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14 Economic Preconditions for Asian Regional Integration

Junichi Goto and Koichi Hamada

14.1 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 new tide of regionalism. We hope that the tidal wave will not result in the formation of highly protective regional blocs, as the phrase "Fortress Europe" might suggest, but that these are moves toward an integrated world economy with free trade. In any case, a series of questions arises: 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 to form the East Asian Economic Caucus (EAEC) or Group (EAEG) be realized? Is it practical to conceive of a currency union in 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 Asian-Pacific Economic Cooperation (APEC) Minister Conference agreed that it would promote free trade within the region; in January 1992, the summit meeting of ASEAN decided to create an FTA. Are these steps toward Asian economic integration desirable for Asia?

The political aspects of these questions are far from simple. First, the United States may oppose the creation of an FTA in Asia that would restrict export flows from the United States to this area, as it has already indicated by its

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response to the plan for the EAEC or EAEG. Second, the idea of including Japan in an Asian bloc may invoke complex and ambivalent, if not entirely hostile, reactions by many nations in the region, because it triggers memories of the infamous "co-prosperity area" formed under Japan's lead during World War II.

In his prize-winning essay, Jeffrey Frankel (1991) notes that the Japanese government is not necessarily taking a positive stance toward the formation of 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 low political profile maintained by Germany, despite its economic affluence.

This paper does not address the political feasibility of any form of Asian economic integration, nor does it intend to advocate any. Rather, we present a general assessment of economic conditions in Asia as a preliminary step to a discussion of the issues involved in such an integration. While Frankel (1991) focused 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 discover whether conditions in the Asian economies are favorable or unfavorable for the creation of an FTA or a common currency area and, specifically, whether the Asian economies are more or less homogeneous than those of the European Community, which are moving toward economic unification.

In section 14.2, we will review selected macroeconomic indicators for the East Asian nations, trace how closely their movements coincide, and examine how closely they are interrelated. In other words, we will assess the degree of homogeneity and the degree of economic proximity in Asia. Then we will compare them with those in Europe.

In section 14.3, we will study whether the region meets preconditions for an FTA or FTAs by examining trade intensity indices among Asian nations. 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 trade with its partner, we will supplement the trade intensity index with an alternative measure, the *trade dependence index,* which indicates the importance of a trading partner.

In order to assess conditions for creating an FTA, 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 protect their import-competing industries, the greater the trade-creating effect of the formation of an FTA.

In section 14.4, we will review conditions for creating a currency union in Asia. 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 that of an FTA. We will review the similarity or the diversity of macroeconomic disturbances, both

real and nominal, and the ease of factor movements among nations within the region.

In section 14.5, 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, even higher in some respects than among EC countries. Preconditions for an FTA in this region are satisfied. However, since Asian countries depend heavily on trade with the United States and Japan, an FTA that hinders trade with these countries would not be practical. Preconditions for a currency union in Asia are also met. In such a currency union, it is not clear whether the Asian countries would benefit from linking their common currency to a major currency such as the dollar or the yen.

14.2 Confluence in Macroeconomic Variables in Asia

As a prelude to a discussion of the feasibility of economic integration in Asia, let us review key macroeconomic indicators in East Asian countries, including both the Asian newly industrialized economies (NIEs) and ASEAN countries and then compare them with corresponding indicators in other regions. Table 14.1 summarizes the main economic indicators for selected countries. From a quick glance at this table, one sees that an East Asian nation can be characterized as a high-income, rapidly growing economy with a relatively stable price level (especially in the 1980s). The Philippines in the mid-1980s

Table 14.1 Main Economic Indicators for Selected Countries

Country	Population (million)	GNP per Capita (U.S. $) (1988)	Growth Rate (%) (1965–88)	Inflation Rate (%) (1965–80)	Inflation Rate (%) (1980–88)
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[a]	10.4[b]	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[c]	4,736.2	3,470[d]	1.5[d]	9.8[d]	14.1[d]

Sources: World Bank, *World Development Report 1990* (Washington, D.C.); *Taiwan Kenkyu Sho, Taiwan Soran (Taiwan Statistical Data Book),* 1991.

[a]1970–90.

[b]1970–80.

[c]Total countries reporting data to the World Bank.

[d]Weighted average.

is a notable exception. In 1984 and 1985, the consumer price level in the Philippines increased by 50.3 and 23.1 percent, respectively. In the same period, during which the country experienced severe political unrest, real GNP *declined* by almost 10 percent in the annual average rate. All other East Asian nations enjoyed good economic performance throughout the 1970s and 1980s.

In order to elaborate the above statement somewhat more rigorously, we conducted *t*-tests on three macroeconomic indicators: inflation, growth, and investment. We compared the sample mean of each variable in eight East Asian countries with those in 15 developed countries as well as with those in 20 developing countries. Table 14.2 compares the sample means of the three variables in East Asian countries with those in 20 developing countries. The East Asian countries in the following discussion include both the Asian NIEs and ASEAN countries: Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, the Philippines, and Thailand. A second, 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 14.2 shows the sample means and the standard errors of difference in means of the three variables during 1970–90. The table indicates that the East Asian countries enjoyed significantly lower inflation, higher economic growth, and more active investment than the 20 control-group LDCs. While many Latin American countries suffered from hyperinflation, as high as 500–1000 percent per annum during the 1980s, annual rates of increase in consumer prices in East Asia were 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, in the East Asian countries it was 7.4 percent, more than twice as high. This rapid growth was not limited to the NIEs (i.e., Hong Kong, Korea, Tai-

Table 14.2 **Sample Means for Selected Macroeconomic Variables: Asia versus Control-Group Less-Developed Countries**

Variable	Asia[a]	Control LDC[b]	Difference	Standard Error
Inflation[c]	8.829	96.299	−87.470*	36.818
Growth[d]	7.421	3.352	4.069**	0.467
Investment[e]	26.841	20.234	6.607**	0.714

Source: IMF, *International Financial Statistics* (Washington, D.C., various issues).

[a]Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, the Philippines, Thailand.

[b]Mexico, Algeria, Côte d'Ivoire, Ghana, Morocco, Nigeria, Zaire, Egypt, Turkey, Yugoslavia, Argentina, Brazil, Chile, Colombia, Peru, Uruguay, Venezuela, India, Pakistan, Sri Lanka.

[c]Change in consumer price index (%).

[d]Change in real GDP (GNP) (%).

[e]Ratio of investment to GDP (GNP) (%).

*Significant at 95 percent level.

**Significant at 99 percent level.

Table 14.3 **Sample Means for Selected Macroeconomic Variables: Asia versus Developed Countries**

Variable	Asia[a]	Developed	Difference	Standard Error
Inflation[c]	8.829	8.813	0.016	0.674
Growth[d]	7.421	3.078	4.343**	0.309
Investment[e]	26.841	22.081	4.760**	0.520

Source: IMF, *International Financial Statistics* (Washington, D.C., various issues).

[a]Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, the Philippines, Thailand.

[b]United States, Japan, Canada, and 12 EC countries.

[c]Change in consumer price index (%).

[d]Change in real GDP (GNP) (%).

[e]Ratio of investment to GDP (GNP) (%).

**Significant at 99 percent level.

wan, and Singapore). For example, economic growth rates in Malaysia and Thailand in 1990 exceeded 10 percent.

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 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.

Since the 20 LDC countries in the control group were suffering to varying degrees from recent economic difficulties, a comparison with these LDCs may not necessarily prove the good economic performance of East Asian nations. Hence, we also compared the same macroeconomic indicators for East Asia with those for developed countries including the United States, Japan, Canada, and 12 EC countries (see table 14.3). The comparison with developed countries, however, shows again the East Asia was growing dynamically under stable prices. Economic performance in East Asia was generally better, not only than other developing countries, but also than our group of developed countries, which includes such economic superstars 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 their economic performance during the 1970s and 1980s, the East Asian nations can be characterized as a group of dynamically growing economies with stable price levels.

Let us now ask how homogeneous macroeconomic variables are in the East Asian region and by what standard one can judge whether the Asian nations have similar economic structures. If we were interested in the degree of interdependence between a pair of variables, we would naturally be interested in the correlation coefficient between them. However, in studying the degree of

coherence in a group of more than two variables, the correlation coefficient does not help much. The canonical correlation between groups of variables gives a measure of correlation between the groups, but not the degree of confluence within a single group. Neither does 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 principal component analysis 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 is perfectly correlated, the first (or any) component explains all of the variance. If they are mutually independent and have 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 principal component analysis to clarify the structure of income and outlay in the United States by economizing on the number of variables, and Adelman and Morris (1967) used factor analysis to classify developing countries by the similarity of their social, economic, and political characteristics.

We apply principal component analysis to five key macroeconomic variables in the East Asian countries—change in money supply (M_1), 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 14.4 summarizes for each macroeconomic variable the proportion of its total variation among the eight East Asian countries (exactly speaking, seven for money supply and interest rate because the data for Hong Kong were

Table 14.4 **Principal Component (P.C.) Analysis of Selected Macroeconomic Variables (cumulative R^2)**

Variable and Component	Asia[a]	Larger EC[b]	Smaller EC[c]
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

[a]For change in money supply and interest rate: Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, and Thailand. For change in consumer price, change in real GDP, and ratio of investment in GDP: Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, and Thailand.

[b]For change in money supply and interest rate: Germany, France, Italy, United Kingdom, Spain, the Netherlands, and Belgium. For change in consumer price, change in real GDP, and ratio of investment in GDP: Germany, France, Italy, United Kingdom, Spain, the Netherlands, Belgium, and Denmark.

[c]For change in money supply and interest rate: Luxembourg, Ireland, Portugal, Greece, Denmark, Belgium, and the Netherlands. For change in consumer price, change in real GDP, and ratio of investment in GDP: Luxembourg, Ireland, Portugal, Greece, Denmark, Belgium, the Netherlands, and Spain.

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 the seven Asian variables, the second for 16.8 percent (or 69.0 percent cumulatively), and the third for an 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 (divided in terms of their GNP). In order to avoid a misleading impression due to the difference in the number of countries in each group, 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 14.4, changes in money supply are more homogeneous by far in the Asian countries than in the EC countries, which are expected to form a single currency area in the near future. While the first principal component accounts for more than half of the total variation of the Asian variables, it explains only a little more than 40 percent among variables for the larger EC countries and less than one third among variables for the smaller EC countries.

For the remaining four variables, too, the 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 among the larger EC countries, there is little difference between the ratio in Asia and that among 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 14.5 indicates the loading factors for the first three principal components for five macroeconomic variables: change in money supply, interest rate, change in CPI, change in real GNP, and ratio 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 two large economies, the correlation coefficient between a principal component and the United States and Japan variables are reported. Needless to say, the United States and Japan are not included in the variable set that yields the principal component; the last two rows are reported only for 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 the diversity of macroeconomic activities in the region.

1. Change in money supply: The first principal component, which explains about one-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 pattern similar 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 one hand, and in the Philippines and Thailand, on the other.

2. Interest rate: Loading factors of the first components seem to suggest that NIEs such as Korea, Singapore, and Taiwan behave differently from other countries in the region, and the difference between them explains a substantial part of the total variance.

Table 14.5 Loading Factor of Each Principal Component

Variable and Country	Principal Component 1	2	3
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)[a]	−0.238	−0.191	0.634
(Japan)[a]	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)[a]	0.404	−0.764	0.142
(Japan)[a]	0.383	−0.799	0.064
Change in consumer price			
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)[a]	0.739	0.416	0.204
(Japan)[a]	0.812	0.183	0.191
Change in real GDP			
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)[a]	0.190	0.539	0.363
(Japan)[a]	0.169	−0.199	0.435
Ratio of investment in GDP			
Korea	0.368	0.703	0.212
Indonesia	−0.447	−0.463	0.676
Malaysia	0.738	−0.615	0.219

(*continued*)

Table 14.5 (continued)

Variable and Country	Principal Component 1	2	3
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)[a]	0.445	0.502	−0.527
(Japan)[a]	0.549	0.742	0.255

Source: See main text for detail.

[a]Correlation coefficients with macroeconomic variables for the United States and Japan are given for reference.

3. Change in CPI: The first component indicates a generic movement that is at the same time closely related to movements in CPI in the United States and Japan.

4. Change in real GNP: Here also Korea shows a different movement from other countries, as indicated by the first component.

5. Ratio of investment to GNP: Here the NIEs and the Philippines somehow move together, and Indonesia and Thailand have something in common.[1]

We have seen by principal component analysis that the degree of confluence in macroeconomic variables in eight East Asian nations is comparable to that in the European Community where momentum is toward market integration and currency unification.

14.3 The Degree of Trade Intensity and the Rate of Protection in Asia

In this section we will examine to what extent Asian nations satisfy the preconditions for an 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 intraregional trade intensity. According to him, the share (37.4 percent) of intraregional trade among Asian nations in 1989 was smaller than that among EC countries (59.9 percent), and there is very little difference from that in North America (36.0 percent). The reason for the increase in the share from 33 percent in 1980 to 37 percent in 1989 was merely 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 evolv-

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

ing pattern of trade." We will examine whether this statement reflects the Asian trade situation.

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

(1) $$I_{i,j} = (T_{i,j}/T_i) / (T_{W,j} / T_W) \text{ where}$$

$T_{i,j}$ = 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 trade with country j in the total trade of country i to the share of country j's trade in total world trade. The index is normalized by dividing by the relative share of the country in total world trade so that mere size effects are 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, the more closely the two countries are interrelated by trade.

The rationale of using a trade intensity index to evaluate the existence of preconditions for the creation of an FTA is as follows: (i) an FTA is more likely to be created among countries which are "natural trading partners" to each other, because an 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 should be high); (iii) hence (from [i] and [ii]), if trade intensity indices are high among a group of countries, an FTA is more likely to be formed among these countries than otherwise when some political move is initiated.

Tables 14.6 and 14.7 depict the trade intensity indices among Asian countries and among EC countries, respectively. 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 European Community those indices exceed three only in three cases, i.e., United Kingdom–Ireland, Belgium-Luxembourg–Netherlands, and Italy-Greece; in East Asia they exceed three in nine cases, despite the fact that the number of countries in Asia (9) is smaller than that in the European Community (11). In particular, 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

Table 14.6 **Trade Intensity Indices among Asian Countries, 1990**

	United States	Japan	Hong Kong	Korea	Taiwan	Brunei	Indonesia	Malaysia	Philippines	Singapore	Thailand
United States		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
Philippines	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* (Washington, D.C., 1991).

Table 14.7 **Trade Intensity Indices among EC Countries, 1990**

	United States	Japan	United Kingdom	Belgium-Luxembourg	Denmark	France	Germany	Italy	Netherlands	Greece	Ireland	Portugal	Spain
United States		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
United Kingdom	0.91	0.54		1.44	1.64	1.51	1.36	1.14	1.67	1.15	6.95	1.68	1.52
Belgium-Luxembourg	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
Netherlands	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* (Washington, D.C., 1991).

(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 changes in the trade intensity indices during the 1980s. Table 14.8, which is cited from Yamazawa et al. (1991), indicates changes in trade intensity indices of exports from 1980 to 1987. The entry in the *i*th row and *j*th column indicates exports from country *i* to country *j*. The index rose slightly from 1.598 to 1.711 among EC countries. Some of the indices among Asian nations increased, but some decreased. Therefore it is hard to say whether Asian 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 European Community, we could not necessarily detect a distinct increasing trend. This seems to reflect the fact that, while in the European Community several programs aimed toward market integration were realized during the 1980s, in Asia the push toward an FTA became active only recently. In light of recent political developments toward an FTA mentioned in the introduction, intraregional trade intensity can be expected to increase in Asia in the 1990s, as it did in Europe in the 1980s.

Table 14.6 appears to indicate that 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. This misleading impression comes from the nature of the trade intensity index, which captures the degree of closeness in terms of trade only *relative* to the size of a country's trading partner. It does not capture the absolute degree of a country's dependence on trade with a particular partner. For example, if a small Asian nation has a low trade intensity index with the United States, this may just imply that the share of trade with the small 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 one nation's dependence on trade with another.

Table 14.9 summarizes our attempt to provide such an index. It tabulates the amount of exports and imports of a country with a particular trading partner as a percentage of the country's 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 a *trade dependence index,* because it shows the degree to which a country depends on trade with a specific partner, or the degree to which a country would be jeopardized by a trade embargo (export or import) by a particular trading partner.

Table 14.9 reveals that East Asian nations depend heavily on trade with the United States and with Japan. Therefore, it would be infeasible as well as un-

Table 14.8 **Matrix of Trade Intensity Indices, 1980 and 1987**

		Importer								
Exporter		Japan	United States	Malaysia	Philippines	Singapore	Thailand	Korea	Taiwan	Hong Kong	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
United States	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).

Table 14.9 **Trade Dependence Indices: Ratio of the Amount of Trade (export plus import) to GNP, 1990 (%)**

	Partner				
Country	NIEs[a]	ASEAN[b]	United States	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[c]	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
United States	1.91	0.86 (0.33)	—	2.61	16.98
Japan	2.81	1.64 (0.49)	4.90	—	17.79

[a]Singapore is included in both NIEs and ASEAN.

[b]Singapore figure is shown in parentheses.

[c]Figures for 1989.

profitable for East Asian nations to form an 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 an 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 nontariff barriers (NTBs). Figure 14.1 compares trade-weighted average most-favored-nation (MFN) tariffs of six Asian nations 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 in Japan and the United States. In particular, those in Indonesia and the Philippines are high at around 20 percent, while those in Japan and the United States are less than 4 percent. Thus, as is the case in most developing countries, the degree of tariff protection in East Asia is fairly high.

Table 14.10 summarizes the (simple) average of tariff rates by commodities in East Asia. Note that the numbers in figure 14.1 are *trade-weighted* average

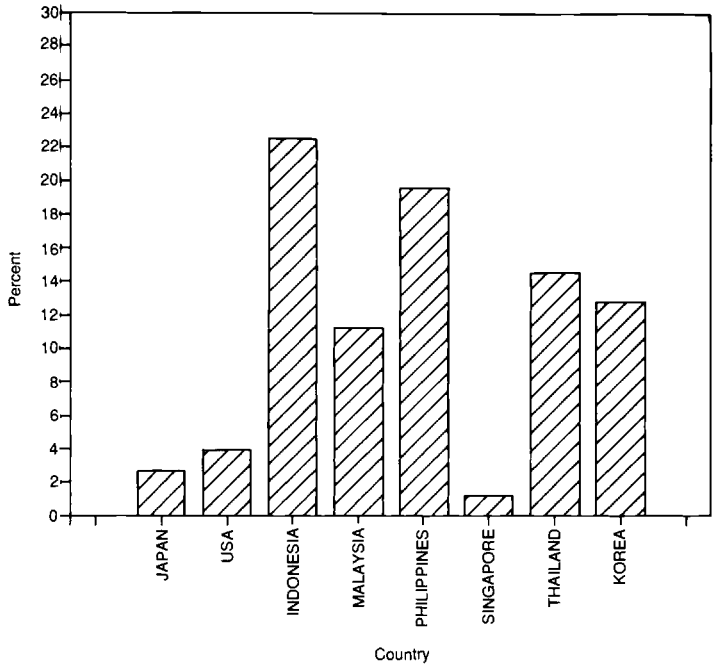

Fig. 14.1 Trade-weighted average most-favored-nation (MFN) tariff

Table 14.10 Average Tariff Rate by Broad Tariff Categories

Category	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 goods	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: Naya and Plummer, (1989).

tariff rates, which cannot be directly compared with those in table 14.10. Table 14.10 shows that the tariff rate increases according to the degree of processing: consumer goods have the highest tariff rate, and primary goods the lowest. It should be noted that in Indonesia and Malaysia the average tariff rates for consumer goods are as high as 60 percent.

In addition to tariffs, import-competing industries in East Asian countries are heavily protected by NTBs, such as quotas, restrictive licensing, and import prohibition. Table 14.11, 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 comparison with countries in other regions. However, table 14.11 shows that quite a few products are restricted by NTBs in these countries. In particular, the number of NTBs in Indonesia (799) and the Philippines (497) is remarkable. As is the case for tariff protection, NTBs seem to rise along with the degree of processing. In all countries listed in table 14.11, the number of NTBs on manufactures is substantially larger than that on primary goods.

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

14.4 Conditions for a Currency Union

Are the Asian nations or some subset of them an appropriate 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 is 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 exchange-rate regime choice (e.g., Helpman and Razin 1979; Lucas 1982). However, if there

Table 14.11 **ASEAN Nontariff Barriers (in numbers of six-digit CCCN products affected)**

Category	Brunei	Indonesia (1980)	Malaysia (1981)	Philippines (1983)	Singapore (1983)	Thailand (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).

is price rigidity or transaction costs, regions that have different real exogenous shocks should be within 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 immediately adjust 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 Poole's (1970) familiar argument for the choice of targets for stabilization in the IS-LM model can be extended to the discussion of optimal interventions in the exchange market.

In a two-country model positing 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, Poole's results hold: worldwide demand shocks on IS can be more effectively handled by controlling the average money supply of the world as in McKinnon's proposal for controlling the total money supply of the world. Worldwide 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 order 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 re-

garded as regionwide 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 presence of autonomy in macroeconomic policy. By forming a currency union these countries indirectly align their price levels with 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 promote 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 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 disturbances are prevalent. The reader will see that this is a rather straightforward extension of 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 method. We will show that the degree of confluence in real disturbances is quite high among Asian nations. A brief explanation of our method follows:

With regard to real disturbances, we concentrate on disturbances of 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:

$$\ln I_t^i = \alpha_0^i + \alpha_1^i \ln r_{t-1}^i + \alpha_2^i \ln Y_{t-1}^i + \alpha_3^i T + \varepsilon_t^i, \text{ where} \tag{2}$$

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, and
ε_t^i = error term.

Since data for interest rates in Hong Kong were unavailable, we ran ordinary least squares (OLS) regressions on annual data (1978–90) from the remaining seven Asian countries: 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.

For monetary disturbances, we estimated the following money demand function:

(3) $\ln M_t^i = \beta_0^i + \beta_1^i \ln r_t^i + \beta_2^i \ln Y_t^i + \beta_3^i T + \eta_t^i$, where

M_t^i = real money supply (M_1) in country i at time t and
η_t^i = error term,

and the remaining notations are the same as those in equation (2). We again ran OLS regressions on annual data (1977–89) from the seven countries mentioned above. 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 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 14.2 above) and for the Summit countries (the United States, Japan, Germany, France, Italy the United Kingdom, and Canada).

Table 14.12 shows the contribution of the first three principal components to explaining 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 the total variance in other groups. In particular, in the larger EC countries it explains only one-quarter. This shows that investment equations in Asian economies are subject to disturbances that are more synchronized than in other regions.

For monetary shocks, on the other hand, there does not seem to exist a significant difference in the accounting power of the first principal component. The theoretical analysis of Fukuda and Hamada (1988) concludes that 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 and that they are at least as good as the reasons for forming one

Table 14.12 **Principal Components (P.C.) Analysis of Macroeconomic Disturbances (cumulative R^2)**

Disturbance	Asia[a]	Larger EC[b]	Smaller EC[c]	Summit[d]
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.

[a]Korea, Taiwan, Singapore, Indonesia, Malaysia, Philippines, and Thailand.

[b]Germany, France, Italy, United Kingdom, Spain, Netherlands, and Belgium.

[c]Luxembourg, Ireland, Portugal, Greece, Denmark, Belgium, and Netherlands.

[d]United States, Japan, Germany, France, Italy, United Kingdom, and Canada.

in Europe. The negative correlations between U.S. and Japanese real disturbances and the first principal component in table 14.13 suggest that linking a common East Asian currency to the U.S. dollar and the yen may not be necessary.

We add the following heuristic remarks on loading factors of principal components of these residuals (see table 14.13):

1. IS residuals: The first factor may be interpreted as the average part of the macroeconomic time series. Every East Asian nation except Korea contributes to this factor. This seems to indicate that Korea was subject to different kinds of real shocks during this period. (As far as the numbers tell, this might give some economic rationale for creating 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 factor is associated with the Philippines and Indonesia. The third principal component is dominated by the influence of Korea.

2. LM residuals: Loading factors of the first principal component of LM

Table 14.13 **Loading Factors of Each Principal Component**

	Principal component		
Disturbance and Country	1	2	3
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)[a]	−0.548	−0.137	−0.146
(Japan)[a]	−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)[a]	0.042	−0.468	0.262
(Japan)[a]	0.370	−0.186	−0.464

Source: See main text for details.

[a]Correlation coefficients with real and monetary disturbances for the United States and Japan are given for reference.

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 14.9 indicates that some Asian countries have an extremely high degree of openness. This implies that, for example, to make Hong Kong, Singapore, and Malaysia each a single currency union with a floating rate may not be an appropriate choice of monetary regime. Incidentally, the corresponding figures for EC countries range from very open countries (Ireland, 141.9 percent; Belgium-Luxembourg, 141.4 percent; and the Netherlands, 106.6 percent) to fairly closed countries (Spain, 29.3 percent; Italy, 37.1 percent; and France, 38.3 percent).

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 production factors 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 the more industrialized and capital-abundant NIEs. Table 14.14 shows the degree of labor inflow in selected countries. In Singapore, one of the largest labor recipient countries in East Asia, the level of inflow of foreign workers was 128,000, and the share of foreign labor in the total labor force was about 10 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: Malaysia, Indonesia, the Philippines, and Thailand. In 1989, the share of workers coming from these four countries in the total labor inflow into Singapore was as high as 83.1 percent.

To some East Asian countries, the outflow of labor to foreign countries is also important. For example, in 1987, the Philippines sent about 400,000 workers to foreign countries, according to the official statistics which generally underestimate the degree of labor mobility. The outflow of labor amounted to about 2 percent of the total labor force in the Philippines. While most of these workers were directed to the Middle East, about 100,000 (or one-fourth of the labor outflow) went to Asian countries.

The degree of capital mobility is also high among East Asian countries. Table 14.15 compares the ratio of the inflow of foreign direct investment (FDI) to GNP in ASEAN countries with ratios for major developed countries. Except for the Philippines, which has been suffering from economic difficulties since the middle of the 1980s, the ratio of FDI inflow to GNP is higher in the

Table 14.14 **Share of Foreign Workers in Labor Force, 1986**

	Number (thousands)	Share (%)
Singapore[a]	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

Sources: Goto (1990); Japanese Ministry of Labor, *Kaigai Rodo Josei (Annual Report of Overseas Economy),* 1991.

[a]For Singapore, figure used is for 1989.

Table 14.15 **Ratio of Inflow of Foreign Direct Investment to GNP, 1989[a] (%)**

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

Sources: Asian Development Bank, *Asian Development Outlook,* 1991; U.S. Department of Commerce, *Survey of Current Business* (Washington, D.C., various issues); IMF, *International Financial Statistics* (Washington, D.C., various issues).

[a]For developed countries, data used is for 1988.

ASEAN countries than in major developed countries. The figures for Malaysia (8.97 percent) and Thailand (11.73 percent) are especially high. Furthermore, it should be noted that the major part of FDI inflow to 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 41.7 (16.3) percent, 72.9 (31.1) percent, 59.8 (19.7) percent, and 69.2 (44.1) percent, respectively.

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 common currency area in East Asia.

14.5 Concluding Remarks

We have offered an overview of the conditions that are favorable or unfavorable for the formation of an FTA 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 an FTA 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 an FTA that would hinder trade with the United States or Japan, as Asian nations are highly dependent upon these two countries. One of the reasons the Mahathir plan to create an FTA without the participation of the United States was brought to a deadlock could be the high degree of Asian economic dependence 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 the common currency should be linked to a major currency such as the dollar or the yen.

We can extend the present research in various directions. For example, we may ask what the consequences of the European integration will be for the Asian economy, and what the consequences of Asian economic integration would be for the rest of the world. We may also 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 conditions in Asia are at least as favorable to economic integration as those in already-unifying Europe.

During its notorious formation of the Greater East Asia Co-prosperity sphere that ended in the Second World War, Japan attempted to implement a scheme of mobilizing goods and resources within the region. At the same time, it attempted to create a yen bloc in East Asia in two ways. In one form, Japan issued military scrip—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 from Asian nations of the seigniorage right. In the other form, Japan created central banks—for example, in Manchuria and North and South China—that issued

Table 14.16 **Money Supply and Price Indices of Territories Occupied by Japan during World War II**

	Money Supply (million)						
	Central Bank Note			Military Scrip			
Year and Month	Manchuria (yuan)	North China (yuan)	South China (yuan)	Singapore (dollar)	Philippines (peso)	Indonesia (guilder)	Burma (lupee)
1941.12	1,262	956	280				
1942.12	1,669	1,593	3,696				
1943.9	2,121	2,552	11,798	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	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
1943.12	122	267	671	1,201	1,196	227	1,718
1944.12	162	892	5,707	10,766	14,285	1,279	8,707
1945.8	—	17,273	7,189	35,000	14,285	3,197	185,647

Source: Nakamura (1989, 31).

regional currencies that were pegged at par with the yen. Through the monetary expansion by these central banks, these regions suffered tremendous inflation. Japanese war merchants exporting goods to these areas earned profits from the inflation, and by their privilege they could convert their regional profits into the yen at par. Table 14.16 illustrates this.

This clearly tells us that there is a great distance between designating one region 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 will be merely a modest, preliminary step to these goals, if a currency union is ever to be contrived in Asia.

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Comment

Masao Satake

Goto and Hamada's paper provides not only a useful empirical fact but also a stimulating discussion of economic integration for East Asia. The economic feasibility of integration for this region urgently requires analysis, so this paper can be regarded as one of the early and important contributions in this field.

The authors' main findings can be summarized as follows: First, East Asian countries are very closely interrelated, in some respects more closely than are the EC countries; second, in terms of macroeconomic variables, East Asian countries have similar economic structures, in some cases more similar than

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those of EC countries. From these observations the authors hypothesize that the preconditions for Asian economic integration are met.

Two types of integration are considered in this paper: the creation of a free trade area (FTA) and of an optimum currency area. My comment concerns only the problems involved in the FTA idea for this region because my comparative advantage lies there.

The authors make three remarks based on the analysis of trade intensity in tables 14.6–14.8 in section 14.3. First, East Asian nations are more closely related than EC nations. This is obtained from tables 14.6 and 14.7, where the trade intensity indices among the East Asian countries are higher on average than that in the European Community. Second, it is not clear from table 14.8 whether the degree of interdependence among East Asian nations has increased throughout the 1980s. Third, it is expected that the interrelationship in this area will become stronger in the 1990s because of political developments toward an FTA.

The first claim, as the authors note, contrasts with the assertion by Frankel and Wei's paper in this volume (chap. 12). According to table 12.12 in the paper by Frankel and Wei, the ratio of intraregional trade to total trade among East Asian nations is much lower than that among EC nations. And even the rise in the 1980s from 33 to 37 percent is due only to economic expansion, rather than to real integration. How do we explain these different results, and which region can we say is more closely intrarelated? There are some obvious differences in the two indexes.

In particular, the trade intensity index presents a bilateral relationship, while the intraregional trade to total trade ratio is obtained from aggregate data of trade in the region. However, it must be noted that, besides this difference, the nature of trade intensity tends to make each East Asian country's index higher than that in the European Community. The denominator of the trade intensity index T_j/T_w is country j's share of world trade. This denominator may be lower in East Asia than in the European Community, because the value of trade in the former may be smaller than in the latter. Unless the numerator T_{ij}/T_j differs significantly between the two regions, trade intensity is likely to be higher among the East Asian countries. Considering the nature of trade intensity, we must be careful when using it to compare the degree of interrelationship among regions or countries of different regions.

As for the future of intraregional trade among East Asian countries, I have a different view from the authors. We can see from table 12.12 in the paper by Frankel and Wei that in the 1980s East Asia's interregional trade with the European Community and North America expanded faster than intraregional trade. I think that this diversification of trading partners will continue because of the rapid industrialization of East Asia, unless the other two regions—the European Community and North America—become "a strong fortress."

In the latter part of section 14.3, Goto and Hamada show that the rate of protection of ASEAN countries is quite high. And so the formation of an FTA

will be an enormous boon to this region. I agree with this point, but an FTA is not the only policy option for trade liberalization. It is important to compare it with the nondiscriminatory form of liberalization. If it is true that this region is very closely intrarelated, liberalization on a nondiscriminatory basis will not increase imports from outside, and therefore it may be a better policy alternative than an FTA (Drysdale and Garnaut 1989, 230–31).

My last comment relates to the question of whether the FTA proposal includes the United States and Japan. I agree with the authors' assertion that it would be infeasible as well as unprofitable for East Asian nations to form an FTA without the United States and Japan. But can an expanded region that includes the United States and Japan still keep the close relationships, as well as the homogeneity in terms of macroeconomic variables, analyzed in the first part of the paper?

In conclusion, it may be true that the East Asian countries are very closely interrelated, like those of the European Community. But I think that this does not necessarily lead to an economic justification of an East Asian free trade area.

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Comment Toshiaki Tachibanaki

Goto and Hamada's paper is interesting and useful because it reveals the possibility of Asian regional integration in economic activities. The basic reason for proposing such an integration is that the degree of interdependence among Asian nations is high, and even higher in some respects than among EC countries. I would like to offer two major comments and several minor comments. The two major comments are as follows.

First, I find that Goto and Hamada's empirical work is not convincing enough to conclude that the degree of interdependence among Asian nations is high. I am concerned with the definition of the East Asian countries. Goto and Hamada consider only Hong Kong, South Korea, Taiwan, Singapore, Indonesia, Malaysia, the Philippines, and Thailand. Those countries are chosen, according to the authors' statement, because data reliability in those countries is high. We see many Asian countries missing—for example, mainland China,

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North Korea, Mongolia, Vietnam, Cambodia, Laos, Brunei, and some others—in all, about ten countries. Some countries are socialist, others are developing countries. However, there are no strong reasons for excluding these countries from their statistical examination.

This causes a sample selection bias. It may be possible to show that the authors chose the countries which already have a high degree of interdependence. In other words, the countries where reasonably reliable data are available are already semideveloped and are already interdependent. If all countries in East Asia were included in the sample, the degree of interdependence might not be so high. In fact, Jeffrey Frankel's (1991) paper suggested a low degree of interdependence, as mentioned by Goto and Hamada. Therefore, the choice of countries is crucial for the examination of interdependence in any region.

The second major comment concerns the role of Japan in Asian regional integration. Japan might be relatively too strong, if Asia were integrated economically. My guess is that if one country in any regional integration is too strong, the integration will not work very well. We can see an example in the role of the United States in the Central, and possibly South, American regions, where regional integration does not work well. Even in Europe, where economic integration is anticipated, several smaller countries such as Denmark are somewhat reluctant to integrate and may prefer independence rather than regional integration for fear of the power of big countries.

Another reason Asian regional integration, embracing Japan, is not desirable at this stage is that the memory of the Second World War has not yet disappeared in Asia, in particular the memory of Japanese military aggression. This memory will fade when the generation changes, though it is impossible to expect it to disappear entirely. Now, however, it is too early to argue for Asian regional integration. Japan may also be unwelcome in Asia because of its current status of economic superpower. In sum, we need more careful discussion about Asian regional integration if Japan is to be included.

I add several minor comments. First, the authors chose five key macroeconomic variables to conduct the principal component analysis. I would prefer more detail about the reasons these five variables were chosen. Second, in section 14.4 there is a proposition that factor mobility in labor and capital in Asia is high. However, only Singapore is picked up as an example of labor mobility. The degree of factor mobility must be evaluated by considering many countries in Asia.

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