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ECONOMIC PRECONDITIONS FOR THE ASIAN REGIONAL INTEGRATION

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ABSTRACT

Recent developments in Europe and North America suggest that the world is now under a tide of new regionalism. This paper asks whether conditions are favorable or unfavorable for regional economic integration in Asia. By referring to statistical indicators and applying by various statistical methods, including a principal component analysis, we reach the following tentative conclusion: Economic conditions for regional integration in Asia are at least as favorable as those in unifying Europe. Preconditions for a free trade area in Asia is satisfied. However, since Asian countries depend heavily on trade with the United States and Japan, a free trade area that hinders the trade with these countries would not be practical. Preconditions for a currency union in Asia are also met. In the case of a currency union, however, it is not clear whether Asian countries would be benefitted by linking their common currency to a major currency such as the dollar or the yen.

KEY WORDS: Regional Integration, Asia, Optimum Currency Area

I. Introduction

The United Europe of 1992 and the attempt to form the North American Free Trade Area (NAFTA) tell us that the world is under a tide of new regionalism. We hope that the tidal wave will not result in the formation of highly protective regional blocs, as a phrase "the Fortress Europe" might suggest, but that these are moves toward an integrated world economy with free trade. In any case, a series of questions arise: Will Asian countries form an economic bloc in the near future? Will the Association of South East Asian Nations (ASEAN) create a more integrated economic community? Will the plan of the East Asian Economic Caucus (EAEC) or Group (EAEG) be realized? Is it practical to conceive of a currency union in the East Asia?

In fact, Asian nations have now begun to move toward the creation of a free trade area (FTA). For example, in November, 1991, the Asia-Pacific Economic Cooperation Minister Conference (APEC) agreed that they would promote free trade within the region; in January, 1992, the summit meeting of ASEAN decided to create a FTA. Will these steps toward Asian economic integration be desirable for Asia?

The political aspects of these questions are far from simple. First, the United States may oppose the creation of a free trade area in Asia that would restrict export flows of the United States to this area, as it has already indicated its response to the plan of EAEC or EAEG. Second, the idea of inclusion of Japan in an Asian bloc may invoke complex and ambivalent, if not entirely hostile, reactions by many nations in the region, because it triggers the memory of the infamous "co-prosperity area" under Japan's lead during World War II.

In his prize-winning essay, Jeff Frankel (1991) notes that the Japanese government is not necessarily taking a positive attitude toward forming a yen bloc in Asia or East Asia. This reluctance reflects Japan's delicate political position, a legacy of the past. It corresponds to the similar low political posture of Germany despite its economic affluence.

This paper does not address the political feasibility of any form of Asian economic integration, or does it intend to advocate it. Rather, we present a general assessment of economic conditions in Asia, as a

preliminary step to the discussion of the issues involved in such an integration. While Frankel (1991) focussed on the question of Japan's influence in the region, we shall examine various statistical indicators in order to assess how closely the Asian national economies are interrelated. We shall attempt to answer the question whether economic conditions in the Asian countries are favorable or unfavorable for the creation of a free trade area or a common currency area, and specifically whether they are more or less homogeneous than those of the EC countries that are moving toward economic unification.

In Section 2, we will review selected macroeconomic indicators of East Asian nations, trace how similarly they move together, and examine how closely they are interrelated. In other words, we will assess the degree of homogeneity and the degree of economic proximity among Asian nations. Then we will compare them with those in Europe.

In Section 3, we will study whether preconditions are met for a free trade area or free trade areas in the region by examining the trade intensity indices among nations in the region. Since the conventional trade intensity index captures the degree of closeness in terms of trade only relative to the size of its trading partner and not the absolute degree of dependence of a country on the trade with its partner, we will supplement the trade intensity index by an alternative measure, the trade dependence index, indicating the importance of a trading partner.

In order to assess the conditions for creating a free trade area, we have to know not only how closely nations are interwoven by trade, but also how their import competing industries are protected by tariffs and other barriers. We will study the degree of protection. The more nations are protecting their import competing industries, the greater will be the trade creating effect of the formation of a free trade area.

In Section 4, we will review the conditions for creating a currency union in the region. Thanks to the theory of an optimal currency area initiated by Mundell (1961), we have more criteria by which to judge the appropriateness of the formation of a common currency area than we do to judge a free trade area. We will review the similarity or the diversity of macroeconomic disturbances, both real and nominal, and the ease of factor

movements among the nations within the region.

In Section 5, we will summarize the results and possible policy implications.

As a tentative conclusion, we may say that the degree of interdependence among Asian nation is high, and even higher in some respects than among EC countries. Preconditions for a free trade area in this region are satisfied. However, since Asian countries depend heavily on trade with the United States and Japan, a free trade area that hinders the trade with these countries would not be practical. Preconditions for a currency union in Asia are also met. In the case of a currency union, it is not clear whether Asian countries would be benefitted by linking their common currency to a major currency such as the dollar or the yen.

II. Confluence in Macroeconomic Variables in Asia

As a prelude to the discussion of the feasibility of economic integration in Asia, let us review key macroeconomic indicators in East Asian countries, including both Asian Newly Industrialized Economies (NIEs) and ASEAN countries, and then we will compare them with corresponding indicators in other regions. Table 1 summarizes the main economic indicators of selected countries. From a quick glance at this table, one can see that an East Asian nation is characterized as a high-income, rapidly-growing economy with a relatively stable price level (especially in the 1980s). The Philippines in the middle of 1980s is a notable exception. In 1984 and 1985, the consumer price in the Philippines increased by 50.3 percent and 23.1 percent, respectively. In the same period, during which the country expressed severe political unrest, the real GNP declined by almost 10 percent in the annual average rate. All other East Asian nations enjoyed a good economic performance throughout the 1970s and the 1980s.

In order to elaborate the above statement somewhat more rigorously, we conducted t-tests on three macroeconomic indicators, i.e., inflation, growth, and investment. We compared the sample mean of each variable in

eight East Asian countries with those in fifteen developed countries as well as with those in twenty developing countries. Table 2 compares the sample means of the three variables in East Asian countries with those in twenty developing countries. The East Asian countries in the following discussion include both Asian NIEs and ASEAN countries, i.e., Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, the Philippines, and Thailand. The latter group, a control group, of less developed countries (LDCs) includes Mexico, Algeria, Côte d'Ivoire, Ghana, Morocco, Nigeria, Zaire, Egypt, Turkey, Yugoslavia, Argentina, Brazil, Chile, Colombia, Peru, Uruguay, Venezuela, India, Pakistan, and Sri Lanka.

Table 1

Main Economic Indicators of Selected Countries

	Population (million)	GNP per capita (US$) (1988)	Growth Rate (%) (65-88)	Inflation Rate (%) (65-80)	(80-88)
Hong Kong	5.7	9,220	6.3	8.1	6.7
Korea	42.0	3,600	6.8	18.7	5.0
Singapore	2.6	9,070	7.2	4.9	1.2
Taiwan	20.1	6,333	8.9[1]	10.4[2]	4.7
Indonesia	174.8	440	4.3	34.2	8.5
Malaysia	16.9	1,940	4.0	4.9	1.3
Philippines	59.9	630	1.6	11.7	15.6
Thailand	54.5	1,000	4.0	6.3	3.1
United States	246.3	19,840	1.6	6.5	4.0
Japan	122.6	21,020	4.3	7.7	1.3
World[3]	4,736.2	3,470[4]	1.5[4]	9.8[4]	14.1[4]

Note: [1] 1970-1990
[2] 1970-1980
[3] Total countries reporting data to the World Bank
[4] Weighted average

Source: The World Bank, *World Development Report 1990*
Taiwan Statistical Data Book

Table 2 shows the sample means and the standard errors of difference in means of the three variables during 1970-90. The table indicates that these East Asian countries enjoyed significantly lower inflation, higher economic growth, and more active investment than the twenty control-group LDCs. While many Latin American countries suffered from hyper-inflation,

even up to 500-1000 percent per annum during the 1980s, an annual rates of increase in consumer price in East Asia was in most cases less than 10 percent, with the aforementioned exception of the Philippines. With this price stability, real GNP grew rapidly. While the average economic growth rate in the control-group LDCs was 3.4 percent, that in the East Asian countries was 7.4 percent, more than twice as high. This rapid growth was not limited to the NIEs (i.e., Hong Kong, Korea, Taiwan, and Singapore). For example, economic growth rates in Malaysia and Thailand in 1990 exceeded 10 percent.

Table 2

Sample Means for Selected Macroeconomic Variables
(Asia vs. Control-Group LDC)

Variables	Asia[1]	Control LDC[2]	Difference	Standard Error
Inflation[3]	8.829	96.299	-87.470*	36.818
Growth[4]	7.421	3.352	4.069**	0.467
Investment[5]	26.841	20.234	6.607**	0.714

Note:
* Significant at 95 percent level
** Significant at 99 percent level
1. Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, Thailand
2. Mexico, Algeria, Côte d'Ivoire, Ghana, Morocco, Nigeria, Zaire, Egypt, Turkey, Yugoslavia, Argentina, Brazil, Chile, Colombia, Peru, Uruguay, Venezuela, India, Pakistan, Sri Lanka
3. Change in consumer price index (%)
4 Change in real GDP (GNP) (%)
5. The ratio of investment to GDP (GNP) (%)

Source: IMF, *International Financial Statistics*

The third row of the table shows the degree of investment activity (the ratio of fixed capital formation to total GDP). While investment activities were stagnant in the control-group LDCs during the 1980s, investment in East Asia was accelerated in that period, and it has shown no sign of slowdown in recent years. Active investment in East Asia suggests that even faster economic growth may be realized in this region in the future.

Table 3

Sample Means for Selected Macroeconomic Variables
(Asia vs. Developed Countries)

Variables	Asia[1]	Developed[2]	Difference	Standard Error
Inflation[3]	8.829	8.813	0.016	0.674
Growth[4]	7.421	3.078	4.343**	0.309
Investment[5]	26.841	22.081	4.760**	0.520

Note

** Significant at 99 percent level
1. Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, Thailand
2. United States, Japan, Canada, and twelve EC countries
3. Change in consumer price index (%)
4 Change in real GDP (GNP) (%)
5. The ratio of investment to GDP (GNP) (%)

Source: IMF, *International Financial Statistics*

Since the twenty LDC countries in the control group were more or less suffering from recent economic difficulties, the comparison of East Asian countries with these LDCs may not necessarily prove the good economic performance of East Asian nations. Hence we also compared the same macroeconomic indicators in East Asia with those in developed countries including the United States, Japan, Canada, and twelve EC countries (see Table 3). The comparison with developed countries, however, shows again that East Asia was dynamically growing under stable prices. Economic performance in East Asia was generally better, not only than other developing countries, but also than these developed countries that include economic superstars such as Germany and Japan.

Although there is no significant difference in the inflation rates in the two groups, economic growth rates were significantly higher, and investment significantly more active, in East Asia than in developed countries. Thus, from the economic performance during the 1970s and 1980s, the East Asian nations can be characterized as a group of dynamically growing economy with stable price level.

Let us now ask how homogeneous macroeconomic variables are in the

East Asian region, and by what standard one can judge whether or not the Asian nations have similar economic structures. If we were interested in the degree of interdependence between a pair of variables, then we would naturally be interested in the correlation coefficient between them. However, as far as the degree of coherence in a group of variables consisting of more than two is concerned, the correlation coefficient does not help much. The canonical correlation between groups of variables gives a measure of correlation among the groups, but not the degree of confluence within a group. Neither does the regression analysis among variables make much sense.

There are alternative methods of measuring the degree of confluence. For example, the dissimilarity index (Kaufman and Rousseeuw, 1990) and the Mahalanobis D^2 (Mahalanobis 1936) could be useful devices. In this paper we apply the analysis of the principal component to measure the degree of confluence in macroeconomic time series in the Asian countries. The principal components of a set of m variables are a set of m artificially constructed variables that are mutually orthogonal linear combinations of the original variables. The first component explains as much as possible of the total variance of the original variables, the second explains as much as possible of the variance that is left unexplained by the first, and so forth. We propose to measure the degree of confluence in variables by the ratio of the variance explained by the first component to the total variance.

The rationale is as follows: If a set of variables are perfectly correlated, the first (or any) component explains all the variance. If they are mutually independent and have an identical variance, the first component explains 1/m of the total variance. In general, the ratio of the variance explained by a principal component to the total variance is equal to the value of the characteristic root of the correlation matrix corresponding to the component divided by m.

As is well known, possible problems remain in this approach. The principal components are not independent of the scaling of the variables; it is hard to interpret principal components in economic terms, even though factor analysis which is closely related to the principal component method,

provides a way to interpret them. In spite of these potential problems, the principal component method seems to be a useful tool that effectively serves our objectives. In fact, Stone (1945) utilized the principal component analysis to clarify the structure by economizing the number of variables, and Adelman and Morris (1967) applied the factor analysis to classify developing countries by the similarity of social, economic a nd political characteristics.

We apply the principal component analysis to five key macroeconomic variables in the East Asian countries, i.e., change in money supply (M1), interest rate, inflation rate, economic growth rate, and investment activity in order to evaluate the degree of confluence of these variables within the region. We solve the characteristic equation of the correlation matrix of macroeconomic variables. The principal components are normalized in such a way that they have zero mean and unitary variance.

Table 4 summarizes for each macroeconomic variable the proportion of the total variation of eight East Asian countries (exactly speaking, seven for money supply and interest rate because the data for Hong Kong were unavailable) that is accounted for by the first three principal components. Thus, for example, with regard to the change in money supply, the first principal component accounts for 52.2 percent of the total variation of seven Asian variables, the second for 16.8 percent (or 69.0 percent cumulatively), and the third for additional 15.3 percent.

In an attempt to grasp intuitively the degree of confluence of macroeconomic activities among Asian countries, we compare these values for Asia with those for two sets of EC countries: the larger EC countries and the smaller EC countries (in terms of their GNP). In order to avoid a misleading impression due to the difference in the number of countries, or in the degree of freedom, the number of countries in each group is set to be the same for each comparison.

As can be seen in Table 4, the changes in money supply are by far more homogeneous in the Asian countries than in EC countries, which are expected to form a single currency area in the near future. While the

Table 4
Principal Components Analysis of Selected Macroeconimc Variables
(Cumulative R-Squared)

	Asia[1]	Larger EC[2]	Smaller EC[3]
(Change in Money Supply)			
First P.C.	0.522	0.423	0.321
Second P.C.	0.690	0.677	0.512
Third P.C.	0.843	0.811	0.686
(Interest Rate)			
First P.C.	0.487	0.578	0.492
Second P.C.	0.840	0.760	0.756
Third P.C.	0.932	0.899	0.916
(Change in Consumer Price)			
First P.C.	0.672	0.767	0.656
Second P.C.	0.806	0.875	0.826
Third P.C.	0.903	0.925	0.911
(Change in Real GDP)			
First P.C.	0.401	0.495	0.456
Second P.C.	0.623	0.711	0.676
Third P.C.	0.821	0.839	0.821
(Ratio of Investment in GDP)			
First P.C.	0.423	0.504	0.443
Second P.C.	0.725	0.790	0.704
Third P.C.	0.878	0.949	0.935

Note

1. (for change in money supply and interestrate)
Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, and Tailand
(for change in consumer price, change in real GDP, and Ratio of Investment in GDP)
Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, and Tailand

2. (for change in money supply and interestrate)
Germany, France, Italy, United Kingdom, Spain, Netherland, and Belgium
(for change in consumer price, change in real GDP, and Ratio of Investment in GDP)
Germany, France, Italy, United Kingdom, Spain, Netherland, Belgium, and Denmark

3. (for change in money supply and interestrate)
Luxemberg, Ireland, Portugal, Greece, Denmark, Belgium, and Netherland
(for change in consumer price, change in real GDP, and Ratio of Investment in GDP)
Luxemberg, Ireland, Portugal, Greece, Denmark, Belgium, Netherland, and Spain

Source: See main text for details

first principal component accounts for more than half of the total variation of Asian variables, it explains only a little more than 40 percent in the larger EC countries, and less than one third in the smaller EC countries.

As for the remaining four variables, too, Asian variables are found to be fairly homogeneous. Although the ratio of the variance explained by the first component to the total variance in Asia is generally smaller than that in larger EC countries, there is little difference between the ratio in Asia and that in the smaller EC countries. Thus in terms of these macroeconomic variables, East Asia is a group as homogeneous as the European Community.

It is also interesting to consider the contribution of each additional variable to the principal components. For that purpose, we examine the "loading factor". The loading factor equals the correlation coefficient between a principal component and the original variable. The sum of the squares of loading factors of a component equals its characteristic root.

Table 5 indicates the loading factors for the first three principal components for five macroeconomic variables: changes in money supply, interest rates, changes in CPI, changes in real GNP, and ratios of investment to GNP. Loading factors are also interpreted as the correlation coefficient between the principal component and the corresponding country variable. In order to find the affinity of each principal component to the two large economies, the correlation coefficient between a principal component and the U.S. and Japan variables are reported. Needless to say, the U.S. and Japan are not included in the variable set that yields the principal component. Hence the last two rows are reported just for a reference.

We can give the following interpretation to the loading factors of major principal components. Like the interpretation of factors in factor analysis, its value is heuristic rather than definitive. However, a close look at loading factors yields various clues as to the homogeneity as well as diversity of macroeconomic activities in the region.

(i) Change in money supply: The first principal component, which explains about a half of the total variance, indicates that this series consists of variables that are rather homogeneous across the countries studied with the possible exception of Taiwan. This common trend shows a similar pattern to Japan's changes in money supply. The second principal component seems to be related to the difference between the money supply pattern in Indonesia, on the one hand, and in the Philippines and Thailand on the other.
(ii) Interest Rate: Loading factors of the first components seem to suggest that NIEs such as Korea, Singapore and Taiwan behaves differently from other countries in the region, and the difference between them explains a substantial part of the total variance.
(iii) Change in CPI: The first component indicates a generic movement that is at the same time closely related to movements in CPI in the U.S. and Japan.
(iv) Change in Real GNP: Here also Korea shows a different movement from other countries, as indicated by the first component.
(v) Ratio of Investment to GNP: Here NIEs and the Philippines somehow move together, and Indonesia and Thailand have something in common.[1] We have seen by the principal component analysis that the degree of confluence in macroeconomic variables in eight East Asian nations is comparable to that in the EC where nations are under the momentum toward market integration and currency unification.

III. The Degree of Trade Intensity and the Rate of Protection in Asia

In this section we will examine to what extent Asian nations satisfy preconditions for a FTA or FTAs. Let us review first how closely Asian nations are interrelated by trade. Frankel (1991) doubts the existence of a trend of increasing inter-regional trade intensity. According to him, the share (37.4 percent) of inter-regional trade among Asian nations in 1989 is smaller than that of EC countries (59.9 percent), and there is very little difference from that of North America (36.0 percent). The reason

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[1]. It is interesting to see from a similar observation that in EC countries we can suspect different patterns between Germany, on the one hand, and Latin countries such as France, Italy and Spain, on the other.

TABLE 5
FACTOR LOADING OF EACH PRINCIPAL COMPONENT

	PC1	PC2	PC3
(CHANGE IN MONEY SUPPLY)			
Korea	0.812	0.243	0.277
Indonesia	0.656	0.587	-0.160
Malaysia	0.877	0.094	-0.295
Philippines	0.715	-0.591	-0.100
Singapore	0.779	0.293	0.170
Thailand	0.719	-0.499	-0.364
Taiwan	0.402	-0.280	0.844
(USA)	-0.238	-0.191	0.634
(Japan)	0.579	0.129	0.385
(INTEREST RATE)			
Korea	0.926	0.012	0.205
Indonesia	-0.761	0.359	0.522
Malaysia	-0.696	-0.480	-0.430
Philippines	-0.626	-0.660	0.351
Singapore	0.528	-0.821	0.119
Thailand	-0.420	-0.857	0.023
Taiwan	0.802	-0.514	0.092
(USA)	0.404	-0.764	0.142
(Japan)	0.383	-0.799	0.064
(CHANGE IN CPI)			
Korea	0.572	0.689	0.365
Indonesia	0.887	-0.003	-0.038
Malaysia	0.960	-0.034	-0.038
Philippines	0.393	-0.638	0.656
Singapore	0.895	-0.244	-0.256
Thailand	0.956	0.168	-0.090
Taiwan	0.912	0.179	0.189
Hong Kong	0.799	-0.265	-0.318
(USA)	0.739	0.416	0.204
(Japan)	0.812	0.183	0.191
(CHANGE IN REAL GNP)			
Korea	0.075	0.539	0.786
Indonesia	0.531	0.260	-0.740
Malaysia	0.783	-0.507	0.055
Philippines	0.665	-0.196	0.091
Singapore	0.886	-0.372	0.043
Thailand	0.648	-0.096	0.563
Taiwan	0.453	0.821	0.058
Hong Kong	0.673	0.549	-0.297
(USA)	0.190	0.539	0.363
(Japan)	0.169	-0.199	0.435
(RATIO OF INVESTMENT IN GNP)			
Korea	0.368	0.703	0.212
Indonesia	-0.447	-0.463	0.676
Malaysia	0.738	-0.615	0.219
Philippines	0.944	-0.241	0.131
Singapore	0.524	-0.810	0.063
Thailand	-0.026	0.517	0.805
Taiwan	0.870	0.412	-0.090
Hong Kong	0.784	0.377	0.006
(USA)	0.445	0.502	-0.527
(Japan)	0.549	0.742	0.255

Note: [1]Correlation coefficients with macroeconomic variables of the U.S. and Japan are given for reference.

Source: See main text for detail.

for the increase in the share from 33 percent in 1980 to 37 percent in 1989 was merely due to the increase of the Asian share in the total trade volume in the world. He concludes, "it is likely that there has in fact been no movement toward intra-regional bias in the evolving pattern of trade." We will examine if this statement reflects the Asian trade situation.

In order to assess the degree of interconnectedness in trade, let us compare Asian nations with EC nations by the trade intensity index which Yamazawa et al. (1991) have developed extensively. The trade intensity index between country i and country j ($I_{i,j}$) is defined as

$$(1) \quad I_{i,j} = (T_{i,j} / T_i) / (T_{w,j} / T_w)$$

where $T_{i,j}$ = trade volume of country i with country j,

T_i = the total trade volume of country i,

$T_{w,j}$ = trade volume of the world with country j,

and T_w = the total trade volume of the world.

Accordingly, the index is the ratio of the share of the trade with country j in the total trade of country i to the share of the country j's trade in the total world trade. The index is normalized by dividing by the relative share of the country in the total world trade so that the effect of the mere size of the country is eliminated. If the degree of trade interaction between country i and country j is equal to that between the world and country j, then the index is equal to unity. The higher the index is, the more closely the two countries will be interrelated by trade.

The rational of using trade intensity index to evaluate preconditions for creation of a FTA is as follows: (i) a FTA is more likely to be created among countries which are "natural trading partners" to each other, because the FTA consisting of natural trading partners is likely to be trade creating rather than trade diverting, and because an economic incentive to create one is stronger than otherwise; (ii) If countries are natural trading partners to each other, they must be already closely interrelated by trade (i.e., the trade intensity indices among these countries are high); (iii) Hence (from (i) and (ii)), if trade intensity indices are higher among a group of countries, a FTA is more likely to be formed among these countries than otherwise, when some political move is initiated.

Table 6 and Table 7 depict respectively the trade intensity indices among Asian countries and among EC countries. As is easily seen, those indices that adjust for the size effect of trading partners show in many cases higher values than those in the EC. For example, in the EC those indices exceed three only in three cases, i.e., UK-Ireland, Bel.Lux-Netherlands, and Italy-Greece; in East Asia they exceed three in nine cases, despite the fact that the number of countries, nine, in Asia is smaller than that, eleven, in the EC. In particular, the trade intensity among Malaysia, Singapore, and Thailand is extremely strong. In general, Singapore is interrelated strongly with other East Asian countries. Furthermore, the high values of the trade intensity indices with Japan indicate that Japan plays an important role in Asia. As far as we can tell from the levels of the trade intensity index, we may say that, contrary to the impression given by Frankel (1991), the degree of trade interdependence is quite strong among Asian nations. (In fact his other study using the gravity model (Frankel 1992) confirms our findings.)

Let us now turn to the changes in the trade intensity indices during the 1980's. Table 8, which is cited from Yamazawa et al. (1991), indicates the changes in the trade intensity indices of exports from 1980 to 1987. The value in the entry in the row i and in the column j indicates exports from the country i to the country j, and the first row in the entry indicates the value for 1980. The index rose slightly from 1.598 to 1.711 among the EC countries. Some of the indices among Asian nations increased, but some decreased. Therefore it is hard to say whether or not the trade intensity indices increased. As far as the trend is concerned, the trade intensity indices confirm the argument of Frankel (1991).

In summary, though we found the level of trade intensity among Asian nations to be even higher than in the EC, we could not necessarily detect a distinct increasing trend. This seems to reflect the fact that, while in EC several programs toward market integration were realized during the 1980's, in Asia the push toward a FTA became active only recently. In the light of the recent political development toward a FTA mentioned in the introduction, the intraregional trade intensity can be expected to increase in Asia in the 1990's as it did in Europe in the 1980's.

Table 6 appears to indicate that the trade intensity between the United States and Asian countries is not particularly strong. The indices exceed two only with respect to Japan, Korea and Taiwan. This hardly means, however, that the United States is not an important trading partner of Asian nations. The misleading impression comes from the nature of the trade intensity index. The trade intensity index captures the degree of closeness in terms of trade only relative to the size of its trading partner. It does not capture the absolute degree of dependence of a country on the trade with its particular partner. For example, if a small Asian nation has a low trade intensity index with the United States, it may just imply that the share of trade with the nation in the trade volume of the United States is relatively small. The United States may well be an important trading partner of the Asian nation. Thus we have to provide an alternative index that indicates the degree of dependence through trade of one nation on another.

Table 9 summarizes our attempt to provide such an index. It tabulates the share of the amount of exports and imports of a country (indicated in the first column) with its trading partner (indicated in the first row) as a percentage of its GNP. For example, the third entry of the first row (14.86) shows that the amount of Korea's trade with the United States ($35.6 billion) is 14.86 percent of Korea's GNP ($239.8 billion). We may call it trade dependence index, because it shows the degree to which a country depends on the trade with its specific partner, or the degree to which a country would be jeopardized by the trade embargo (export or import) by the trading partner.

Table 9 reveals that East Asian nations depend heavily on the trade with the United States and that with Japan. Therefore, it would be infeasible as well as unprofitable for East Asian nations to form a FTA without the United States and Japan.

Let us now examine the degree of protection in East Asian countries, because, in order to assess the conditions for creating a FTA, we have to know not only how closely nations are interwoven by trade, but also how much their import competing industries are protected by tariff and non-tariff barriers. Figure 1 compares the trade-weighted average most-

Table 6

Trade Intensity Index among Asian Countries
(1990)

	USA	JPN	HKG	KOR	TWN	BRN	IND	MLS	PLP	SGP	THL
USA		2.10	1.23	2.15	2.13	0.44	0.90	1.15	1.95	1.33	1.15
JAPAN	2.10		1.46	3.43	2.63	4.41	4.88	2.44	2.57	1.89	3.30
HONG KONG	1.23	1.46		1.84	3.43	0.16	1.28	1.12	2.27	2.27	1.62
KOREA	2.15	3.43	1.84		1.18	3.11	2.85	2.02	1.84	1.41	1.30
TAIWAN	2.13	2.63	3.43	1.18		1.29	2.71	2.09	2.71	1.82	1.95
BRUNEI	0.44	4.41	0.16	3.11	1.29		0.48	2.76	8.47	10.68	6.25
INDONESIA	0.90	4.88	1.28	2.85	2.71	0.48		1.65	1.57	4.35	1.02
MALAYSIA	1.15	2.44	1.12	2.02	2.09	2.76	1.65		2.94	15.18	3.68
PHILIPPINE	1.95	2.57	2.27	1.84	2.71	8.47	1.57	2.94		2.60	1.90
SINGAPORE	1.33	1.89	2.27	1.41	1.82	10.68	4.35	15.18	2.60		5.95
THAILAND	1.15	3.30	1.62	1.30	1.95	6.25	1.02	3.68	1.90	5.95	

Source: IMF, *Directions of Trade Statistics*

Table 7

Trade Intensity Index among EC Countries
(1990)

	USA	JPN	UK	B-L	DMK	FRC	GMY	ILY	NLD	GRC	ILD	PTG	SPN
USA		2.10	0.91	0.48	0.35	0.45	0.49	0.47	0.50	0.34	0.78	0.33	0.47
JAPAN	2.10		0.54	0.30	0.43	0.31	0.53	0.30	0.35	0.45	0.42	0.25	0.30
UK	0.91	0.54		1.44	1.64	1.51	1.36	1.14	1.67	1.15	6.95	1.68	1.52
BEL-LUX	0.48	0.30	1.44		0.75	2.68	2.07	1.11	3.49	0.89	0.94	0.93	0.91
DENMARK	0.35	0.43	1.64	0.75		0.86	2.00	0.92	1.42	1.28	1.00	1.48	0.69
FRANCE	0.45	0.31	1.51	2.68	0.86		1.82	2.32	1.44	1.34	1.17	2.01	2.79
GERMANY	0.49	0.53	1.36	2.07	2.00	1.82		1.91	2.33	1.94	0.94	1.50	1.50
ITALY	0.47	0.30	1.14	1.11	0.92	2.32	1.91		1.02	3.25	0.70	1.58	2.16
NETHERLA	0.50	0.35	1.67	3.49	1.42	1.44	2.33	1.02		1.38	1.20	1.18	1.09
GREECE	0.34	0.45	1.15	0.89	1.28	1.34	1.94	3.25	1.38		0.74	0.64	0.99
IRELAND	0.78	0.42	6.95	0.94	1.00	1.17	0.94	0.70	1.20	0.74		0.76	0.83
PORTUGAL	0.33	0.25	1.68	0.93	1.48	2.01	1.50	1.58	1.18	0.64	0.76		7.07
SPAIN	0.47	0.30	1.52	0.91	0.69	2.79	1.50	2.16	1.09	0.99	0.83	7.07	

Source: IMF, *Direction of Trade Statistics*

Table 8
Matrix of Trade Intensity Indexes, 1980 and 1987

(From)		(To) JPN	USA	MLS	PLP	SGP	THL	KOR	TWN	HKG	EC12
JAPAN	1980		2.028	3.278	3.461	2.755	3.464	4.125	4.470	3.681	0.401
	1987		2.411	1.859	2.217	2.207	2.468	3.893	3.937	2.209	0.482
USA	1980	1.552		1.244	2.477	1.275	1.193	2.060	2.212	1.207	0.754
	1987	2.093		1.498	2.305	1.347	1.148	2.072	2.121	0.874	0.680
MALAYSIA	1980	3.688	1.356		4.053	17.641	3.406	2.014	3.325	1.889	0.507
	1987	3.703	1.086		6.486	15.470	5.459	3.582	2.896	1.610	0.413
PHILIPPINES	1980	4.208	2.286	3.361		1.795	2.547	3.487	2.043	3.329	0.504
	1987	3.261	2.371	4.104		2.925	4.204	1.161	2.402	2.775	0.553
SINGAPORE	1980	1.301	1.056	30.949	3.775		10.229	1.494	1.157	7.752	0.369
	1987	1.713	1.598	27.905	5.228		8.118	1.114	1.293	3.612	0.355
THAILAND	1980	2.437	1.050	9.279	0.963	7.130		0.754	1.402	5.098	0.749
	1987	2.838	1.226	6.592	2.205	7.713		0.892	1.245	2.408	0.645
KOREA	1980	2.800	2.194	2.155	2.298	1.405	2.198		1.204	4.735	0.448
	1987	3.381	2.550	1.247	1.675	1.669	1.105		0.801	2.662	0.407
TAIWAN	1980	1.775	2.850	1.769	2.631	2.539	2.088	1.341		7.837	0.421
	1987	2.459	2.909	0.995	3.082	2.141	1.513	0.802		4.382	0.398
HONG KONG	1980	0.744	2.170	1.836	4.440	4.039	2.536	1.145	1.257		0.668
	1987	0.965	1.826	1.245	3.685	2.332	1.763	1.767	1.098		0.468
EC12	1980	0.155	0.452	0.423	0.307	0.322	0.342	0.193	0.201	0.431	1.598
	1987	0.310	0.568	0.277	0.352	0.326	0.379	0.295	0.330	0.325	1.711

Source: Yamazawa et al. (1991)

favored-nations (MFN) tariffs with those of Japan and the United States. Except for Singapore, where the trade weighted-average tariff is very low (i.e., about one percent), tariffs in East Asian countries are substantially higher than those of Japan and the United States. In particular, those in Indonesia and in the Philippines are high at around twenty percent, while those in Japan and the United States are less than four percent. Thus, as is often the case in most developing countries, the degree of tariff protection in East Asia is also fairly high.

Table 9

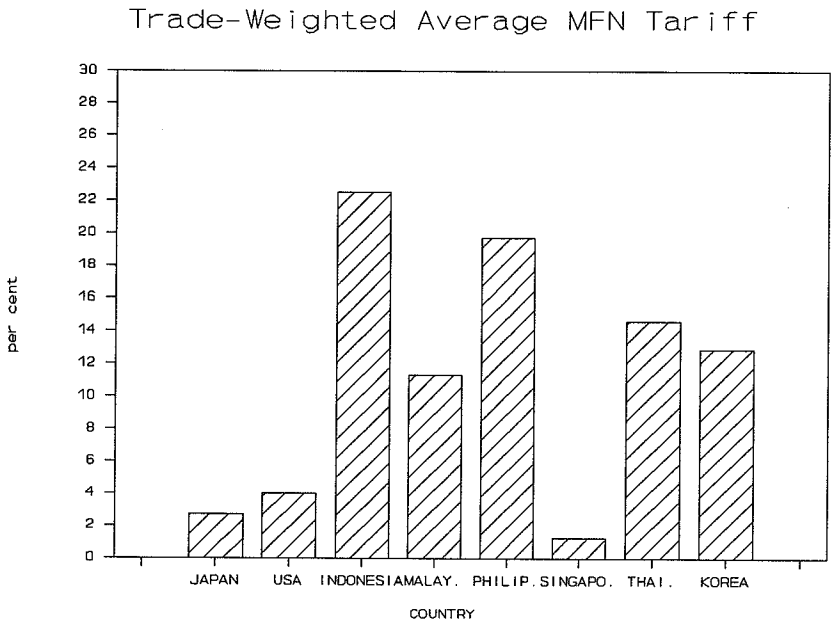
Trade Dependence Indices:
The Ratio of the Amount of Trade (Export plus Import) to GNP

1990[3] %

(partner) / (reporter)	NIES[1]	ASEAN[2]	USA	JAPAN	WORLD
KOREA	4.07	3.90 (1.08)	14.86	13.57	53.60
HONG KONG	31.45	17.51 (8.53)	37.82	25.64	235.18
SINGAPORE	34.48	68.46	60.74	48.79	328.64
TAIWAN	9.99	6.74 (2.23)	21.24	15.05	75.78
BRUNEI	26.24	27.98 (17.50)	4.30	32.39	103.42
INDONESIA	8.05	4.04 (2.97)	5.48	15.26	44.37
MALAYSIA	39.42	33.11 (25.99)	23.34	27.17	137.89
PHILIPPINES	7.92	4.19 (1.70)	12.86	9.16	48.25
THAILAND	11.42	8.48 (5.33)	10.96	17.81	70.57
USA	1.91	0.86 (0.33)	-	2.61	16.98
JAPAN	2.81	1.64 (0.49)	4.90	-	17.79

Note: [1] Singapore is included in both NIES and ASEAN.
[2] Singapore figure is shown in parenthesis.
[3] For Brunei, figure in 1989.

Figure 1



Source: Naya and Plummer (1989)

Table 10 summarizes the (simple) average of tariff rates by commodities in East Asia. Note that the numbers in Figure 1 are trade-weighted average tariff rates, which cannot be directly compared with those in Table 10. Table 10 shows that the tariff rate increases according to the degree of processing: consumer goods have the highest tariff rate, while primary goods the lowest. It should be noted that in Indonesia and in Malaysia the average tariff rates for consumer goods are as high as sixty percent.

In addition to tariffs, imports by East Asian countries are heavily protected by non-tariff barriers (NTBs), such as quotas, restrictive licensing and import prohibition. Table 11, cited from Naya and Plummer (1989), indicates the number of NTBs by broad commodity categories in East Asia. Due to the limitation of data, we are not able to provide here the comparison with countries in other regions.

Table 10

Average Tariff Rate by Broad Tariff Categories

	Indonesia (1980)	Malaysia (1982)	Philippines (1982)	Singapore (1983)	Thailand (1983)	ASEAN
Primary goods	14.86	3.46	23.56	0.11	19.76	12.35
Intermediate goods	24.94	17.04	26.65	8.62	26.96	20.84
Capital goods, including parts (excluding transport equipment	20.05	6.50	21.97	0.28	23.72	14.50
Consumer good	65.57	63.85	42.21	9.46	49.40	46.10
Transport equipment (excluding passenger motor cars), including parts	27.39	19.26	20.92	2.00	22.41	18.40
Other	17.16	10.64	27.66	0.00	13.12	13.72
Total	32.59	24.99	29.18	6.41	30.66	24.77

Source: Philippine Tariff Commission

However, Table 11 shows that quite a few products are restricted by NTBs in these countries. In particular, the number of NTBs in Indonesia (799) as well as that of the Philippines (497) is remarkable. As is the case for tariff protection, NTBs seem to rise along with the degree of processing. In almost all countries listed in Table 11, the number of NTBs on manufactures is substantially larger than that on primary goods.

Table 11

ASEA Non-Tariff Barriers
(In numbers of six-digit CCCN product affected)

	Brunei	Indo-nesia (1980)	Malay-sia (1981)	Philip-pines (1983)	Singa-pore (1983)	Thai-land (1983)
Primary Goods	62	319	103	147	70	65
Manufactures	77	480	70	350	91	118
Total	139	799	173	497	161	184

Source: Naya and Plummer (1989)

The above figures show that trade in East Asia, especially trade in the manufacturing sector, is at present heavily protected by both tariffs and NTBs at present. Therefore, if a FTA is formed among these countries, the manufacturing trade in the area is likely to increase substantially. The magnitude of the possible gains from a trade liberalization, along with the already high degree of economic interrelatedness of Asian countries, would seem to constitute a strong incentive for these nations to create a FTA (or FTAs) in East Asia.

IV. Conditions for a Currency Union

Are the Asian nations or a subset of them an adequate group of economies for the use of a single currency, or at least for the fixing of exchange rates among their currencies? It seems appropriate here to recall how Mundell (1961) started to analyze this question. If there are neither wage-price rigidity nor transaction costs, the exchange rate regime may not make a substantial difference because money would be neutral. This seems to be the main message of the cash-in-advance model applied to the problem of the exchange-rate regime choice (e.g. Helpman and Razin (1979) and Lucas (1982)). However, if there are a price rigidity or transaction costs, regions that have different real exogenous shocks should be under different currency areas because prices do not adjust enough if they are closely linked by fixed exchange rates.

If, for instance, the Japanese island of Hokkaido and the mainland Honshu are under different real shocks and wages are rigid, then it is better for the two regions to have different monetary policies.

McKinnon (1963) emphasized the role of the degree of openness as a criterion for the feasibility of the floating regime. Autonomy in conducting monetary policy is the main merit of floating exchange rates. If a country is too open and the role of nontraded goods is minimal, then the merit of an autonomous monetary policy will be small because the wage level will be immediately adjusted to the international level.

Mundell and others (e.g. Ingram 1973) also emphasized the role of factor movements. If labor can move quickly from Hokkaido to Honshu, then unemployment in Hokkaido is a lesser concern because workers can move to Honshu. If funds are easily moved from one place to other, it reduces the problem of balance of payments constraints, which could be a limiting factor for macroeconomic stabilization between regions with sticky wages and prices.

We shall examine these three conditions in turn. The first aspect, the importance of the synchronization or the dissynchronization of real disturbances for the choice of a currency area, is developed by Fukuda and Hamada (1988) in the context of a two-country version of the Dornbusch model of exchange rate determination. They showed that the familiar argument for the choice of targets for stabilization in the IS-LM model by Poole (1970) can be extended to the discussion of optimal interventions in the exchange market.

In a two-country model positing the symmetric economic structures, Fukuda and Hamada showed, using the technique of Aoki (1981), that the system can be decomposed into the system of average variables and difference variables. In the system of average variables, that is, in the whole system, Pool's results hold: World-wide demand shocks on IS can be more effectively handled by controlling average money supply of the world as in McKinnon's proposal for controlling the total money supply of the world. World-wide shocks on the LM curve, on the other hand, can be more effectively handled by controlling the average interest rate.

In the system of difference variables the following results have direct implication on the choice of a monetary regime: No or little

intervention is needed when country-specific disturbances are mainly on the IS curve, including disturbances due to changing competitiveness in trade; extensive intervention in such a way as to slow down the movements of exchange rate, or pegging the exchange rate, is desirable when country-specific disturbances are mainly on the LM curve.

The results corresponding to country-specific disturbances can be reinterpreted in the context of the choice of a currency area. Consider a region, a group of nations. Economic interactions with the rest of the world can be regarded as region-wide shocks to the system consisting of these economies. The basic economic difference between a currency union with fixed exchange rates and a floating exchange-rate regime within the region rests on the absence or the presence of autonomy in macroeconomic policy. By forming a currency union these countries indirectly align their price levels each other. With the floating exchange-rate regime, on the other hand, a country can essentially choose its own price level.

Suppose country-specific monetary disturbances affect these countries differently, but country-specific real disturbances hardly affect them. Then keeping price levels aligned among these countries will serve the purpose of economic stabilization. If, on the other hand, country-specific real disturbances affect these countries differently, but country-specific monetary disturbances hardly affect them, then it will be desirable that each country should be allowed to conduct independent monetary policy provided that some degree of wage-price rigidity exists. It is at least clear from this reasoning that a group of nations will be better off not forming a currency union if country-specific real disturbance are prevalent. The reader will see that this is a rather straightforward extension of the Mundell's argument.

In the following, we will measure the degree of synchronization of real as well as monetary disturbances among Asian countries and compare the degree of synchronization with that among EC countries. Here again, we rely on the principal component methods. We will show that the degree of confluence in real disturbances is quite high among Asian nations. A brief explanation of our method is as follows.

With regard to real disturbances, we concentrated on disturbances

on investment behavior because we found that consumption behavior is much more stable and that the magnitude of net export is much smaller. We estimated the following investment function first:

$$(2)\quad \ln I_t^i = \alpha_o^i + \alpha_1^i \ln r_{t-1}^i + \alpha_2^i \ln Y_{t-1}^i + \alpha_3^i T + \epsilon_t^i$$

where I_t^i = investment (in real terms) in country i at time t,

r_{t-1}^i = interest rate in country i at time t-1,

Y_{t-1}^i = real GNP in country i at time t-1,

T = time trend,

ϵ_t^i = error term.

and ln stands for natural logarithm.

Since the data for interest rates in Hong Kong were unavailable, we ran OLS regressions on the annual data (from 1978-90) of the remaining seven Asian countries, i.e., Korea, Singapore, Taiwan, Indonesia, Malaysia, the Philippines, and Thailand. We obtained fairly satisfactory results for most countries, with expected signs of coefficients (i.e., $\alpha_1^i < 0$ and $\alpha_2^i > 0$), and with statistical significance. Then, we used the obtained error term (ϵ) as a proxy variable for real disturbances in each country.

As for the monetary disturbances, we estimated the following money demand function:

$$(3)\quad \ln M_t^i = \beta_o^i + \beta_1^i \ln r_t^i + \beta_2^i \ln Y_t^i + \beta_3^i T + \eta_t^i$$

where M_t^i = real money supply (M1) in country i at time t,

η_t^i = error term,

and the remaining notations are the same as those in equation (2). We also ran OLS regressions on the annual data (from 1977-89) of the above seven countries. Again, for most countries we obtained coefficient estimates with correct signs (i.e., $\beta_1^i < 0$ and $\beta_2^i > 0$) and with statistical significance. We used the error term (η) as a proxy variable for monetary disturbances.

Then, we performed the principal component analysis for the above residuals as proxies for real and monetary disturbances. For the purpose of comparison, we made similar estimates for the two sets of EC countries (see Section 2 above) and for the Summit countries (the United

States, Japan, Germany, France, Italy, the United Kingdom, and Canada).

Table 12 shows the contribution of the first three principal components to explain the variance of real and monetary disturbances. In the case of real or IS disturbances, the first principal component explains 46.1 percent of the total variance in Asia, whereas it explains less than one-third of total variance in other groups. In particular, in the larger EC countries it explains only a quarter. This shows that investment equations in Asian economies are subject to the disturbances that are more synchronized than in other regions.

In monetary shocks, on the other hand, there does not seem to exist a significant difference in the accounting power of the first principal component. From the theoretical analysis of Fukuda and Hamada (1988), synchronized real disturbances are a good reason to form a currency union. Thus our analysis seems to suggest that there are grounds to form a currency union in East Asia, that are at least as good as the reasons for forming one in Europe. The negative correlations between the U.S. or Japanese real disturbances and the first principal component in Table 13 suggest that linking to the U.S. dollar and the yen may not be necessary.

We may add the following heuristic remarks on loading factors of principal component of these residuals (See Table 13):
(i) IS residuals: The first factor may be interpreted as the average part of the macroeconomic time series. Every East Asian nation except Korea contribute to this factor. This seems to indicate that Korea is under different kind of real shocks during this period. (As far as the numbers tell, this might give some economic rationale to create a currency union excluding Korea. We are by no means suggesting such a union from this casual finding. Moreover, we have to take into account many other aspects, geographical, political and so forth, before proposing a concrete currency union.) The second is affiliated to the Philippines and Indonesia. The third principal component is dominated by the influence of Korea.

Table 12

Principal Components Analysis of Macroeconomic Disturbances
(Cumulative R-Squared)

	Asia[1]	Larger EC[2]	Smaller EC[3]	Summit[4]
Real Disturbance (ϵ)				
First P.C.	0.461	0.259	0.303	0.323
Second P.C.	0.657	0.491	0.575	0.557
Third P.C.	0.809	0.678	0.747	0.721
Monetary Disturbance (η)				
First P.C.	0.410	0.320	0.385	0.331
Second P.C.	0.634	0.529	0.593	0.543
Third P.C.	0.772	0.686	0.755	0.724

Source: See main text for details.
Note:
1. Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, and Thailand
2. Germany, France, Italy, United Kingdom, Spain, Netherlands, and Belgium
3. Luxembourg, Ireland, Portugal, Greece, Denmark, Belgium, and Netherlands
4. USA, Japan, Germany, France, Italy, United Kingdom, and Canada

(ii) LM residuals: Loading factors of the first principal component of LM residuals tell that monetary disturbances in Thailand move differently from those in other East Asian countries.

Before going into the discussion of the degree of factor mobility, let us look briefly at McKinnon's argument on openness of national economies. The last column of Table 9 indicates that some Asian countries have an extremely high degree of openness. This implies that, for example, to make Hong Kong, Singapore, and Malaysia respectively as single currency unions with floating rates may not be an appropriate choice of the monetary regime. Incidentally, the corresponding figures for EC countries range from very open countries (Ireland 141.9 percent, Belgium-Luxembourg 141.4 percent, and Netherlands 106.6 percent) to fairly closed countries (Spain 29.3 percent, Italy 37.1 percent, and France 38.3 percent).

TABLE 13

FACTOR LOADING OF EACH PRINCIPAL COMPONENT

	PC1	PC2	PC3
Real Disturbance			
Korea	0.096	0.025	0.992
Indonesia	0.388	0.662	-0.127
Malaysia	0.950	0.050	0.043
Philippines	0.462	0.775	0.090
Singapore	0.830	-0.467	-0.031
Thailand	0.668	-0.330	0.119
Taiwan	0.902	-0.063	-0.201
(USA)[1]	-0.548	-0.137	-0.146
(Japan)[1]	-0.067	-0.395	0.278
Monetary Disturbance			
Korea	0.553	0.534	0.466
Indonesia	0.654	0.060	0.354
Malaysia	0.853	-0.318	-0.134
Philippines	0.573	0.563	0.037
Singapore	0.569	-0.715	-0.098
Thailand	-0.115	-0.587	0.714
Taiwan	0.862	-0.053	-0.300
(USA)[1]	0.042	-0.468	0.262
(Japan)[1]	0.370	-0.186	-0.464

Note: [1] Correlation coefficients with real and monetary disturbances of the U.S. and Japan are given for reference.

Source: See main text for details.

Now let us examine the degree of factor mobility, both capital and labor, among East Asian nations. As Ingram (1969) pointed out, high mobility of factors of production is another reason for the formation of a common currency area.

Comprehensive data on labor mobility in East Asia are hard to obtain. Available data suggest, however, that there is a high degree of labor mobility among East Asian nations, mostly from less developed ASEAN nations to more industrialized and capital-abundant NIEs. Table 14 shows the degree of labor inflow in selected countries. In Singapore, one of the largest labor recipient countries in East Asia, the number of inflow of foreign workers was 128 thousand, and share of foreign labor in the total labor force in the country was about ten percent. As the table shows, the share of labor inflow in the total

labor force in Singapore was generally higher than those in Europe and Japan. Except for Switzerland, where the share was as high as 17.48 percent, the share for Singapore was higher than any other country in the table, that is, even higher than Germany, a major recipient of "guest workers" for many years. Singapore receives many foreign workers from neighboring ASEAN countries, i.e., Malaysia, Indonesia, the Philippines, and Thailand. In 1989, the share of workers coming from these four countries in the total labor inflow in Singapore was as high as 83.1 percent.

Table 14

The Share of Foreign Workers in Labor Force

(1986)

	Number (thous.)	Share (%)
Singapore*	127.6	9.99
Austria	146.0	4.31
France	1,658.2	7.12
Germany	1,833.8	6.77
Netherlands	168.6	2.91
Sweden	214.9	4.88
Switzerland	566.9	17.48
Japan	30.6	0.05

Note: * For Singapore, figure in 1989
Source: OECD, "SOPEMI"
OECD, "Labor Force Statistics"
Japanese Ministry of Justice
Singapore Government

To some East Asian countries, the outflow of labor to foreign countries is also important. For example, in 1987, the Philippines sent about 400 thousand workers to foreign countries, according to the official statistics which generally underestimate the degree of labor mobility. The outflow of labor amounted to about two percent of the total labor force in the Philippines. While most of these workers were directed to the Middle East, about 100 thousand (or one-fourth of the labor outflow) went to Asian countries.

Table 15

The Ratio of the Inflow of FDI to GNP (%)

(1989*)

Country	Ratio
Indonesia	5.28
Malaysia	8.97
Philippines	1.92
Thailand	11.73
USA	8.14
Japan	0.28
France	4.47
Germany	5.22

Note: * For developed countries, data in 1988

Source: Asian Development Bank
U.S. Department of Commerce

The degree of capital mobility is also high among East Asian countries. Table 15 compares the ratio of the inflow of foreign direct investment (FDI) to GNP in ASEAN countries with those in major developed countries. Except for the Philippines, which has been suffering from economic difficulties since the middle of the 1980's, the ratio of FDI inflow to GNP is higher in the ASEAN countries than in major developed countries. The figures for Malaysia (8.97 per cent) and for Thailand (11.73 percent) are especially high. Furthermore, it should be noted that the major part of the inflow of FDI into these countries comes from neighboring Asian countries. The shares of FDI from Asian countries (from Japan in parentheses) in Indonesia, Malaysia, the Philippines, and Thailand, are, respectively, 41.7 percent (16.3 percent), 72.9 percent (31.1 percent), 59.8 percent (19.7 percent), and 69.2 percent (44.1 percent).

Thus, although the data are fairly limited, the above examples suggest a high degree of factor mobility among East Asian countries. This could be another rationale for creating a currency area in East Asia.

V. Concluding Remarks

We have offered an overview of the conditions that are favorable or unfavorable for the formation of a free trade area and of a currency union in Asia. Our method is descriptive, and our finding suggestive rather than decisive. By referring to many statistical indicators from various angles, however, we hope we have provided a fairly comprehensive view of the conditions for economic integration in Asia. We can summarize our findings as follows:

The degree of interdependence among Asian nations through trade and factor movements is substantial. It might not have progressed much in recent years, as Frankel (1991) points out. However, some indicators show a higher degree of interdependence among Asian countries than among the EC countries that are about to form an integrated market. Thus, preconditions for a free trade area seem to be met among Asian countries. At the same time, our study of the trade dependence index reveals that it is not advisable to allow the formation of a free trade area that would hinder trade with the United States and Japan, as Asian nations are highly dependent upon these two countries. One of the reasons the Mahathir plan to create a FTA without the participation of the United States was brought to a deadlock could be this high degree of dependence of Asian economies on the American economy. From this angle, some justification may be found for the seemingly premature and self-centered reaction of the United States in strongly opposing the EAEG plan despite its own move toward the NAFTA.

As for the desirability of a common currency area, we have studied several indicators: the synchronization of real disturbances emphasized by Mundell (1961) and Fukuda and Hamada (1988); the openness of Asian countries emphasized by McKinnon (1963); and the degree of capital and labor mobility emphasized by Ingram (1973) and Mundell (1961). All of these indicators seem to suggest that a case can be made for a currency union in Asia, even though it is not clear whether or not the common currency should be linked to a major currency such as the dollar or the yen.

We can extend the present research into various directions. For example, we may ask what will be the consequence of the European integration for the Asian economy, and what would be the consequence of

Table 16

Money Supply and Price Index of Occupied Territories by Japan

Money Supply (million)	Central Bank Note			Military Scrip			
	Manchuria	China (north)	China (south)	Singapore	Philip-pines	Indone-sia	Burma
	(yuan)	(yuan)	(yuan)	(dollar)	(peso)	(guilder)	(lupee)
1941.12	1,262	966	280				
1942.12	1,669	1,593	3,696				
1943.9	2,121	2,552	11,797	385	348	537	497
1943.12	3,011	3,762	19,150	482	513	674	685
1944.12	5,877	15,841	139,699	1,512	4,874	1,976	2,832
1945.8	8,158	93,585	2,277,179	5,650	6,150[1]	3,880	5,654

Price Index (1941.12 = 100)	Changchun	Beijing	Shanghai	Singapore	Manila	Jakarta	Rangoon
1942.12	112	158	206	352	200	134	705[3]
1943.12	122	267	671	1,201	1,196	227	1,718
1944.12	162[4]	892	5,707[4]	10,766	14,285	1,279[2]	8,707
1945.8	N.A.	17,273	7,189	35,000	14,285[1]	3,197	185,647

Note: [1]Data for 1945.1
[2]Data for 1944.9
[3]Data for 1943.3
[4]Data for 1944.11

Source: Nakamura (1989), p. 31

Asian economic integration for the rest of the world. Also we may examine the way in which Asian nations can exploit their possible strategic positions in this world where movements toward economic blocs are gaining momentum. Our findings indicate that the conditions in Asia are at least as favorable to economic integration as those in unifying Europe.

During her notorious maneuver of the Greater East Asia Co-prosperity Sphere that ended in the reckless Second World War, Japan attempted to implement a scheme of mobilizing goods and resources within the region. At the same time, she attempted to create a "yen" bloc in the East Asia. There were two ways of creating it. In one form, Japan issued military scrips -- for example in the Philippines, Singapore, Indonesia and Burma -- from the Southern Development Credit Vault, a kind of overseas military bank. This process implied direct economic confiscation on Asian Nations through the seigniorage right. In the other form, Japan created central banks -- for example, in Manchuria, North as well as South China -- that issued regional currencies that were pegged at par with the yen. By the monetary expansion by these central banks, these regions suffered tremendous inflation. Japanese war merchants exporting goods to these areas earned profits by the inflation, and by their privilege they could convert their regional profits into the yen at par. Table 16 illustrates this.

This clearly tells us that there is a great distance between designating one region as a suitable common currency area and actually implementing a common currency union. The question of seigniorage should be cleared, and the political-economy aspect cannot be neglected. This paper is merely a modest, preliminary step to these goals if a currency union is ever to be contrived in this region.

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