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2 Is Japan Creating a Yen Bloc in East Asia and the Pacific?

Jeffrey A. Frankel

2.1 Introduction

A debate got under way in 1991 over the advantages and disadvantages of a global trend toward three economic blocs—the Western Hemisphere, centered on the United States; Europe, centered on the European Community (EC); and East Asia, centered on Japan. Krugman (1991a), Bhagwati (1990, 1992), and Bergsten (1991) argue that the trend is, on balance, bad. Krugman (1991b) and Lawrence (1991b) argue that it is, on balance, good.[1] Most appear to agree, however, that a trend toward three blocs is indeed under way.

There is no standard definition of an "economic bloc." A useful definition might be a group of countries that are concentrating their trade and financial relationships with one another, in preference to the rest of the world. One might wish to add to the definition the criterion that this concentration is the outcome of government policy, or at least of factors that are noneconomic in origin, such as a common language or culture. In two out of the three parts of the world, there have clearly been recent deliberate political steps toward economic integration. In Europe, the previously lethargic European Economic Com-

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1. Those who fear the blocs do so because they think they will tend to be protectionist. Froot and Yoffie (1991; chap. 4 in this volume) pursue this logic, and point out some implications of foreign direct investment. Krugman (1991b) argues in favor of the three blocs on the grounds that they are "natural," in a sense explained below. Lawrence's (1991b) argument in favor of blocs is that they can politically cement proliberalization sentiment in individual countries.

munity has burst forth with the programs of the Single Market, European Monetary Union, and more. In the Western Hemisphere, we have the Caribbean Basin Initiative and (more seriously) the Canadian-U.S. Free Trade Agreement, followed by the North America Free Trade Agreement and Enterprise for the Americas Initiative.[2]

In East Asia, by contrast, overt preferential trading arrangements or other political moves to promote regional economic integration are lacking, as has been noted by others (e.g., Petri 1992). The Association of Southeast Asian Nations (ASEAN), to be sure, is taking steps in the direction of turning what used to be a regional security group into a free trade area of sorts. But when Americans worry, as they are wont to do, about a trading bloc forming in Asia, it is generally not ASEAN that concerns them. Rather it is the possibility of an East Asia– or Pacific-wide bloc dominated by Japan.

Japan is unusual among major countries in *not* having preferential trading arrangements with smaller neighboring countries. But the hypothesis that has been put forward is that Japan is forming an economic bloc in the same way that it runs its economy: by means of policies that are implicit, indirect, and invisible. Specifically, the hypothesis is that Japan operates, by means of such instruments as flows of aid, foreign direct investment, and other forms of finance, to influence its neighbors' trade toward itself.[3] This is a hypothesis that should not be accepted uncritically, but needs to be examined empirically.

After examining some of the relevant statistics, this paper argues that the evidence of an evolving East Asian trade bloc centered on Japan is not as clear as many believe. Trade between Japan and other Asian countries increased substantially in the late 1980s. But *intraregional trade bias did not increase,* as it did, for example, within the EC. The phrase *yen bloc* could be interpreted as referring to the financial and monetary aspects implicit in the words, rather than to trade flows. The second half of this paper does find a bit of evidence of Japanese influence in the Pacific via financial and monetary channels, rather than via trade flows. But it does not find evidence that the country has taken deliberate steps to establish a yen bloc.

2.2 Is a Trade Bloc Forming in Pacific Asia?

We must begin by acknowledging the obvious: the greatly increased economic weight of East Asian countries in the world. The rapid outward-oriented growth of Japan, followed by the four East Asian newly industrialized countries (NICs) and more recently by some of the other ASEAN countries, is one of the most remarkable and widely remarked trends in the world economy over the last three decades. But when one asks whether a yen bloc is forming in

2. Reviews of recent developments in regional trading arrangements are offered by Fieleke (1992) and de la Torre and Kelly (1992).

3. For one of many examples, see Dornbusch (1989).

Table 2.1 Summary Measures of Intraregional Trade Biases

		East Asia	Western Hemisphere	European Community
Intraregional trade/ total trade[a]	1980	.23	.27	.42
	1985	.26	.31	.42
	1990	.29	.29	.47
Intraregional bias, holding constant for size of trade[b]	1980	.91	.79	.72
	1985	.84	.78	.79
	1990	.93	.85	.80
Bias, holding constant for GNP, population, distance, etc.[c]	1980	.70	.53	.23
	1985	.40	.34	.44
	1990	.60	.97	.46

[a]Computed from IMF *Direction of Trade* data.

[b]Computed as the ratio of (intraregional trade/total trade) to shares of world trade, as described in text.

[c]Gravity regressions, reported in tables 2.2–2.4. They include significant coefficients on the APEC bloc, among other variables.

East Asia, one is presumably asking something more than whether the economies are getting larger, or even whether economic flows among them are increasing. One must ask whether the share of intraregional trade is higher, or increasing more rapidly, than would be predicted based on such factors as the GNP or growth rates of the countries involved.

2.2.1 Adjusting Intraregional Trade for Growth

Table 2.1 reports three alternative ways of computing intraregional trade bias. The first part of the table is based on a simple breakdown of trade (exports plus imports) undertaken by countries in East Asia into trade with other members of the same regional grouping, versus trade with other parts of the world.[4] For comparison, the analogous statistics are reported for Western Europe (the EC Twelve) and for North America (the United States, Canada, and Mexico).

The share of intraregional trade in East Asia increased from 23 percent in 1980 to 29 percent in 1990. Pronouncements that a clubbish trading bloc is forming in the region are usually based on figures such as these. But the numbers are deceptive.

All three regions show increasing intragroup trade in the 1980s. The region that has both the highest and the fastest-increasing degree of intraregional trade is not Asia but the EC, reaching 47 percent in 1990.

Quite aside from the comparison with Europe, it is easy to be misled by intraregional trade shares such as those reported in the first three rows of table

4. Similar statistics are presented in more detail in table 1 in Frankel (1991a).

2.1. If one allows for the phenomenon that most of the East Asian countries in the 1980s experienced rapid growth in *total* output and trade, then it is possible that there has in fact been no movement toward intraregional bias in the evolving pattern of trade. The increase in the intraregional share of trade that is observed in table 2.1 could be entirely due to the increase in economic size of the countries. To take the simplest case, imagine that there were no intraregional bias in 1980, that each East Asian country conducted trade with other East Asian countries in the same proportion as the latter's weight in world trade (25 percent). Total trade undertaken by Asian countries increased rapidly over this ten-year period, while total trade worldwide increased less rapidly. Even if there continued to be no regional bias in 1990, the observed intraregional share of trade would have increased by one-third (to 31 percent) due solely to the greater weight of Asian countries in the world economy.

Consider now the more realistic case where, due to transportation costs if nothing else, countries within each of the three groupings undertake trade that is somewhat biased toward trading partners within their own group (East Asia, North America, and the EC). Although East Asian trade with other parts of the world increased rapidly, trade with other Asian countries increased even more rapidly. Does this mean that the degree of clubbishness or within-region bias intensified over this period? No, it does not. *Even if there was no increase at all in the bias toward intra-Asian trade,* the more rapid growth of total trade and output experienced by Asian countries would show up as a rate of growth of intra-Asian trade that was faster than the rate of growth of Asian trade with the rest of the world.

Think of each East Asian country in 1980 as conducting trade with other East Asian firms in the same proportion as their weight in world trade (25 percent) *multiplied* by a regional bias term to explain the actual share reported in table 2.1 (23 percent). Then the regional bias term would have to be 0.91 (.23/.25). An unchanged regional bias term multiplied by the East Asians' 1990 weight in world trade would predict that the 1990 intraregional share of trade would be 28 percent ($.91 \times .31 = .28$). This calculation turns out to explain almost all of the increase in the actual intraregional share (to .29). Thus even with this very simple method of adjustment, the East Asian bias toward within-region trade did not rise much in the 1980s. The implicit intraregional bias rose only from 0.91 to 0.93 (.29/.31), as shown in the middle rows of table 2.1.[5]

2.2.2 A Test on Bilateral Trade Flows

The analysis should be elaborated by use of a systematic framework for measuring what patterns of bilateral trade are normal around the world: the so-

5. Petri (1991) calls this measure the "double-relative," while Drysdale and Garnaut (1992) and Anderson and Norheim (1992) use similar calculations of "intensity-of-trade indexes." All find that, once one holds constant for growth in this simple way, the existing intraregional bias in Asia did not increase in the 1980s.

called gravity model.[6] A dummy variable can then be added to represent when both countries in a given pair belong to the same regional grouping, and one can check whether the level and time trend in the East Asia–Pacific grouping exceeds that in other groupings. We do not currently have measures of historical, political, cultural, and linguistic ties. Thus it will be possible to interpret the dummy variables as reflecting these factors, rather than necessarily as reflecting discriminatory trade policies. Perhaps we should not regret the merging of these different factors in one term, because as noted there are in any case no overt preferential trading arrangements on which theories of a Japanese trading bloc could rely.[7]

The dependent variable is trade (exports plus imports), in log form, between pairs of countries in a given year. I have sixty-three countries in my data set, so that there are 1,953 data points ($63 \times 62/2$) for a given year. There are some missing values (245 of them in 1985, for example), normally due to levels of trade too small to be recorded.[8] The possibility that the exclusion of these data points might bias the results, or that the results might be subject to heteroscedasticity because country size varies so much, is considered in Frankel and Wei (1992a). The results appear to be robust with respect to these problems.

One would expect the two most important factors in explaining bilateral trade flows to be the geographical distance between the two countries and their economic size. These factors are the essence of the gravity model, by analogy with the law of gravitational attraction between masses. A large part of the apparent bias toward intraregional trade is certainly due to simple geographical proximity. Indeed, Krugman (1991b) suggests that most of it may be due to proximity, so that the three trading blocs are welfare-improving "natural" groupings (as distinct from "unnatural" trading arrangements between distant trading partners such as the United States and Israel). Although the importance of distance and transportation costs is clear, there is not a lot of theoretical guidance on precisely how they should enter. I experiment a bit with functional forms. I also add a dummy *ADJACENT* variable to indicate when two countries share a common border.

The basic equation to be estimated is

$$\log(T_{ij}) = \alpha + \beta_1 \log(GNP_i GNP_j) + \beta_2 \log(GNP/pop_i GNP/pop_j) + \beta_3 \log(DISTANCE) + \beta_4 (ADJACENT) + \gamma_1 (EC_{ij}) + \gamma_2 (WH_{ij}) + \gamma_3 (EA_{ij}) + u_{ij}.$$

The last four explanatory factors are dummy variables. The goal, again, is to see how much of the high level of trade within the East Asian region can be

6. See Deardorff (1984, 503–4) for a survey of the (short) subject of gravity equations. Wang and Winters (1991) and Hamilton and Winters (1992) have recently applied the gravity model to the question of potential Eastern European trade patterns.

7. Krugman (1991b) made a crude first pass at applying the gravity model to the question of whether Europe and North America are separate trading blocs, but did not get as far as including other countries or including a variable for distance.

8. The list of countries and regional groupings appears in the appendix.

explained by simple economic factors common to bilateral trade throughout the world, and how much is left over to be attributed to a special regional effect.[9]

The practice of entering GNPs in product form is empirically well-established in bilateral trade regressions. It can be easily justified by the modern theory of trade under imperfect competition.[10] In addition there is reason to believe that GNP per capita has a positive effect, for a given size: as countries become more developed, they tend to specialize more and to trade more. It is also possible that the infrastructure necessary to conduct trade—ports, airports, and so forth—becomes better developed with the level of GNP per capita.

The results are reported in tables 2.2–2.4. I found all three variables to be highly significant statistically (>99 percent level). The coefficient on the log of distance was about −0.56, when the adjacency variable (which is also highly significant statistically) is included at the same time. This means that when the distance between two nonadjacent countries is higher by 1 percent, the trade between them falls by about 0.56 percent.[11]

I tested for possible nonlinearity in the log-distance term, as it could conceivably be the cause of any apparent bias toward intraregional trade that is left after controlling linearly for distance. Quadratic and cubic terms turned out to be not at all significant. An alternative specification that fits at least as well as the log is to include the level of distance and its square. The significant positive coefficient on the latter confirms the property of the log that "trade resistance" increases less than linearly with distance. The results for the other coefficients are little affected by the choice of functional form for proximity. I report here only results using the log of distance.

The estimated coefficient on GNP per capita is about 0.29 as of 1980, indicating that richer countries do indeed trade more, though this term declines during the 1980s, reaching 0.08 in 1990. The estimated coefficient for the log of the product of the two countries' GNPs is about 0.75, indicating that, though trade increases with size, it increases less than proportionately (holding GNP per capita constant). This presumably reflects the widely known pattern that small economies tend to be more open to international trade than larger, more diversified economies.

If there were nothing to the notion of trading blocs, then these basic vari-

9. Bilateral distances were computed between the main cities reported in the appendix.

10. The specification implies that trade between two equal-sized countries (say, of size .5) will be greater than trade between a large and a small country (say, of size .9 and .1). This property of models with imperfect competition is not a property of the classical Heckscher-Ohlin theory of comparative advantage (Helpman 1987; Helpman and Krugman 1985, sec. 1.5). Foundations for the gravity model are also offered by Anderson (1979) and other papers surveyed by Deardorff (1984, 503–6).

11. The coefficient on the log of distance is about 0.8 when the adjacency variable is not included.

Table 2.2 **Gravity Model of Bilateral Trade, 1980**

C	GNPs	Per Capita GNPs	Distance	Adjacent	EC	Western Hemisphere	ASEAN	EAEC	Asian Pacific	APEC	Pacific Rim	$R^2/\bar{R}^2$	SEE[a]
−11.36**	.763**	.268**	−.597**	.649**	0.092	0.449**	2.308**					.68/.68	1.26
(.56)	(.018)	(.021)	(.041)	(.185)	(.186)	(.157)	(.408)						
−12.05**	.759**	.283**	−.538**	.775**	0.193	0.498**		2.363**				.70/.70	1.23
(.55)	(.017)	(.020)	(.041)	(.180)	(.181)	(.153)		(.212)					
−12.05**	.759**	.283**	−.538**	.772**	0.193	0.499**	0.081	2.341**				.70/.70	1.23
(.55)	(.017)	(.020)	(.041)	(.181)	(.181)	(.153)	(.462)	(.247)					
−11.97**	.753**	.287**	−.543**	.764**	0.214	.527**			2.066*			.71/.71	1.21
(.54)	(.017)	(.020)	(.040)	(.178)	(.179)	(.151)			(.158)				
−12.13**	.753**	.290**	−.532**	.770**	0.227	0.535**	0.087	0.730*	1.650**			.71/.71	1.21
(.55)	(.017)	(.020)	(.040)	(.179)	(.179)	(.151)	(.455)	(.332)	(.232)				
−11.09**	.733**	.281**	−.586**	.694**	0.207	0.503**				1.863**		.71/.71	1.21
(.53)	(.017)	(.020)	(.039)	(.177)	(.178)	(.150)				0.133			
−11.58**	.739**	.287**	−.557**	.724**	0.234	0.526**	0.062	0.704*	0.355	1.319**		.71/.71	1.20
(.55)	(.017)	(.020)	(.040)	(.177)	(.178)	(.150)	(.451)	(.330)	(.335)	(.248)			
−10.83**	.762**	.259**	−.638**	.701**	0.033	0.268					0.018	.68/.68	1.27
(.56)	(.018)	(.021)	(.021)	(.187)	(.184)	(.188)					(.014)		
−11.55**	.739**	.288**	−.563**	.716**	0.227	0.474**	0.062	0.699*	0.350	1.321**	0.0076		
(.55)	(.017)	(.020)	(.041)	(.178)	(.174)	(.178)	(.452)	(.330)	(.335)	(.248)	(.0129)	.71/.71	1.20

Notes: * and ** are significance at the 95 and 99 percent levels, respectively. Standard errors appear in parentheses. LHS variable (bilateral exports and imports) and first three RHS variables are in log form. All others are dummy variables.

[a]Standard error of estimate.

Table 2.3 **Gravity Model of Bilateral Trade, 1985**

C	GNPs	Per Capita GNPs	Distance	Adjacent	EC	Western Hemisphere	ASEAN	EAEC	Asian Pacific	APEC	Pacific Rim	$R^2/\bar{R}^2$	SEE[a]
−10.54**	.791**	.242**	−.729**	.708**	0.306††	0.276††	1.735**					.72/.72	1.21
(.53)	(.017)	(.020)	(.040)	(.184)	(.179)	(.162)	(.392)						
−10.92**	.784**	.248**	−.683**	.804**	0.397*	0.312*		1.841**				.73/.73	1.19
(.52)	(.017)	(.020)	(.040)	(.181)	(.176)	(.159)		(.205)					
−10.92**	.784**	.248**	−.683**	.806**	0.397*	0.311*	−0.046	1.854**				.73/.73	1.19
(.52)	(.017)	(.020)	(.040)	(.182)	(.176)	(.159)	(.448)	(.239)					
−10.85**	.778**	.251**	−.685**	.796**	0.424*	0.341*			1.697**			.73/.73	1.18
(.51)	(.017)	(.019)	(.039)	(.178)	(.174)	(.157)			(.153)				
−10.91**	.778**	.252**	−.679**	.802**	0.431*	0.343*	−0.045	0.414	1.474**			.73/.73	1.18
(.51)	(.017)	(.019)	(.039)	(.179)	(.174)	(.157)	(.442)	(.322)	(.225)				
−10.07**	.761**	.243**	−.720**	.739**	0.418**	0.323††				1.522**		.74/.74	1.17
(.51)	(.017)	(.019)	(.038)	(.178)	(.156)	(.173)				(.130)			
−10.42**	.765**	.247**	−.698**	.766**	0.439††	0.339*	−0.071	0.398	0.469	1.029**		.74/.74	1.17
(.52)	(.017)	(.019)	(.039)	(.179)	(.173)	(.156)	(.440)	(.321)	(.327)	(.244)			
−10.09**	.791**	.239**	−.778**	.731**	0.239	−0.024				0.041**		.72/.72	1.20
(.53)	(.017)	(.020)	(.041)	(.185)	(.179)	(.183)				(.013)			
−10.28**	.766**	.250**	−.723**	.738**	0.415*	0.142	−0.073	0.378	0.450	1.034**	0.030*	.74/.74	1.17
(.53)	(.017)	(.019)	(.040)	(.179)	(.173)	(.177)	(.439)	(.320)	(.327)	(.244)	(.013)		

Notes: ††, *, and ** denote significance at the 90, 95, and 99 percent levels, respectively. Standard errors appear in parentheses. LHS variable (bilateral exports and imports) and first three RHS variables are in log form. All others are dummy variables.

[a]Standard error of estimate.

Table 2.4 **Gravity Model of Bilateral Trade, 1990**

C	GNPs	Per Capita GNPs	Distance	Adjacent	EC	Western Hemisphere	ASEAN	EAEC	Asian Pacific	APEC	Pacific Rim	$R^2/\bar{R}^2$	SEE[a]
2.77**	.787**	.078**	−.589**	.732**	0.341*	0.934**	1.879**					.75/.75	1.11
(.36)	(.016)	(.017)	(.038)	(.166)	(.166)	(.148)	(.378)						
2.54**	.779**	.082**	−.559**	.794**	0.412*	0.957**		1.997**				.76/.76	1.09
(.35)	(.016)	(.017)	(.038)	(.162)	(.163)	(.145)		(.215)					
2.54**	.779**	.082**	−.559**	.797**	0.412*	0.955**	−0.109	2.032**				.76/.76	1.09
(.35)	(.016)	(.017)	(.038)	(.163)	(.163)	(.145)	(.450)	(.261)					
2.57**	.773**	.86**	−.561**	.790**	0.437**	0.983**			1.746**			.77/.77	1.08
(.35)	(.016)	(.016)	(.037)	(.160)	(.160)	(.143)			(.152)				
2.52**	.773**	.087**	−.555**	.794**	0.446**	0.986**	−0.107	0.612††	1.456**			.77/.77	1.08
(.35)	(.016)	(.016)	(.037)	(.160)	(.160)	(.143)	(.443)	(.331)	(.213)				
3.02**	.756**	.083**	−.597**	.730**	0.444**	0.948**				1.597**		.77/.77	1.07
(.34)	(.016)	(.016)	(.036)	(.158)	(.159)	(.141)				(.128)			
2.83**	.760**	.085**	−.579**	.750**	0.460**	0.967**	−0.144	0.604††	0.289	1.194**		.77/.77	1.07
(.35)	(.016)	(.016)	(.037)	(.159)	(.159)	(.142)	(.440)	(.328)	(.309)	(.231)			
3.04**	.788**	.073**	−.619**	.780**	0.296††	0.789**					0.015	.75/.74	1.12
(.37)	(.017)	(.017)	(.040)	(.167)	(.167)	(.170)					(.013)		
2.87**	.760**	.086**	−.584**	.743**	0.454**	0.925**	−0.143	0.600††	0.284	1.196**	6.39×10^{-3}	.77/.77	1.07
(.38)	(.016)	(.016)	(.038)	(.160)	(.159)	(.163)	(.440)	(.328)	(.309)	(.231)	(.012)		

Notes: ††, *, and ** denote significance at the 90, 95, and 99 percent levels, respectively. Standard errors appear in parentheses. LHS variable (bilateral exports and imports) and first three RHS variables are in log form. All others are dummy variables.

[a]Standard error of estimate.

ables would soak up most of the explanatory power. There would be little left to attribute to a dummy variable representing whether two trading partners are both located in the same region. In this case the level and trend in intraregional trade would be due solely to the proximity of the countries and to their rapid rate of overall economic growth. But I found that dummy variables for intraregional trade *are* statistically significant, both in East Asia and elsewhere in the world. If two countries are both located in the Western Hemisphere, for example, they will trade with each other by an estimated 70 percent more than they would otherwise, even after taking into account distance and the other gravity variables (exp(.53) = 1.70). Intraregional trade goes beyond what can be explained by proximity.

The empirical equation is as yet too far removed from theoretical foundations to allow conclusions to be drawn regarding economic welfare. But it is possible that the amount of intraregional bias explained by proximity, as compared to explicit or implicit regional trading arrangements, is small enough in my results that those arrangements are welfare-reducing. This could be the case if trade diversion outweighs trade creation. Inspired by Krugman's (1991a, 1991b) "natural trading bloc" terminology, we might then refer to the observed intraregional trade bias as evidence of "super-natural" trading blocs. The issue merits future research.

When the boundaries of the Asian bloc are drawn along the lines of those suggested by Malaysian prime minister Mahathir in his proposed East Asian Economic Caucus (EAEC), which excludes Australia and New Zealand (in the second row of tables 2.2–2.4), the coefficient on the Asian bloc appears to be the strongest and most significant of any in the world. Even when the boundaries are drawn in this way, however, there is no evidence of an *increase* in the intraregional bias of Asian trade during the 1980s: the estimated coefficient actually decreases somewhat from 1980 to 1990. Thus the gravity results corroborate the back-of-the-envelope calculation reported in the preceding section. The precise pattern is a decrease in the first half of the decade, followed by a very slight increase in the second half, matching the results of Petri (1991).[12] None of these changes over time is statistically significant.

It is perhaps surprising that the estimated *level* of the intraregional trade bias was higher in East Asia as of 1980 than in the other two regions. One possible explanation is that there has historically been a sort of trading culture in Asia. To the extent that such a culture exists and can be identified with a particular nation or ethnic group, I find the overseas Chinese to be a more plausible factor than the Japanese. But there are other possible regional effects that may be showing up spuriously as an East Asian bloc, to be considered below.

Of the three trading blocs, the EC and the Western Hemisphere are the two that show rapid intensification in the course of the 1980s. Both show an ap-

12. Petri infers, from the data on intraregional trade shares, a decrease in East Asian interdependence up to the middle of the 1980s, followed by a reversal in the second half of the decade.

proximate doubling of their estimated intraregional bias coefficients. As of 1980, trade within the EC is not strong enough—after holding constant for the close geographical proximity and high incomes per capita of European countries—for the bias coefficient of 0.2 to appear statistically significant. The EC coefficient increased rapidly in level and significance in the first half of the 1980s, reaching about 0.4 by 1985, and continued to increase a bit in the second half. The effect of two countries being located in Europe per se, when tested, does not show up as being nearly as strong in magnitude or significance as the effect of membership in the EC per se.

The Western Hemisphere coefficient experienced all its increase in the second half of the decade, exceeding 0.9 by 1990. The rapid increase in the Western Hemisphere intraregional bias in the second half of the 1980s is in itself an important new finding. The recovery of Latin American imports from the United States after the compression that followed the 1982 debt crisis must be part of this phenomenon. The Canada-U.S. Free Trade Agreement signed in 1988 may also be part of the explanation.

I consider a sequence of nested candidates for trading blocs in the Pacific. The significance of a given bloc effect turns out to depend on what other blocs are tested at the same time. One logical way to draw the boundaries is to include all the countries with eastern coasts on the Pacific, adding Australia and New Zealand to the EAEC group. I call this grouping Asian Pacific in the tables. Its coefficient and significance level are both higher than the EAEC dummy. When I broaden the bloc search and test for an effect of the Asia Pacific Economic Cooperation (APEC) group, which includes the United States and Canada with the others, it is highly significant. The significance of the Asian Pacific dummy completely disappears. The EAEC dummy remains significant in 1980 and 1990, though at a lower level than the initial results that did not consider any wider Pacific groupings.

APEC appears to be the correct place to draw the boundary. When I test for the broadest definition of a Pacific bloc, including Latin America, it is not at all significant, and the other coefficients do not change. (It is called Pacific Rim in the tables.) It remains true that the intraregional biases in the EC and Western Hemisphere blocs each roughly doubled from 1980 to 1990, while intraregional biases in the Asia and Pacific areas did not increase at all. The only surprising new finding is the APEC effect: the United States and Canada appear to be full partners in the Pacific bloc, even while belonging to the significant but distinct Western Hemisphere bloc. The APEC coefficient is the strongest of any. Its estimate holds relatively steady at 1.3 (1980), 1.0 (1985), and 1.2 (1990). The implication is that a pair of APEC countries trade three times as much as two otherwise similar countries (exp (1.2) = 3.3).[13]

13. Others have emphasized the high volume of transpacific trade. But it has been difficult to evaluate such statistics when no account is taken of these countries' collective size. A higher percentage of economic activity will consist of intraregional trade in a larger region than in a smaller region, even when there is no intraregional bias, merely because smaller regions tend by

One possible explanation for the apparent intraregional trade biases within East Asia and within the APEC grouping is that transportation between Asian Pacific countries is mostly by water, while transportation among European or Western Hemisphere countries is more often overland, and that ocean shipping is less expensive than shipping by rail or road. This issue bears further investigation. (Wang [1992] enters land distance and water distance separately in a gravity model. She finds a small, though statistically significant, difference in coefficients.) The issue of water versus land transport should not affect results regarding *changes* in intraregional trade bias in the 1980s, however, given that the nature of shipping costs does not appear to have changed over as short a time span as five or ten years.

Several further questions naturally arise. ASEAN negotiated a preferential trading arrangement within its membership in 1977 although serious progress in removal of barriers did not get under way until 1987 (Jackson 1991). In early 1992 the members proclaimed plans for an ASEAN free trade area, albeit with exemptions for many sectors. Does this grouping constitute a small bloc nested within the others? I include in my model a dummy variable for common membership in ASEAN. It turns out to have a significant coefficient only if none of the broader Asian blocs are included. The conclusion seems to be that ASEAN is not in fact functioning as a trading bloc.[14]

We know that Singapore and Hong Kong are especially open countries and engage in a large amount of entrepôt trade. A dummy variable for these two countries' trade with other Asian Pacific countries is highly significant when it is included, as shown in the first row of table 2.5. Its presence reduces a bit the coefficient on the East Asian grouping, but does not otherwise change the results.

We also know that most East Asian countries are very open to trade of all sorts. So I added a dummy variable to indicate when *at least* one of the pair of countries is located in East Asia, to supplement the dummy variable that indicates when both are. Its coefficient is significant. It is also positive, which appears to rule out any "trade-diversion" effects arising from the existence of the East Asian bloc: these countries trade an estimated 22 percent more with all parts of the world, other things equal, than do average countries ($\exp[.20] = 1.22$). The addition of the openness dummy reduces a bit more the level and significance of the East Asian bloc dummy. Indeed, when the APEC bloc dummy and East Asian openness dummy are both added at the same time, the East Asian bloc term becomes only marginally significant in 1980 and insignificant in 1985 and 1990. There may be no East Asian bloc effect at all!

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their nature to trade across their boundaries more than larger ones. In the limit, when the unit is the world, 100 percent of trade is intra-"regional."

14. In tests similar to mine, Wang (1992), Wang and Winters (1991), and Hamilton and Winters (1992) found the ASEAN dummy to reflect one of the most significant trading areas in the world. That they did not include a broader dummy variable for intra-Asian trade may explain the difference in results.

Table 2.5 **Gravity Estimates with Allowance for Asian Openness**

GNP	Per Capita GNP	Distance	Adjacent	WH	EA	APEC	EC	JapEA	HKSEA	HKS1	EA1	Adj. R^2/SEE	# of Observations
							1980						
.78**	.24**	−.64**	.62**	.58**	.51††	1.29**	.18	−.11		1.33**		.73/1.16	1708
(.02)	(.02)	(.04)	(.18)	(.15)	(.34)	(.17)	(.18)	(.16)		(.12)			
.73**	.31**	−.66**	.63**	.65**	.31	1.22**	.18	−.12	1.06**		.52**	.72/1.18	1708
(.02)	(.02)	(.04)	(.18)	(.15)	(.34)	(.17)	(.18)	(.49)	(.41)		(.07)		
.78**	.26**	−.67**	.59**	.64**	.53†	1.19**	.15	−.16	.01	1.16**	.25**	.73/1.16	1708
(.02)	(.02)	(.04)	(.18)	(.15)	(.34)	(.17)	(.17)	(.48)	(.42)	(.14)	(.08)		
							1985						
.78**	.22**	−.74**	.69**	.37*	.36	1.18**	.45**	.09		.76**		.74/1.16	1647
(.02)	(.02)	(.04)	(.18)	(.15)	(.26)	(.17)	(.17)	(.16)		(.12)			
.76**	.26**	−.77**	.69**	.42**	.16	1.10**	.44*	−.08	.80*		.34**	.74/1.16	1647
(.02)	(.02)	(.04)	(.18)	(.15)	(.34)	(.17)	(.18)	(.48)	(.40)		(.07)		
.78**	.23**	−.77**	.67**	.41**	.26	1.09**	.44*	−.10	.28	.59**	.20*	.74/1.16	1647
(.02)	(.02)	(.04)	(.18)	(.15)	(.34)	(.17)	(.18)	(.48)	(.42)	(.14)	(.08)		
							1990						
.80**	.04**	−.63**	.69**	.97**	.40†	1.18**	.49**	−.15		1.23**		.79/1.03	1573
(.02)	(.02)	(.04)	(.18)	(.13)	(.23)	(.15)	(.16)	(.14)		(.11)			
.75**	.10**	−.66**	.69**	1.06**	.14	1.11**	.49**	−.27	1.09**		.50**	.78/1.05	1573
(.02)	(.02)	(.04)	(.18)	(.14)	(.30)	(.15)	(.16)	(.43)	(.37)		(.07)		
.79**	.06**	−.67**	.65**	1.03**	.34	1.08**	.49**	−.31	.15	1.06**	.25**	.79/1.02	1573
(.02)	(.02)	(.04)	(.18)	(.14)	(.30)	(.15)	(.15)	(.42)	(.38)	(.12)	(.07)		

Notes: †, ††, *, and ** denote significance at the 85, 90, 95, and 99 percent levels respectively. Standard errors appear in parentheses. All regressions have an intercept, which is not reported here. All variables except the dummies are in logs. JapEA=trade between Japan and other East Asian countries, HKSEA=trade between Hong Kong or Singapore and other East Asian countries, HKS1=trade between Hong Kong or Singapore and any other countries, EA1=trade involving at least one East Asian country.

I tried a few more extensions as well. I disaggregated trade into manufactured goods, agricultural products, fuels, and other raw materials. The results changed little. Raw materials show the greatest Asian bloc effect if judged by the estimated coefficient. Manufactures shows the greatest effect if judged by *t*-statistics. Desirable extensions for the future, besides further disaggregation, include adding factor-endowment terms.

What about bilateral trade between Asian Pacific countries and Japan in particular? Like intraregional trade overall, trade with Japan increased rapidly in the second half of the 1980s. Most of this increase merely reversed a decline in the first half of the 1980s, however (Petri 1991). More important, the recent trend in bilateral trade between Japan and its neighbors can be readily explained as the natural outcome of the growth in Japanese trade overall and the growth in trade levels attained by other Asian countries overall. Lawrence (1991a) has calculated that, out of the 28 percentage-point increase in the market share of Asian Pacific developing countries in Japanese imports from 1985 to 1988, 11 percentage points is attributable to the commodity mix of these countries' exports. There is no residual to be attributed to Japan's development of special trading relations with other countries in its region.[15]

I confirmed this finding (though without as yet decomposing trade by commodity) by adding to my gravity model a separate dummy variable for bilateral Asian trade with Japan in particular. It was not even remotely statistically significant in any year, and indeed the point estimate was a small negative number, as is shown in table 2.5. Thus there was no evidence that Japan has established or come to dominate a trading bloc in Asia.

To summarize the most relevant effects, if two countries both lie within the boundaries of APEC, they trade with each other a little over three times as much as they otherwise would. The nested EAEC bloc is less strong (especially if one allows also for the openness of East Asian countries) and has declined a bit in magnitude and significance during the course of the 1980s. The Western Hemisphere and EC blocs, by contrast, intensified rapidly during the decade. Indeed, by 1990 the Western Hemisphere bloc was stronger than the EAEC bloc, if one takes into account the existence of the APEC effect. There was never a special Japan effect within Asian Pacific.

In short, beyond the evident facts that countries near each other trade with each other, and that Japan and other Asian countries are growing rapidly, there is no evidence that Japan is concentrating its trade with other Asian countries in any special way, nor that they are collectively moving toward a trading bloc in the way that Western Europe and the Western Hemisphere appear to be. I now turn from trade to finance.

15. The empirical literature on whether Japan is an outlier in its trading patterns, particularly with respect to imports of manufactures, includes Saxonhouse (1989), Noland (1991), and Lawrence (1991c), among others.

2.3 Japan's Financial Influence in the Region

In the case of financial flows, proximity is less important than it is for trade flows. For some countries the buying and selling of foreign exchange and highly rated bonds is characterized by the absence of significant government capital controls, transactions costs, or information costs. In such cases, there would be no particular reason to expect greater capital flows among close countries than among distant ones. Rather, each country would be viewed as depositing into the world capital pool, or borrowing from it, whatever quantity of funds it wished at the going world interest rate. Thus even if we could obtain reliable data on bilateral capital flows (which we cannot), and whatever pattern they happened to show, such statistics would not be particularly interesting.

2.3.1 Tokyo's Influence on Regional Financial Markets

Many Asian countries still have substantial capital controls, and financial markets that are in other respects less than fully developed. Even financial markets in Singapore and Hong Kong, the most open in Asia, retain some minor frictions. Where the links with world capital markets are obstructed by even small barriers, it is an interesting question to ask whether those links are stronger with some major financial centers than with others. This question is explored econometrically below.

Information costs exist for equities, and for bonds with some risk of default. These costs may be smaller for those investors who are physically, linguistically, and culturally close to the nation where the borrower resides. Proximity clearly matters as well in the case of direct investment, in part because much of direct investment is linked to trade, in part because linguistic and cultural proximity matter for direct investment. We begin our consideration of capital links by looking at direct investment.

2.3.2 Foreign Direct Investment

Table 2.6 shows the standard Ministry of Finance figures for Japanese direct investment. The steady stream of direct investment by Japanese firms in East Asia and the Pacific (including Australia) has received much attention. But the table shows that, whether measured in terms of annual flows or cumulated stocks, Japan's direct investment in the region is approximately equal to its investment in Europe, and is much less than its investment in North America (see also Komiya and Wakasugi 1991).

It has been argued that, once one scales the table 2.6 figures for GNP among the host countries, an Asian bias to Japanese direct investment might indeed appear (Holloway 1991, 69). But if one scales the foreign direct investment figures by the host region's role in world trade, one finds that Japan's investment in Asia and Oceania is almost exactly in proportion to their size. There is no regional bias. Its direct investment in the United States and Canada, on the

Table 2.6 **Japan's Foreign Direct Investment, by Area and Country (amounts in millions of dollars)**

	FY 1990			FY 1991			Cumulative Total FY 1951–91		
	Cases	Amount	% of Total	Cases	Amount	% of Total	Cases	Amount	% of Total
United States	2,269	26,128	45.9	1,607	18,026	43.3	24,551	148,554	42.2
Canada	157	1,064	1.9	107	797	1.9	1,388	6,454	1.8
Subtotal (North America)	2,426	27,192	47.8	1,714	18,823	45.3	25,939	155,008	44.0
Latin America	339	3,628	6.4	290	3,337	8.0	7,487	43,821	12.4
Middle East	1	27	0.0	10	90	0.2	350	3,522	1.0
Europe	956	14,294	25.1	803	9,371	22.5	8,228	68,636	19.5
Africa	70	551	1.0	76	748	1.8	1,534	6,574	1.9
Australia and the South Pacific	572	4,166	7.3	394	3,278	7.9	4,351	21,376	6.1
Indonesia	155	1,105	1.9	148	1,193	2.9	2,021	12,733	3.6
Hong Kong	244	1,785	3.1	178	925	2.2	3,921	10,775	3.1
Singapore	139	840	1.5	103	613	1.5	2,662	7,168	2.0
Republic of Korea	54	284	0.5	48	260	0.6	1,895	4,398	1.2
China	165	349	0.6	246	579	1.4	1,105	3,402	1.0
Thailand	377	1,154	2.0	258	807	1.9	2,723	5,229	1.5
Malaysia	169	725	1.3	136	880	2.1	1,645	4,111	1.2
Taiwan	102	446	0.8	87	405	1.0	2,487	3,135	0.9
Philippines	58	258	0.5	42	203	0.5	892	1,783	0.5
India	7	30	0.1	9	14	0.0	176	210	0.1
Sri Lanka	9	4	0.0	7	4	0.0	126	102	0.0
Brunei	—	—	—	1	0	0.0	32	109	0.0
Pakistan	3	9	0.0	2	14	0.0	60	124	0.0
Others	26	69	0.1	12	39	0.1	166	175	0.0
Subtotal (Asia)	1,499	7,054	12.4	1,277	5,936	14.3	19,911	53,455	15.2
Total	6,589	67,540	100.0	5,863	56,911	100.0	63,236	310,808	100.0

Source: Financial Statistics of Japan (Tokyo: Ministry of Finance, 1992), 95.

other hand, is more than twice what one would expect from their share of world trade. Japan's investment in Europe is about half the continent's share of trade.

Furthermore, Ramstetter (1991a, 8–9; 1991b, 95–96) has forcefully pointed out that the standard Ministry of Finance figures on Japanese foreign direct investment actually represent statistics on investment either approved by or reported to the government, and greatly overstate the extent of true Japanese investment in developing countries. The more accurate balance-of-payments data from the Bank of Japan show a smaller percentage of investment going to Asia.

2.3.3 Tokyo versus New York Effects on Asian Interest Rates

Statistics also exist on Japanese portfolio investment. But, in the case of portfolio capital, looking at quantity data is not as informative as looking at price data—that is, at interest rates. For one thing, the quality of the data on interest rates is much higher than the quality of the data on capital flows. For another, the interest rate test is more appropriate conceptually. If the *potential* for arbitrage keeps the interest rate in a given Asian country closely in line with, say, Tokyo interest rates, then this constitutes good evidence of close links between the two national capital markets, even if the amount of actual arbitrage or other capital flow that takes place within a given period happens to be small.

Many East Asian countries have moved to liberalize and internationalize their financial markets over the last ten to fifteen years.[16] A number of studies have documented Japan's removal of capital controls over the period 1979–84 by looking at the power of arbitrage to equalize interest rates between Tokyo and New York or London.[17] Australia and New Zealand, while lagging behind Japan, also show signs of liberalization during the course of the 1980s.[18] Hong Kong and Singapore register impressively open financial markets, showing smaller interest differentials even than some open European countries like Germany. (Hong Kong has long had open capital markets. Singapore undertook a major liberalization in 1978, though it has tried to segment its domestic money market from its offshore "Asia dollar market."[19]) Malaysia has officially liberalized, following Singapore (Abidin 1986; Glick and Hutchison 1990, 45), though its covered differential has remained considerably higher.

16. Frankel (1991c) presents the 1980s evidence for Japan. Australia. New Zealand. Singapore. Hong Kong. and Malaysia. Faruqee (1991) examines interest differentials for Korea. Malaysia. Singapore. and Thailand (vis-à-vis yen interest rates in London) but does not take into account exchange rate expectations.

17. These include Otani and Tiwari (1981). Ito (1986). and Frankel (1984). The interest rates in the calculations are covered on the forward exchange or Eurocurrency markets so as to avoid exchange risk. (Tests that look at real or uncovered interest differentials. rather than covered interest differentials. include Ito [1988] and Fukao and Okubo [1984].)

18. The frequently large negative covered differential that had been observed for Australia up to mid-1983 (see. e.g.. Argy 1987) largely vanished thereafter.

19. See Moreno (1988). Edwards and Khan (1985) include another test of covered interest parity for Singapore.

We can apply a simple test to the hypothesis that a particular Asian country is dominated financially by Japan, versus the alternative hypothesis that ties to capital markets in the other industrialized countries are equally strong. I ran the following OLS regression to see how the interest rate in a typical Asian country depends on interest rates in Tokyo and New York:

$$i_t^a = \alpha + \beta_1 i_t^T + \beta_2 i_t^{NY} + \varepsilon_t.$$

Under the null hypothesis that the country's financial markets are insufficiently developed or liberalized to be directly tied to any foreign financial markets, the coefficients on foreign interest rates should be zero. Under the alternative hypothesis that the country's financial markets are closely tied to those in Tokyo, the coefficient on Tokyo interest rates should be closer to one than to zero, and similarly for New York.[20]

Table 2.7 presents estimates for three-month interest rates in Hong Kong and Singapore, on quarterly data. For the Hong Kong interest rate, the influence of the New York market appears very strong. This is not surprising: not only does the colony have open financial markets, but its currency has since October 1983 been pegged to the U.S. dollar (see, e.g., Balassa and Williamson 1990, 32), so that there is nothing to inhibit perfect arbitrage between its interest rates and U.S. interest rates. Tokyo, London, and Frankfurt had no significant influence in Hong Kong on average over the sample period (from 1976 to 1989). For the Singapore interest rate, the influence of New York is again very significant, but now there is also a significant, though smaller, weight on Tokyo. The evidence suggests that both countries have had open financial markets ever since the mid-1970s, with New York having the dominant influence, but with Tokyo also having a one-quarter effect in the case of Singapore.

To see whether the influence of the foreign financial centers changed over the course of the sample period, we can allow for time trends in the coefficients, also reported in table 2.7. For Hong Kong, it is clear that London used to have a strong influence, and equally clear that the British influence has been diminishing over time. For Singapore, there is no sign of change in New York's role, but there is weak evidence of a gradually increasing role for Tokyo.

The next step is to expand the sample of countries. Some Asian countries, such as Korea and Taiwan, did not seriously begin to open their financial markets to external influence by *any* foreign center until the late 1980s. To obtain more observations, one can switch to monthly data. Preliminary results for the period 1988–91 found a dominant role for Tokyo interest rates in Singapore and Taiwan, a dominant role for New York interest rates in Hong Kong and Australia, and apparently strong roles for both in Korea (Frankel 1991a, table

20. It should be noted that if capital markets in Tokyo and New York are closely tied to *each other,* as they indeed are, then multicollinearity might make it difficult to obtain statistically significant estimates. But this does not mean that there is anything wrong with the test. A finding that the coefficient on the Tokyo interest rate is statistically greater than zero, or than the coefficient on the New York interest rate, remains valid.

Table 2.7 **Japanese, U.S., U.K., and German Interest Rate Effects in Hong Kong and Singapore**

	Hong Kong		Singapore	
	Without Trend	With Trend	Without trend	With Trend
Constant term	−2.41††	−1.70	−1.16††	−0.65
	(1.08)	(1.13)	(0.67)	(0.67)
Tokyo effect	−0.23	−0.11	0.23**	−0.36††
	(0.17)	(0.69)	(0.07)	(0.22)
Time trend in Tokyo effect		−0.00		0.02††
		(0.01)		(0.01)
New York effect	1.32**	0.61	0.75**	0.65††
	(0.15)	(0.52)	(.09)	(0.33)
Time trend in New York effect		0.01		0.00
		(0.01)		(0.01)
London effect	0.10	1.38**	−0.07	−0.09
	(0.11)	(0.47)	(0.06)	(0.16)
Time trend in London effect		−0.03**		−0.00
		(0.01)		(0.00)
Frankfurt effect	0.14	−1.74††	0.19	1.02††
	(0.20)	(1.13)	(0.12)	(0.54)
Time trend in Frankfurt effect		0.04††		−0.02††
		(0.02)		(0.01)
R^2	.83	.85	.87	.88
Durbin-Watson	1.50	1.61	1.53	1.92
Sample period	1976.4 to 1989.3		1974.1 to 1988.1	

†† and ** denote significance at the 90 and 99 percent levels, respectively. Standard errors appear in parentheses.

4; or NBER Working Paper no. 4050, table 7). Tests that also allowed a role for Frankfurt and London interest rates found apparently significant effects for the latter in Australia and New Zealand. But most of these results were tainted by high levels of serial correlation.

In table 2.8 I use conservative standard errors, to allow for the problem created by serial correlation. I expand the set of countries still further, to a set of ten (with three alternative measures of the Korean interest rate). The time trends in the coefficients tell us that New York seems to be gaining influence at the expense of Tokyo in the English-speaking countries of the Pacific Rim (Australia, Canada, and New Zealand), while the reverse is occurring in a number of East Asian countries. The observed shift in influence from New York interest rates to Tokyo interest rates is highly significant in the case of Indonesia, and somewhat less so in the case of Korea. It is positive but not significant (when the conservative standard errors are used) for Hong Kong, Singapore, and Malaysia.

These tests leave some important questions unanswered. Are the barriers

Table 2.8 **Trends in the Influence of Dollar versus Yen Interest Rates (September 1982–March 1992)**

	Constant	Eurodollar	Eurodollar Trend	Euroyen	Euroyen Trend	R^2	$\overline{DW}$	Q
Australia	8.473*	−1.992**	0.429**	3.470**	−0.539**	.52	0.409	141.47**
	(1.143)	(0.277)	(0.041)	(0.411)	(0.054)			
	[3.428]	[0.479]	[0.071]	[0.712]	[0.094]			
Canada	0.535	0.487*	0.086**	0.670*	−0.057	.79	0.477	158.12**
	(0.458)	(0.111)	(0.016)	(0.165)	(0.022)			
	[1.375]	[0.192]	[0.028]	[0.285]	[0.038]			
Hong Kong	−4.115	1.691**	−0.068	−0.353	0.104	.71	1.047	41.35**
	(0.857)	(0.208)	(0.031)	(0.308)	(0.041)			
	[2.570]	[0.360]	[0.053]	[0.533]	[0.071]			
Indonesia	14.010**	1.852**	−0.267**	−2.337*	0.410**	.33	0.700	N.A.
	(1.483)	(0.356)	(0.053)	(0.529)	(0.070)			
	[4.449]	[0.616]	[0.091]	[0.916]	[0.121]			
Korea 1	9.094**	−0.037	−0.031*	−0.103	0.002	.82	0.488	124.18**
	(0.194)	(0.039)	(0.009)	(0.065)	(0.011)			
	[0.581]	[0.067]	[0.015]	[0.113]	[0.019]			
Korea 2	16.294**	−0.754	0.097	−0.929	0.086	.64	0.671	57.01**
	(1.087)	(0.527)	(0.077)	(0.704)	(0.091)			
	[3.262]	[0.913]	[0.133]	[1.219]	[0.158]			

Korea 3	10.079**	0.320	−0.061	−0.019	0.124*	.69	0.204	194.35**
	(0.690)	(0.143)	(0.026)	(0.231)	(0.031)			
	[2.070]	[0.248]	[0.045]	[0.400]	[0.053]			
Malaysia	5.520	−0.057	−0.072	0.700	0.016	.41	0.463	N.A.
	(1.262)	(0.286)	(0.049)	(0.453)	(0.059)			
	[3.785]	[0.496]	[0.086]	[0.784]	[0.102]			
New Zealand	18.573**	−2.584**	0.379**	3.405**	−0.599**	.37	0.327	204.22**
	(2.063)	(0.500)	(0.074)	(0.742)	(0.098)			
	[6.291]	[0.866]	[0.129]	[1.285]	[0.169]			
Singapore	−2.768*	0.960**	−0.052*	0.174	0.056	.86	0.842	103.64**
	(0.413)	(0.093)	(0.014)	(0.142)	(0.019)			
	[1.239]	[0.161]	[0.025]	[0.246]	[0.032]			
Taiwan	−4.144	0.635	0.017	0.811	0.049	.45	0.422	109.01**
	(1.217)	(0.292)	(0.043)	(0.437)	(0.057)			
	[3.651]	[0.505]	[0.075]	[0.757]	[0.099]			
Thailand	−3.846	0.780	−0.069	1.363*	0.097	.78	0.461	N.A.
	(1.114)	(0.232)	(0.039)	(0.363)	(0.049)			
	[3.341]	[0.402]	[0.068]	[0.628]	[0.085]			

Notes: figures in parentheses are asymptotic standard errors. Figures in brackets are standard errors assuming $N/3$ independent observations. The Q-statistic indicates the Ljung-Box Q-statistic. * and ** denote significance at the 5 and 1 percent level, respectively, using the adjusted standard errors.

that remain between a given country and the major world financial centers due to currency factors or country factors? Most of the Asian countries experience frequent changes in their exchange rates against the yen and the dollar. Financial markets in a country like Singapore could be very open, yet observed interest rates could differ from those in Tokyo or New York because of premiums meant to compensate investors for the possibility of changes in the exchange rate. The question of whether the yen is playing an increasing role in the exchange rate policies of East Asian countries is important to address, but it should be kept distinct from the question of whether financial links to Tokyo (irrespective of currency) are strengthening.

We can take out currency factors by using the forward exchange market. The necessary data are available for six of the countries. I simply express the foreign interest rates so as to be "covered" or hedged against exchange risk. Doing so changes the 1988–91 results for Australia and Singapore toward a Tokyo effect that is smaller than the New York effect. Most coefficients remain significant, despite the obvious multicollinearity between covered U.S. and Japanese interest rates.[21]

Returning to the longer 1982–92 time period to look for trends in the coefficients of the covered interest rates, we find that the observed upward trends for Tokyo influence in Singapore and Malaysia are not statistically significant (when conservative standard errors are used). Singapore, like Hong Kong, rather appears to obey a covered interest parity relationship vis-à-vis dollar interest rates.[22]

For six of these countries, there exists another way of correcting for possible exchange rate changes: direct data on forecasts of market participants collected in a monthly survey by the *Currency Forecasters' Digest* of White Plains, New York.[23] One advantage of using the survey responses to measure expected exchange rate changes is that the data allow us to test explicitly whether there exists an exchange risk premium that creates an international differential in interest rates even in the absence of barriers to international capital flows. Such a differential would be compensation to risk-averse investors for holding assets that they view as risky.[24] An advantage of the *Currency Forecasters' Digest*

21. Table 4 in Frankel (1991a), or table 7 in NBER Working Paper no. 4050. (The Durbin-Watson statistics improve substantially when the forward rates are included, confirming that the equation that uses covered interest rates is a more appropriate specification.)

22. These results are from tables 12a and 12b in Chinn and Frankel (1992).

23. The *Currency Forecasters' Digest* data is proprietary and was obtained by subscription by the Institute for International Economics.

24. The forward rate data allow us to eliminate factors associated with the currency in which countries' assets are denominated, but they do not allow us to distinguish between two currency factors: the exchange risk premium and expectations of depreciation. For the case of Australia, for example, the support for covered interest parity suggests that barriers to the movement of capital between Sydney and New York are low, and so differences in interest rates are due to currency factors. But when the Australian interest rate is observed to exceed the U.S. interest rate, is this because the Australian dollar is confidently expected to depreciate, or is it because investors have no idea what the exchange rate will do and demand to be compensated for this risk? The survey data may be able to distinguish between these two hypotheses, whereas the forward rate data cannot.

data in particular is that they are available even for countries like Taiwan and Korea, where financial markets are less developed. A potential disadvantage is the possibility that survey data measure the expectations of market participants imperfectly.

For Singapore, the survey data corroborate the finding from the forward rate data that, once expected depreciation is eliminated as a factor, the New York effect dominates the Tokyo effect. For Korea, the survey data also show that the Tokyo effect becomes smaller than the New York effect. For Australia and Taiwan, both effects largely disappear.[25]

2.3.4 The Role of the Yen in Asian Exchange Rate Policies

The finding that eliminating exchange rate expectations from the calculation leaves Tokyo with relatively little effect on local interest rates in most of these countries does not necessarily mean that the Japanese influence is not strong. It is possible, rather, that much of the influence in the Pacific comes precisely through the role of the yen. If Pacific countries assign high weight to the yen in setting their exchange rate policies, then their interest rates will be heavily influenced by Japanese interest rates.

No Asian or Pacific countries have ever pegged their currencies to the yen in the postwar period. But neither are there any Pacific countries that the International Monetary Fund (IMF) classifies as still pegging to the U.S. dollar. (As already mentioned, Hong Kong pegs to the dollar, although the colony is not an official member of the IMF.) Malaysia, Thailand, and a number of Pacific island countries officially peg to a basket of major currencies and are thought to give weight to both the dollar and yen, but the weights are not officially announced.

It is interesting to estimate econometrically the weights given to the dollar, yen, and other major currencies in exchange rate policies of Asian Pacific countries, especially those who follow a basket peg but do not officially announce the weights. This involves regressing changes in the value of the currency in question against changes in the value of the yen, dollar, and so forth. (I work in changes rather than in levels, among other reasons, because exchange rates have been widely observed to behave as unit-root processes.)

There is a methodological question of what numeraire should be used to measure the value of the currencies. A simple solution is to use the special drawing right (SDR) as numeraire. This approach suffers from the drawback that the SDR is itself a basket of five major currencies, including the dollar and yen. An alternative approach is to use purchasing power over local goods (the inverse of the local price level) as the numeraire. Whatever the numeraire, under the null hypothesis that a particular currency is pegged to the dollar or yen, or to a weighted basket, the regression results should show this clearly, featuring even a high R^2. I focus here on the purchasing-power measure.

25. Table 4 in Frankel (1991a), or table 7 in NBER Working Paper no. 4050. Time trends are estimated in tables 13a and 13b in Chinn and Frankel (1992).

Table 2.9 **Weights Assigned to Foreign Currencies in Determining Changes in Value of Malaysian Ringgit**

	Constant	Yen	Dollar	Mark	Pound	Franc	R^2	Durbin-Watson
74.1–91.10	−.0028	.01	.16	.07	.01	−.01	.28	1.59
	−7.97**	0.55	6.74**	2.35**	0.33	−0.22		
74.1–76.12	−.0044	.05	.15	.09	−.06	−.01	.24	1.59
	−2.74**	0.37	1.29	0.90	−0.69	−0.17		
77.1–79.12	−.0017	.05	.29	.15	.04	−.07	.45	1.73
	−1.82††	1.27	3.38*	2.19*	0.76	−0.78		
80.1–82.12	−.0041	.00	.11	.15	.03	−.06	.35	1.52
	−4.14**	0.08	2.17*	2.13*	0.83	−0.88		
83.1–85.12	−.0014	.07	.17	−.07	.00	.12	.32	1.90
	−1.55	1.24	2.65**	−0.59	0.00	0.98		
86.1–88.12	−.0021	−.04	.12	.06	−.06	−.02	.44	1.49
	−3.78**	−1.45	2.86**	0.70	2.55**	−0.24		
88.1–90.12	−.0025	−.01	.17	−.10	.04	.09	.30	1.55
	−5.52**	−0.50	2.75**	−0.76	1.56	0.71		

Notes: ††, *, and ** denote significance at the 90, 95, and 99 percent levels, respectively. *t*-statistics are reported below coefficients. The value of currencies, both domestic and foreign, refers to purchasing power over Malaysian goods, as measured by the CPI.

Regressions of changes in the real value of the Hong Kong dollar against changes in the value of the five major currencies show highly significant coefficients on the U.S. dollar during the periods 1974–80 and 1984–90 (not reported here). The weight on the dollar is statistically indistinguishable from 1 during most of the latter seven-year period, and the R^2 reaches 0.96 during the last four years. Occasional subperiods show apparently significant weights on other currencies (the yen during 1979–81, the franc during 1983–85, and the mark during 1986–88). Overall, however, the numbers bear out Hong Kong's peg to the dollar.

Regressions of changes in the real value of the Malaysian ringgit against the five major currencies, reported in table 2.9, give a large significant weight to the dollar. Some subperiods show a significant weight on the mark, and during 1986–88 even the pound is significant. But the yen is not significant during any three-year subperiod. The constant term is negative (and statistically significant), indicating a trend depreciation, and the R^2 is fairly low, indicating that the basket peg was loose, even if one allows for a crawling peg.[26]

The Singapore dollar shows significant weights (of about .2 each) on the U.S. dollar and mark during the period 1974–77, as reported in table 2.10. The regression for 1977–79 shows a rough basket peg (R^2 = .83) with significant

26. This turns out to be true of almost all currencies worldwide that purport to be on a basket peg (excluding a peg to the SDR).

Table 2.10 **Weights Assigned to Foreign Currencies in Determining Changes in Value of Singapore Dollar**

	Constant	Yen	Dollar	Mark	Pound	Franc	R^2	Durbin-Watson
74.1–91.13	−.0015	.06	.24	.13	−.01	−.04	.45	1.55
	−3.96**	3.93**	9.68**	4.19*	−0.58	−1.26		
74.1–76.12	−.0025	.02	.24	.26	−.07	−.00	.46	1.40
	−1.74††	0.20	2.32*	2.84**	−0.97	−0.05		
77.1–79.12	−.0010	.09	.47	.25	.09	−.09	.83	1.90
	−1.32	3.53**	8.07**	4.820**	2.32*	−1.44		
80.1–82.12	−.0013	.11	.22	.22	.07	−.12	.74	1.42
	−1.50	3.72**	4.73**	3.82**	2.05*	−2.04*		
83.1–85.12	−.0012	.20	.19	−.08	−.02	.07	.41	1.55
	−1.70††	3.87**	3.09**	−0.78	−0.53	0.77		
86.1–88.12	−.0004	.01	.14	.02	.02	.01	.46	2.59
	−0.83	0.36	3.93**	0.33*	1.14	0.12		
88.1–90.12	−.0010	.02	.15	−.05	.04	.06	.32	2.31
	−1.65††	0.87	3.29**	−0.42	1.29	0.46		

Notes: ††, *, and ** denote significance at the 90, 95%, and 99 percent level, respectively. *t*-statistics are reported below coefficients. The value of currencies. both domestic and foreign, refers to purchasing power over Singapore goods, as measured by the CPI.

weights of .09 on the yen, .47 on the dollar, .25 on the mark, and .09 on the pound. The weight on the dollar diminishes thereafter, and the weight on the yen increases. By 1983–85, the yen weight (at a significant .20) has temporarily passed the dollar weight (at a significant .19). From 1986 to 1990 only the dollar is significant.

The results for the real value of the Thai baht, reported in table 2.11, show a very close peg to the dollar from 1974 to 1980, whereupon the dollar weight falls somewhat. Beginning in 1986, a pattern emerges of significant weights on the yen and pound, in addition to the dollar. During the period 1988–90, the baht exhibits a close to perfect peg (R^2 = .99) to a basket with estimated weights of .82 on the dollar, .13 on the yen, .06 on the mark, and .02 on the pound.

Korea also claimed to have a sort of basket peg in the 1980s, but with large adjustments. Regressions of the change in the real value of the won show a statistically significant weight on the value of the dollar during the period April 1980–March 1986, with an estimated coefficient of .4 to .5. (The Canadian dollar, which was reputed to be included in the Korean basket, also shows up with a significant coefficient of .2 during part of the period.) There is a significant constant term (the "alpha") during this period: the value of the won declined during the early 1980s, whether measured by inflation or depreciation, relative to foreign currencies. The dollar, like the other major currencies, is insignificant during the period April 1985–March 1987. Its influence reemerges from April 1986 to March 1988. But during the final two-year subperiod, April 1988–March 1990, the yen (with a highly significant coefficient

Table 2.11 **Weights Assigned to Foreign Currencies in Determining Changes in Value of Thai Baht**

	Constant	Yen	Dollar	Mark	Pound	Franc	R^2	Durbin-Watson
74.1–91.3	−.0039	.01	.30	−.01	−.02	.03	.38	1.43
	8.05**	0.61	9.37**	−0.03	−0.63	0.85		
74.1–76.12	−.0000	−.00	1.00	.00	−.00	−.00	1.00	2.05
	−0.90	−0.00	240.71**	.42	−.36	−.10		
77.1–79.12	−.0010	.03	.89	.02	−.00	−.05	.96	1.70
	−2.35*	2.69**	22.16**	1.10	−0.01	−1.72††		
80.1–82.12	−.0061	.01	.47	.11	.00	−.10	.58	1.47
	−3.71**	0.15	5.82**	0.96	0.04	−0.80		
83.1–85.12	−.0020	.01	.03	−.01	−.07	.09	.32	1.51
	−2.45*	0.29	0.91	−0.06	−2.04*	0.89		
86.1–88.12	−.0006	.06	.63	−.03	.05	.08	.80	2.04
	−1.72††	3.52**	10.02**	−0.69	3.29**	1.76††		
88.1–90.12	.0001	.13	.82	.06	.02	−.01	.99	1.77
	0.61	19.35**	45.42**	1.99*	2.72**	−0.22		

Notes: ††, *, and ** denote significance at the 90, 95, and 99 percent levels, respectively. *t*-statistics are reported below coefficients. The value of currencies, both domestic and foreign, refers to purchasing power over Thai goods, as measured by the CPI.

estimated at .18) suddenly eclipses the dollar (with an insignificant coefficient of .11).[27]

To summarize, there is some evidence of increased yen influence in the case of the Singapore dollar in the early 1980s and the Thai baht in the late 1980s. The only place where the yen appears to have become as important as the dollar is Korea in the last two years of the decade.[28]

2.3.5 The Role of the Yen in Reserves and Invoicing

There is other evidence that the yen is playing an increasing role in the region. As table 2.12 shows, Asian central banks in the course of the 1980s increased their holdings of yen from 13.9 percent of their foreign exchange reserve portfolios to 17.1 percent.[29] Foreign exchange market trading in the regional financial centers of Singapore and Hong Kong, though still overwhelmingly conducted in dollars, now shows a much higher proportion of trading in yen than is the case in Europe (Tavlas and Ozeki 1992, 35).

The yen is also being used more widely to invoice lending and trade in Asia.

27. The results for the won are reported in Frankel (1992) (with value measured in terms of purchasing power. Value is measured also in terms of the SDR in a related paper to be published by the Hoover Institution, but the regressions are against the dollar and yen alone).

28. Further results on a set of nine East Asian currencies are reported in Frankel and Wei (1992b). The Indonesian rupiah turns out to be the clearest case of significant yen influence, which is of interest in that Indonesia is also the case where Japanese interest rates are seen to have the most strongly increasing influence (table 2.8 here).

29. The deutsch mark and Swiss franc are the two currencies that suffered the largest loss in share in the region.

Table 2.12 **Share of the Yen in Debt-Denomination and Official Reserve Holdings (percentage)**

	Yen Share in External Debt						Yen Share in Official Holdings	
	Indonesia	Korea	Malaysia	Philippines	Thailand	Total	Asia[a]	World
1980	20.0	16.6	19.0	22.0	25.5	19.5	13.9	4.4
1981	19.3	14.1	16.9	20.6	23.2	17.8	15.5	4.2
1982	21.0	12.3	13.3	19.2	24.0	17.2	17.6	4.7
1983	23.3	12.5	14.2	20.0	27.3	18.5	15.5	5.0
1984	25.0	12.8	21.2	20.0	29.2	20.3	16.3	5.8
1985	31.7	16.7	26.4	24.9	36.1	25.8	26.9	8.0
1986	33.9	22.0	30.4	25.5	39.9	29.3	22.9	7.9
1987	39.4	27.2	35.7	35.2	43.1	36.0	30.0	7.5
1988	39.3	29.5	37.1	40.5	43.5	37.9	26.7	7.7
1989	35.2	26.6	36.6	32.6	40.9	35.7	17.5	7.9
1990							17.1	9.1

Source: Tavlas and Ozeki (1992, 39).

[a]Selected Asian countries (not including Japan).

The countries that incurred large international debts in the 1970s and early 1980s subsequently shifted the composition away from dollar-denominated debt and toward yen-denominated debt. Table 2.12 shows that the yen share among five major Asian debtors nearly doubled between 1980 and 1988, entirely at the expense of the dollar. Table 2.13 shows that the share of trade denominated in yen is greater in Asia than in other regions, and that there was an especially rapid increase from 1983 to 1990 in the share of Asian imports denominated in yen.[30] Overall, however, it must be concluded that the role of the yen in East Asia is still not proportionate to Japan's importance in trade.

2.4 Conclusions

1. The *level* of trade in East Asia, like trade within the EC and within the Western Hemisphere, is biased toward intraregional trade, to a greater extent than can be explained naturally by distance. When one allows for the greater openness of the East Asian countries, however, the significance of the bloc effect largely disappears.

2. There is no evidence of a special Japan effect within Asia.

3. Although growth in Japan, the four NICs, and other East Asian countries is rapidly increasing their weight in world output and trade, the statistics do not bear out a *trend* toward intraregional bias of trade and direct investment flows.

4. The intraregional trade bias did increase in Europe in the 1980s, in the

30. Tavlas and Ozeki (1991, 1992) give further statistics and discussion.

Table 2.13 **Share of the Yen in Denomination of Foreign Trade (percentage)**

	Denomination of Exports		Denomination of Imports	
	Southeast Asia	All Regions	Southeast Asia	All Regions
1983	48.0	40.4	2.0	3.0
1986	37.5	35.5	9.2	9.7
1987	36.3	34.7	13.9	11.6
1988	41.2	34.3	17.5	13.3
1989	43.5	34.7	19.5	14.1
1990	48.9	37.5	19.4	14.4

Source: Japanese Ministry of Finance, *Annual Report,* as reported in Tavlas and Ozeki (1992, 33).

Western Hemisphere in the late 1980s, and in the grouping that includes the United States and Canada with the Asian Pacific countries, that is, APEC.

5. The APEC trade grouping appears to be the world's strongest, whether judged by rate of change of intragroup bias or (as of 1990) by level of bias. Far from being shut out of a strong Asian bloc centered on Japan, the United States and Canada are in the enviable position of belonging to *both* of the world's two strongest groupings.

6. There is a bit of evidence of Japanese influence in East Asia's *financial markets,* as opposed to trade. Tokyo appears to have increasing influence over interest rates in Singapore, Korea, and Indonesia. Overall, however, its influence is still smaller than that of New York.

7. Some of Japan's financial influence takes place through a growing role for the yen, at the expense of the dollar. There has been a gradual increase in the yen's relative importance in invoicing of trade and finance in the region, and in some countries' exchange rate policies.

This still leaves a question raised at the beginning of this essay. Is Japan undertaking deliberate policy measures to increase its monetary and financial role? Gradually increasing use of the yen internationally is primarily the outcome of private decisions by importers, exporters, borrowers, and lenders. It is difficult to see signs of deliberate policy actions taken by the Japanese government to increase its financial and monetary influence in Asia. To the contrary, until recently the Japanese government has resisted whatever tendency there may be for the yen to become an international currency in competition with the dollar.

It has been the U.S. government, in the Yen-Dollar Agreement of 1984 and in subsequent negotiations, that has been pushing Japan to internationalize the yen, to promote its worldwide use in trade, finance, and central bank policies (Frankel 1984). It has also been the U.S. government that has been pushing Korea and other East Asian NICs to open up their financial markets, thereby allowing Japanese capital and Japanese financial institutions to enter these

countries. It has again been the U.S. government that has been pushing Korea and Taiwan to move away from policies to stabilize the value of their currencies against the dollar.[31] The increasing role of the yen in the Asian Pacific may or may not be a good idea. But it is an idea that originated in Washington, not in Tokyo.

Appendix
Countries Used in the Gravity Equation

The list shows regional groupings and main city. The distance between countries was computed as the great-circle distance between the relevant pair of cities. (APEC consists of East Asia, Australia, New Zealand, Canada, and the United States.)

Americas (WH, 13)

Argentina	Buenos Aires	Mexico	Mexico City
Bolivia	La Paz	Paraguay	Asunción
Brazil	Saõ Paulo	Peru	Lima
Canada	Ottawa	United States	Chicago
Chile	Santiago	Uruguay	Montevideo
Colombia	Bogotá	Venezuela	Caracas
Ecuador	Quito		

European Community (EC, 11)

Belgium	Brussels	Netherlands	Amsterdam
Denmark	Copenhagen	Portugal	Lisbon
France	Paris	Spain	Madrid
Greece	Athens	United Kingdom	London
Ireland	Dublin	West Germany	Bonn
Italy	Rome		

European Free Trade Area (EFTA, 6)

Austria	Vienna	Norway	Oslo
Finland	Helsinki	Sweden	Stockholm
Iceland	Reykjavik	Switzerland	Geneva

31. Balassa and Williamson (1990), Noland (1990), and Frankel (1989). Financial negotiations between the U.S. Treasury and the governments of Korea and Taiwan were a response to congressional passage of the 1988 Omnibus Trade bill.

	Eastern Europe (3)		
Hungary	Budapest	Yugoslavia	Belgrade
Poland	Warsaw		
	East Asia (EAEC, 10)		
China	Shanghai	Philippines	Manila
Hong Kong	Hong Kong	South Korea	Singapore
Indonesia	Jakarta	Singapore	Seoul
Japan	Tokyo	Taiwan	Taipei
Malaysia	Kuala Lumpur	Thailand	Bangkok
	Other Pacific (2)		
Australia	Sydney	New Zealand	Wellington
	Africa and West Asia (18)		
Algeria	Algiers	Libya	Tripoli
Egypt	Cairo	Morocco	Casablanca
Ethiopia	Addis Ababa	Nigeria	Lagos
Ghana	Accra	Pakistan	Karachi
India	New Delhi	Saudi Arabia	Riyadh
Iran	Tehran	South Africa	Pretoria
Israel	Jerusalem	Sudan	Khartoum
Kenya	Nairobi	Tunisia	Tunis
Kuwait	Kuwait	Turkey	Ankara

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Comment

Robert Z. Lawrence

In choosing me to comment on this paper, Jeffrey Frankel showed an unusual amount of trust, since I find it hard to view the paper with impartiality. An earlier version of the paper won first prize last year in a competition organized by the American Express Company. It so happens, a paper that I wrote obtained the second prize.

Notwithstanding my unusual perspective on this work, my overall appraisal of the paper is favorable. I certainly agree with its central conclusion that in the trade area, thus far, growth rather than inherent discrimination is primarily responsible for the increased regionalization of Asia. While the work on financial integration is illuminating, it is much less convincing because of the difficulties associated with providing a structural interpretation of the relationships between the variables.

I would like to focus my first comment on the basic methodology of the paper. Frankel defines a regional bloc as "a group of countries that are concentrating their trade and financial relationships with each other, *in preference to the rest of the world*" (emphasis added). He then tests (1) whether trade blocs are forming in Asia by examining if intraregional trade has increased more

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rapidly than a gravity model would predict, and (2) Japan's financial influence by using regression analysis.

Let me deal first with trade. In thinking about the implications of regional arrangements, it is important to be precise as to what we mean by the phrase "in preference." The term *preference* could imply some form of deliberate discrimination against outsiders—imposed by policy or prejudice. However, preferences could also reflect developments driven purely by efficiency considerations. The evidence from the gravity model tests cannot, of course, distinguish between these causes. While Frankel found that intra-Asian trade flows were not growing more rapidly than might be expected, even had he found that they were, this need not have implied that this development was harmful to the rest of the world.

The conventional answer to the question of whether regional arrangements enhance global welfare relates to the relative magnitudes of trade diversion and trade creation. These magnitudes, it should be stressed, do not correspond to the relative ex post growth of intra- and extraregional flows. Trade diversion harms welfare only when the inefficiency cost of buying from a higher-cost regional partner is greater than the deadweight gain to consumers of buying goods that are not subject to tariffs; that is, global (if not extraregional welfare) can be enhanced even when trade is shifted toward a regional partner. For the rest of the world, even if trade is thus diverted, there could be offsetting effects if regional integration has dynamic effects that stimulate growth.

Let me argue, moreover, that to evaluate regional arrangements properly, we need to move beyond the traditional approach that looks only at the role of the removal of border barriers. Regional arrangements such as EC92 involve deeper integration with an extensive program involving increased institutional harmonization to complete the internal market. We should really be evaluating the precise nature rather than simply the quantity of Asian economic integration. A growth in intraregional competition that reflects the weakening of domestic market power and the ability of domestic firms to collude and prevent entry might show up in data in a rapid increase in regional trade, but it could also increase the relative access of outsiders.

I think it is also important to distinguish between the aggregate trade flows that Frankel examines and behavior in particular sectors. While I agree that overall trade flows are driven by Asian growth, I think that in a few sectors, particularly machinery and electronics, there is more evidence that *keiretsu* activities are particularly strong. In these industries there appears to be an extensive and growing network associated with the activities of Japanese firms. These practices have made it relatively difficult for foreigners to enter the Japanese market, and there is a concern that the spread of such arrangements throughout Asia could have similar effects. So while I applaud Frankel's efforts as an important first step, I think we need to move beyond simply examining trade flows, toward examining institutional and industrial practices.

I had more problems with the evidence on financial behavior. In particular,

the regressions can be thought of as statistical summaries of the historic relationships between some highly endogenous variables, but it is hard to provide a structural interpretation for the results. The increased correlation between variables does not necessarily imply increased integration. It could simply reflect similar responses to common external shocks. Indeed, a major reason for similar responses within Asian countries could of course be similar pressures from the United States. In other words, closer links with the United States could lead to increased correlation in Asian behavior but reduced correlation with the United States, if U.S. policies brought pressures to shift Asian exchange rates.

I am particularly concerned about several of the regressions in which the coefficients sum to far more than unity. We might expect, for example, that a 1 percent increase in expected global inflation would raise nominal interest rates throughout the world by 1 percent, yet these regressions, if taken literally, suggest that such a shock would lead to changes far in excess of (or below) this effect.

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