meet the convergence criteria set out in the Maastricht Treaty, whereas some of the others are moving toward that goal. The macroeconomic indicators tend to be strong in general and quite symmetric. Given the fact that these are developing countries, it would also be necessary to adopt similar institutional configurations.

**Figure 1b: GDP Growth (%) of ASEAN5+3
(First Quarter 1994 to Third Quarter 2006)**

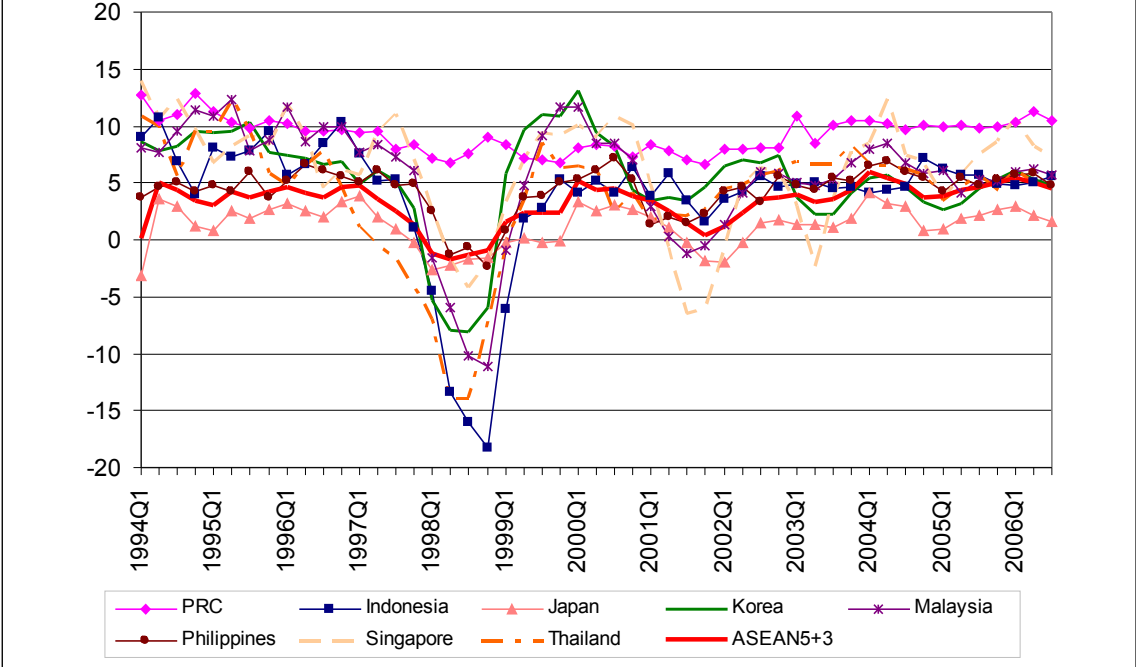


Figure 2: East Asia-15

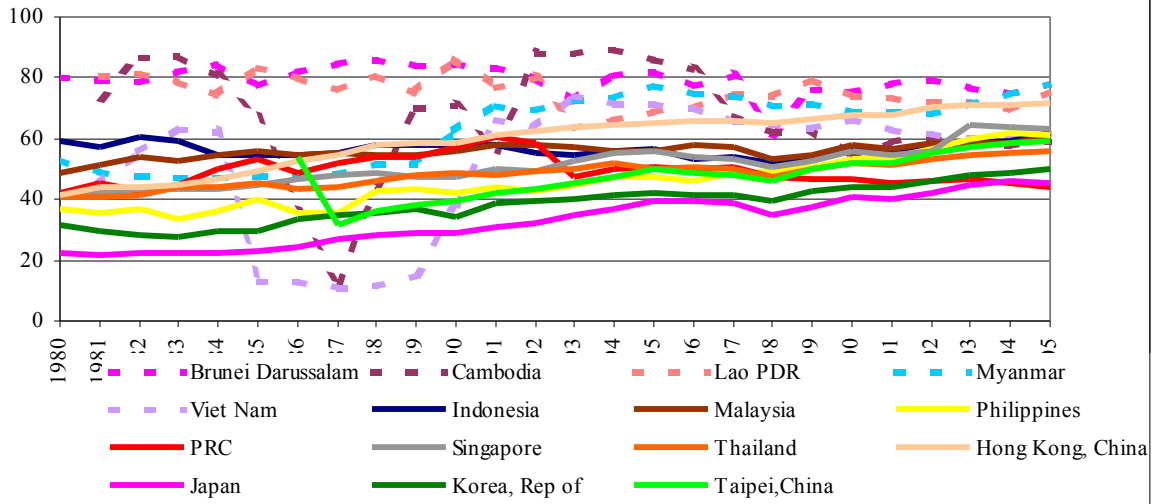


Table 1- Correlation of GDP Growth Rates between Individual Countries and ASEAN5 +3: First Quarter 1994 to First Quarter 2007 ^{1/}		
	Q11994 - Q41997	Q11998 - Q12007
PRC	-0,16	0.5240*
Indonesia	0,33	0.7690*
Japan	-0,08	0.7729*
Korea	0,08	0.5169*
Malaysia	0,35	0.7918*
Philippines	0,33	0.8532*
Singapore	-0,31	0.7294*
Thailand	0,06	0.7868*
* Significant at 5% level.		
^{1/} Regional GDP growth is weighted by gross national income (atlas method, current US\$)		
Sources: CEIC Database and World Bank World Development Indicators Online.		

Table 2
Average Inflation Rates For the 1990's and for 2000-07

<u>Country</u>	Average Inflation		
	1990-99 (%)	2000-06 (%)	2007 Inflation (%)
Thailand	4.3	2.6	2.3
Singapore	1.5	0.6	2.1
Philippines	9.5	5.4	2.8
Malaysia	3.7	3.4	2.0
Indonesia	15.6	11.8	6.4
Cambodia		2.4	5.9
Vietnam		5.7	8.3
Myanmar	Double digit	Double digit	36.9
Korea	6.7	2	2.5
China	7.8	3.1	4.8
India	8.9	4	4.4
<u>Source:</u> IMF, International Financial Statistics; ADB, ADO 2008.			

Table 3
Interest Rates

<u>Country</u>	Average Money Market Rate	
	2000-06	2006
	(%)	(%)
Thailand	2.2	4.6
Singapore	1.9	3.5
Philippines	8.1	7.8
Malaysia	2.8	3.4
Indonesia	9.7	9.1
Vietnam, Cambodia, and Myanmar	N/A	N/A
Korea	4.2	4.2
China	N/A	N/A
India (for comparison)	N/A	N/A

Source: IMF, International
Financial Statistics

Table 4
Average Fiscal Balance/GDP Ratio for Asian Countries (%)

Country	1990-99	2000-06	2007
Thailand	1.26	-0.72	-1.7
Singapore	11.01	5.69	12.2
Philippines	-1.20	-3.67	-0.2
Malaysia	-0.42	-4.80	-2.8
Indonesia	-0.27	-1.45	-1.2
Cambodia	-3.98	-2.39	-3.2
Vietnam	-2.22	-2.81	-4.9
Myanmar	-1.75	0.71	n/a
Korea)	-0.90	1.21	-2.3
China	-2.59	-2.15	0.7
India	-5.91	-5.06	-5.5

Source: 1988-2005: http://www.adb.org/Documents/Books/Key_Indicators/2006/default.asp with country data in each Excel file.
 2006: http://www.adb.org/Documents/Books/Key_Indicators/2007/default.asp with country data in each excel file.
 Pre-1988 data has only government finance data instead of government finance ratio of GDP so pre and post data will not be consistent.

Table 5
Average Public Debt/GDP Ratio for Asian Countries

Country	1990-99 (%)	2000-05 (%)	2005 ratio (%)
Thailand	8.57	26.45	25.83
Singapore	NA	NA	NA
Philippines	57.33	63.17	67.69
Malaysia	50.27	44.19	45.61
Indonesia	42.77	76.02	57.40
Cambodia	n/a	n/a	n/a
Vietnam	n/a	n/a	n/a
Myanmar	n/a	n/a	n/a
Korea	11.74	17.89	16.40
China	11.48	24.18	22.30
India	50.57	61.61	64.10

Source: Dany Jaimovich, Ugo Panizza (2006) "Public Debt Around the World" IDB Research Department Working paper #561.

Table 6a
Selected Pairwise Correlation Coefficients of Monthly Exchange Rate
Movements for ASEAN and Korea, 1980-1997

<u>Country</u>	<u>Country</u>					
	<u>Indonesia</u>	<u>Korea</u>	<u>Laos</u>	<u>Malaysia</u>	<u>Philippines</u>	<u>Thailand</u>
Thailand	0.9	0.8	0.9	0.9	0.8	1.0
Philippines	0.8	0.7	0.7	0.7	1.0	
Malaysia	0.6	0.5	0.6	1.0		
Laos	0.9	0.1	1.0			
Korea	0.9	1.0				
Indonesia	1.0					

Table 6b
Selected Pairwise Correlation Coefficients of Monthly Exchange Rate
Movements for ASEAN and Korea, 1999-2007

<u>Country</u>	<u>Country</u>						
	<u>Indonesia</u>	<u>Korea</u>	<u>Laos</u>	<u>Malaysia</u>	<u>Philippines</u>	<u>Singapore</u>	<u>Thailand</u>
Thailand	0.5	0.7	0.2	0.6	0.4	0.8	1.0
Singapore	0.2	0.9	--	0.8	--	1.0	
Philippines	0.5	--	0.8	--	1.0		
Malaysia	--	0.7	--	1.0			
Laos	0.3	--	1.0				
Korea	0.1	1.0					
Indonesia	1.0						

Appendix

MERCOSUR

Appendix Table 1

Average Inflation Rates for the 1990's and for 2000-06

Country	1990 - 1999 (%)	2000 - 2006 (%)	2006 Inflation (%)
Argentina	252.91	8.89	10.9
Brazil	840.33	7.81	4.18
Paraguay*	9.69	8.82	9.6
Uruguay	48.87	8.96	6.4
Venezuela	47.44	19.09	13.65

Note: * Average of the first column 1990-1999 for Paraguay is the average of period 1995-1999.
Source: The Economist Intelligence Unit—inflation rate is % change of consumer prices.

Appendix Table 2
Average Interest for the 1990's and for 2000-06
Average Money Market Rate

Country	1990 – 1999 (%)	2000 - 2006 (%)	2006 Inflation (%)
Argentina	227.76	12.46	7.2
Brazil	2,646.71	18.31	15.28
Paraguay*	18.02	8.9	8.33
Uruguay**	27.16	21.46	1.60
Venezuela**	13.81	10.83	5.26

Note: *The first column does not include the year 1990.
**The first column does not include the year 1990-1993.
***The first column does not include the year 1990-1995.
Source: The Economist Intelligence Unit.

Appendix Table 3
Average Fiscal deficit/GDP ratios for the 1990's and for 2000-06

Country	1990-1999 (%)	2000-2006 (%)	2006 Fiscal deficit/GDP ratio (%)
Argentina	-0.85	-0.07	1.78
Brazil	-6.84	-3.41	-3.00
Paraguay	-0.33	-0.74	0.50
Uruguay	-0.94	-2.28	-0.57
Venezuela*	-2.85	-2.03	0.02

Appendix Table 4
Average debt/GDP ratios for the 1990's and for 2000-06

Country	1990 - 1999 (%)	2000 - 2006 (%)	2006 Fiscal deficit/GDP ratio (%)
Argentina	35.31	93.00	63.55
Brazil	33.28	51.63	45.75
Paraguay	15.22	41.53	28.60
Uruguay	24.75	69.17	72.14
Venezuela*	56.92	41.52	23.92

Source: Dany Jaimovich, Ugo Panizza (2206) "Public Debt Around the World" IDB Research Department working paper #561.

Appendix Table 5
Pairwise Correlation Coefficients of Monthly Exchange Rate
Movements for MERCOSUR, 1980-2007

<u>Country</u>	<u>Country</u>				
	<u>Argentina</u>	<u>Brazil</u>	<u>Paraguay</u>	<u>Uruguay</u>	<u>Venezuela</u>
Venezuela	0.93%	0.86%	0.93%	0.96%	1.0%
Uruguay	0.95%	0.98%	0.98%	1.0%	
Paraguay	0.95%	0.96%	1.0%		
Brazil	0.87%	1.0%			
Argentina	1.0%				

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