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OF U.S. AFFILIATES IN ASIA

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ABSTRACT

Market size and growth rates, per capita income, distance from the United States, and tax rates on U.S. affiliates accounted for about half the variation among developing host countries in most aspects of U.S. FDI activity. Residuals from the equations for one period add greatly to the explanatory power of the next period's equations, suggesting that there are long-run characteristics of the host economies, omitted from the equations, that are favorable or unfavorable to U.S. investment and FDI activity.

There are considerable differences in the determinants of U.S. FDI activity between industries in which U.S. affiliates are export-oriented, such as machinery, and industries in which the affiliates' sales are mainly local. In the export-oriented industries, market size and distance from the United States were unimportant, and high per capita real income was the most consistent favorable influence. In the industries oriented to local sales, large market size attracted U.S. firms and long distance from the United States discouraged them.

Among the ten Asian countries studied, Singapore and Malaysia had the largest U.S. affiliate shares of aggregate output while India, China, and Korea had the smallest. The countries with the largest shares were also those that ranked high on measures of institutional characteristics, including low levels of corruption. Measured by deviations from the equations, however, the relation to the institutional measures was blurred, suggesting that the institutional measures are correlated with the economic characteristics used as explanatory variables in the equations.

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Introduction

The purpose of this paper is to try to explain the choice of locations for U.S. affiliates in Asian countries other than Japan and the Middle East and to describe and explain why the characteristics of these operations differ among locations. Location is defined by the size of the operations as measured by such variables as the stock of investment, production (gross product), sales, and employment. The characteristics we can examine include capital intensity, the degree of export orientation, dependence on imports from the United States, industrial composition, and the extent of research and development expenditures.

Since there are only a few Asian economies for which complete or almost complete affiliate data are available, it does not seem feasible to search for explanations of location or characteristics by statistical analyses among these countries alone. In the absence of this possibility, we use two different strategies. We begin with a description of the size and characteristics of U.S. firms operations in these countries, based on data from the U.S. outward investment surveys conducted by the Bureau of Economic Analysis of the U.S. Department of Commerce. Among the advantages of these surveys is that response is compulsory and that the concepts and definitions are consistent across host countries. Second, we run regressions across all developing countries and examine the ways in which the Asian countries deviate from the levels and characteristics implied by these regression equations.

There have been quite a few studies of investment location, but it is difficult to compare them, and it will be difficult to compare their results with ours, for many reasons. One is that the country coverage differs, particularly with respect to the inclusion or exclusion of developed host countries, the main destinations for direct investment. Another is that the measure of direct

investment differs; some studies use flows of investment, others use stocks, and still others use production, sales, capital expenditures, exports, or employment. A third reason for incomparability is that some studies examine mainly time series variation while others focus on cross- country variation at a given time.

Measures of Affiliate Location

There is no definitive measure of the size of affiliate operations. The stock of investment in a host country, the most frequently used measure because of its almost universal availability, is a financial concept, calculated for balance-of-payments purposes and matching balance-of-payments definitions. It does not necessarily match the location of production, employment, or other indicators of real activity because a host country may be used as a conduit for financing production that takes place elsewhere. For example, in the 1980s, the United States held stocks of direct investment in the Netherlands Antilles that reached a value of negative \$25 billion. There was no corresponding production there; the negative investment was the result of a tax on foreign borrowing that could be avoided by having the affiliates in the Netherlands Antilles borrow abroad and relend the proceeds to their parents in the United States, turning a portfolio capital flow into a direct investment flow that was not subject to the tax. Another example of a mismatch between investment stock and production is that, in 1997, the United States held an investment stock of \$33 billion in Bermuda, almost as large as that in Brazil and much larger than that in Mexico, two of the major destinations for U.S. outward FDI and locations for overseas production by U.S. multinationals. The investment in Bermuda, as well as in several other locations, such as the Bahamas, Panama, the Netherlands Antilles, and U.K. Islands in the Caribbean, is almost entirely in the Finance sector, and it is doubtful whether there is any real activity in those countries, other than incorporation, represented by these large investment stocks. The host countries' national income and product calculations treat these operations as outside the national economies.

Several measures of the size in 1994 of U.S. affiliate operations in Asian locations are presented in Tables 1 and 2. The data on gross product and exports refer only to majority-owned affiliates (MOFAs) because these measures are available only for them, but we can get some idea of the importance of the omitted 50 per cent-owned and minority-owned affiliates from data for the other variables. Singapore, despite its small population and geographical area, attracted the most U.S. FDI, as measured by the FDI stock, MOFA gross product, and MOFA sales, and was also, by far, the largest source of MOFA exports. Malaysia was host to the largest U.S. operations in terms of employment. Hong Kong was the largest as measured by total assets, twice as large if all affiliates are counted, and Indonesia was the largest as measured by fixed assets. The contrasts among the measures reflect mainly differences in industry composition. The importance of labor-intensive electronic product assembly in Malaysia resulted in high levels of employment. The large financial sector investment in Hong Kong involved a high level of total assets but not large fixed assets. And the importance of the capital-intensive Petroleum industry in Indonesia meant larger U.S. affiliate fixed assets there than in any other Asian location considered here.

The size of U.S. firms' operations should be considered with reference to the size of the host countries in which they are located, because there is a very large range among them. Two size measures for the locations we cover, nominal GDP and employment in 1994, are shown in Table 3. The nominal GDP figures exaggerate the differences between poorer and richer countries because price levels are much lower in the poorer countries than in Hong Kong or Singapore. However, we show the nominal figures because the measures for U.S. affiliates are also in nominal terms. In terms of employment, Singapore is the smallest of the countries, at less than one half of one per cent of China and India. In terms of nominal GDP, however, the small countries, Malaysia, the Philippines, and Singapore, are all well over 10 per cent of the size of the largest, China.

Three measures of U.S. affiliate size relative to location size are also shown in Table 3. One is the ratio of affiliate production (gross product) to GDP and the other two are ratios of affiliate to total employment. The ranges in the importance of U.S. affiliates are huge. The production ratios go from a low of about one tenth of one per cent in India and China to over 8 per cent in Singapore and the employment ratios from one hundredth of one per cent or less in India and China to around 6 per cent in Singapore. The employment ratios are far below the output ratios because output per worker is much higher on average in affiliates than in the host countries as a whole.

The growth of U.S. FDI differs according to the size measures used to measure it. The smallest growth rates are, for most countries, those measured by employment, the only measure not affected by inflation or other price changes. The increases for nine countries, excluding China (for which we lack 1982 data), averaged 75 per cent over the 12 years, and there were decreases in employment in two countries, India and the Philippines (Table 4). Taking all the growth measures, one can calculate that Korea had the highest rates of growth, on average, but from a very low level of foreign participation, still low in 1994. U.S. affiliates also grew relatively rapidly in Taiwan, Thailand, Singapore, and Hong Kong, and least rapidly in India, Indonesia, and the Philippines.

There are undoubtedly many explanations for the wide differences among these countries in the extent of U.S. FDI and in its growth over the period, and we will attempt a more formal analysis below. However, a large literature has been growing up suggesting that intangible or institutional factors, not easily quantified, may contribute to the explanation of these differences. We will attempt later to use some of these together with the more formal analysis, but we can make a first try here with the raw data and ratios of Tables 1, 2, and 3.

One of the most frequently used measure of these intangibles, published each year, is the World Competitiveness Index, published each year, that rates countries on a combination of

eight factors, labeled as “Openness, Government, Finance, Infrastructure, Technology, Management, Labor, and Institutions.” (World Economic Forum, 1998). Other analyses have focussed specifically on the level of corruption in a country, as in the case of Mauro (1995), who used data collected by a commercial organization, Business International, from ratings by its analysts and correspondents in the various countries and regions, for use in estimating “country risk” factors for sale to clients.

If we rank the ten Asian countries by the level of the overall Competitiveness Index, the average ratio of MOFA gross product to GDP in the five lower ranking countries was 1.5 per cent and that in the five higher ranking countries was 3.7 per cent. The corresponding averages for ratios of MOFA to total employment were .11 per cent and 2.25 per cent and for total affiliate employment, .17 and 2.70 per cent. If we reverse the procedure and rank the countries by the share of MOFA gross product in GDP, those with high shares had average Competitiveness indexes of .832 per cent and those with low shares, average indexes of .018 per cent. If we use the measures of perceived corruption as reported in Mauro, with low corruption represented by a high rank (close to 1), we find that the highest four countries ranked by affiliate output shares rank considerably higher (3.5) than the last four (5.6) with respect to corruption as well. There are only nine countries for this comparison because we do not have ratings for China. The difference is even sharper for the rankings by growth in affiliate output. The four countries with the fastest growth averaged 2.75 on the corruption scale while the four with the slowest growth averaged 6.4 on corruption.

Thus, among the ten Asian countries, low rankings on the Competitiveness Index or high levels of corruption, or of the perception of corruption, do seem to discourage U.S. FDI, at least as measured by these simple ratios and ignoring other potential influences that could be correlated with the competitiveness measures or the corruption indicator. The effect appears to

be particularly strong on the level of employment in U.S. affiliates but the discouraging effect looks to be quite general.

Determinants of Location

The use of ratios to GDP and population to identify particularly attractive or unattractive locations for investment provides no information as to the reasons for differences among countries except size. Yet the existence of differences among the ratios implies that there are other factors at work, and we wish to find out something about what they are.

As pointed out earlier, the number of Asian economies for which data are available is uncomfortably small for judging which factors are generally influential, and we therefore begin the analysis by fitting equations to data on all the developing countries for which the necessary information is available.

It would seem likely that many influences on FDI location are specific to particular industries. Mineral resources are required for mining industries, labor costs are more important for labor-intensive than for capital-intensive industries, human capital abundance may be more important for high-tech than for low-tech industries, and distance to markets more important for tradable goods industries than for nontradables. We begin here, however, by attempting to explain aggregate investment, assuming that industry differences will be reflected in different coefficients for different activity measures, including not only the size measures of Tables 1 and 2, but also specific activities such as exporting and R & D.

The first step in this search for determinants was to fit a set of equations across developing countries in general for ten aspects of affiliate activity. The independent variables in these equations are host country market size, as measured by nominal GDP, the growth in host country real GDP over the previous period (except that nominal GDP was used for the latest period), real GDP per capita, distance of the host country from the United States, and a measure of the rate of taxation on U.S. affiliates in the host country. The data for the first three variables

were taken from the Summers and Heston Penn World Tables, supplemented by the World Bank's World Development Indicators. The distance measure is shipping distance, from the sources described in Lipsey and Weiss (1974). The measure of tax rates was the sum of income taxes and other taxes, as a per cent of sales, from the U.S. outward investment surveys.

We expect host country market size and per capita real income to be positively related to U.S. affiliate size. The effect of per capita income, beyond that of market size, presumably would reflect an orientation of U.S.-based firms toward goods and services typically purchased by higher income consumers, or toward intermediate products and capital goods used to produce such goods and services. The rate of growth in the preceding period should enter with a positive coefficient if a high rate in the past is a good predictor of high rates in the future. But it might enter with a negative coefficient if successive rates of growth were negatively correlated, so that a high rate in one period predicted a low rate in the next period, as if a country tended to revert to some "normal" long run growth path. Distance from the United States could have both positive and negative effects on U.S. FDI. A longer distance makes a foreign operation more difficult and expensive to supervise, and might therefore discourage investment. However, a longer distance also makes exporting from the United States more expensive, and might therefore make local production more desirable and encourage investment. Tax rates, if we have measured them correctly, should presumably have a negative effect on investment.

The coefficients of the ten equations for 1989 and 1994 are shown in Table 4, except those for the intercepts and the tax variables, omitted to save space. The coefficients for the tax variables were all far from statistical significance. The insignificance of the tax variables is surprising, given the strong impact found in other studies of location (for example, Wei, 1997a), but the difference may reflect the differences in investment measures and country coverage. Wheeler and Mody (1992) also reported no consistent impact of tax rates on their measure of investment, U.S. affiliates' capital expenditures. The fact that the tax rate coefficients in our

equations are more frequently positive than negative suggests another possible problem in their use. We expect them to be negative because we think of them as an exogenous variable to which U.S. multinationals respond in choosing the location of their operations. An alternative possibility is that they are themselves endogenous, reflecting the attractiveness of the host countries, and representing the efforts of the host countries to exact a price from the multinationals for the use of host country resources. In that case they would not belong in these equations, and the positive coefficients sometimes found would be there because the tax rates are acting as proxies for host country advantages not included among the independent variables.

In general, both large market size and high average real income are shown to have attracted U.S. FDI, whatever the measure of FDI activity used. The only exceptions are MOFA exports, not positively correlated with GDP, and net exports, negatively, but not significantly, related to country size. As has been the case in most studies, there is no evidence that low wages, which would be associated with low per capita real income, were the main magnets for inward FDI as a whole. Large host country market size was not apparently a magnet for production destined for markets outside the host country, although it could be if it brought lower costs gained from economies of scale, as was found for manufacturing production in a much earlier period in Kravis and Lipsey (1982).

Previous growth in real GDP almost always appears, surprisingly, with a negative sign. Few of the coefficients are statistically significant at the 5 per cent level in a two-tailed test, but a couple of them are. Still, the consistency of the negative signs remains puzzling.

Coefficients for distance from the United States are negative. They are not statistically significant in 1989 but several of them are in the 1994 equations.

We thus have two consistent and statistically significant positive influences on U.S. affiliate activity, country size, as measured by GDP, and country real GDP per capita. Two

influences are consistently negative, but often not statistically significant. One is easily explainable (distance from the United States) but one contradicts expectations (real past growth)

While the determinants discussed above explain between 40 and 60 per cent of the variation in most measures of U.S. FDI activity across developing countries, that leaves half of the variation unexplained. The unexplained variation for the ten Asian countries, as represented by residuals from the equations for 1994, is shown in Table 6.

The sizes, and even the direction, of the residuals vary among the FDI measures, but there are some persistent patterns. One is that some countries show positive residuals, indicating more U.S. FDI activity than is explained by the equations and the variables included, across all or almost all activities. Others show all or almost all negative residuals, indicating less than the predicted levels of activity.

	Number	
	Positive	Negative
Overpredicted		
China	3	7
Hong Kong	1	9
India	0	10
Korea	0	10
Taiwan	1	9
Underpredicted		
Indonesia	8	2
Malaysia	9	1
Philippines	8	2
Singapore	10	0
Thailand	9	1

The most striking pattern is that countries with FDI activity higher or lower than predicted in one respect are correspondingly higher or lower in all or almost all other respects. Nine out of the ten countries are either high or low in at least eight out of the ten measures of U.S. FDI activity. The five with higher levels of FDI than predicted by the equations are Indonesia, Malaysia, the Philippines, Singapore, and Thailand. It is hard to see any obvious pattern in the list. Those with higher than predicted FDI activity score a little higher on the overall Competitiveness Index but worse on the perceived corruption scale mentioned earlier, than those with negative residuals, although the difference is not large. The high FDI group is not particularly more outward oriented than the others, according to the classification of trade policies in World Bank (1987).

Some of the patterns of the residuals in Table 6 do suggest explanations. The low numbers for U.S. FDI in China, India, and Korea probably reflect long periods of hostility toward direct investment and the restrictions placed on it as a result by host country governments. The high positive residuals for Singapore and possibly those for Malaysia and Thailand may reflect active pro-investment government policies and incentives.

There are two plausible interpretations of the residuals from these equations for U.S. FDI activity. One is that positive residuals represent the effects of some short term influences during a period that produce more investment than is warranted by the long term situation of a country, and that negative residuals represent short term influences that, perhaps for political reasons, such as the U.S. boycott of Viet Nam, or unfamiliarity with a location, hold back potentially profitable investment. In such cases, the residuals from an equation for one period would enter equations for the succeeding period with a negative sign. A period of temporarily excessive investment would be followed by one of lower investment. A level of FDI in a country that was lower than would be optimal would be followed by a catch-up.

Another interpretation could be that a higher or lower than expected level of FDI reflects not a disequilibrium to be corrected but rather a permanent, or at least long term advantage of a location that is not incorporated in the explanatory variables. In that case, residuals for one period would enter equations for the following period with a positive sign.

The two interpretations of the residuals are tested in Table 7. There is no evidence of any catch-up or correction of previous period disequilibrium. The previous period residuals are uniformly positive, indicating that a location with unexplained attractiveness or unattractiveness to U.S. FDI in one period retains that characteristic in the next period. The residuals apparently represent unincluded characteristics of locations that attract or repel U.S. FDI, but they are characteristics that we have not so far been able to identify. Another possibility is that they reflect economies of agglomeration: a large presence of U.S. affiliates in a country paves the way for other affiliates to enter by accumulating knowledge and lowering costs of entry for followers.

Determinants of Affiliate Characteristics

The same set of independent variables does much less well in explaining the characteristics of U.S. affiliates in developing countries. While some of the equations and individual coefficients are statistically significant, the degree of explanation is much lower than for the size variables and, more important, the explanations are inconsistent from year to year.

The export orientation of affiliates, as measured by the ratio of exports to sales, appears to be negatively related to the size of the local market and the average host country tax rate. Both of these relations are in the expected direction, but neither one produces significant coefficients in all three years. The same relationship holds for the ratio of net exports to sales.

As expected, the average nominal compensation per employee is positively and significantly related to per capita real income. No equations for capital intensity were statistically significant and only one out of six for measures of dependence on imports and one out of three for R & D intensity.

The characteristics of U.S. affiliates in the ten Asian countries, described in Table 8, show some large differences, not necessarily related to the variables in the equations. The very wide range in the ratio of gross product to the stock of investment, with the highest three times the lowest, illustrates the problems with using the stock as a proxy for production. The lowest ratio by far, and therefore the largest exaggeration from using the stock, is for China, although the reason is not obvious. The other low ratios, for Hong Kong and Singapore, probably reflect the role of these countries as intermediaries for investment in other countries. The ratios of gross product to sales show how much of affiliate sales are produced in the affiliate, as compared with processing of inputs produced elsewhere. The highest ratio by far is for Indonesia, as would be expected from the concentration in primary production, followed by the Philippines. The lowest ratios are for Hong Kong and Singapore, with no primary production and extensive entrepot activities. The exports/sales ratios in 1994 were highest for Indonesia, presumably reflecting the industrial composition of the investment. The next in line were the two most open economies, Singapore and Hong Kong, and the two lowest were India and Korea. Capital intensities, as measured by ratios of fixed capital to employment, were extremely high in Indonesia, presumably because the petroleum industry is so capital intensive, but the next two countries in this ranking are Singapore and Hong Kong, perhaps because they are the countries with the highest incomes, and therefore the highest wage levels. Within assets, Indonesia has the highest share in fixed assets, while Hong Kong and Singapore, more involved in Finance, have low ratios, as does Taiwan. The R & D intensities show Taiwan at the top, followed, surprisingly, by India, a country with extremely little U.S. investment at all, and then by Singapore and Korea. Again, it seems likely that these ratios cannot be explained without reference to the industry distribution of the investment.

Determinants of Location in Manufacturing

Since the determinants of location should differ among industries, as mentioned earlier, it is appropriate to move toward disaggregation as far as the data allow. A first step in this direction is to examine the determinants of manufacturing investment, since that group has some common features that distinguish it from primary products and possibly also from services.

In Table 9 we show the results of fitting equations for manufacturing in 1994, corresponding to those for all industries. On the whole, the fit of the equation is a little better, although not for all aspects of investment, and particularly not for employment and total assets. As for total investment, the most consistently positive influences on U.S. firms' activity were market size and average real income. Coefficients for growth in real income were negative, but never statistically significant. Those for tax rates were positive, but more often than not, significant. The major different result was that coefficients for distance from the United States were generally significant and always negative; the further a country was from the United States, given its other characteristics, the lower the level of U.S. firms' manufacturing affiliate activity. There was no indication that the greater expense of exporting from the United States associated with greater distance led to higher investment to substitute for exports. The only aspects of manufacturing affiliate activity that were not influenced significantly and positively by per capita real income in the host country were employment and net exports. The attraction of a presumably better educated labor force in higher income host countries was presumably offset to some extent, in its effect on these variables, by the higher price of labor in those countries.

The residuals from these equations for the ten Asian countries, reported in Table 10, show some differences from the pattern for total investment. Indonesia, which attracted more total U.S. investment and activity than predicted by the total FDI equations, attracted less manufacturing investment than predicted. The difference comes from primary production, mainly oil. The other difference is that while these Asian countries as a group attracted more

total U.S. investment and affiliate activity than predicted by the equations for all developing countries, they attracted less manufacturing production, although not less manufacturing employment, than predicted. While the residuals among Asian countries for total investment, shown in Table 6, were almost evenly split between positive and negative (49 positive and 51 negative), those for manufacturing, shown in Table 10, are mostly negative (39 positive and 58 negative). Given market size, real per capita incomes, and distance from the United States, the Asian countries attracted less U.S. direct investment activity in manufacturing than we would have predicted. The exceptions were Malaysia, the Philippines, Singapore, and Thailand. No obvious relation to the institutional variables discussed earlier jumps out from this array.

Tables 11 and 12 report the same information from equations for two major industry groups within U.S. manufacturing investment, nonelectrical and electrical machinery. The fit is poorer in these equations and some countries are lost because of lack of information, but a couple of differences between these industries and manufacturing as a whole stand out. In these two industries, in which the ratios of exports to sales among U.S. affiliates in developing countries are much higher than in manufacturing as a whole, market size is of little influence as an attraction for investment, and distance from the United States is of no consequence. Only per capita real income is a consistently positive, and usually significant, attraction for U.S. affiliate activity. Previous period growth in GDP seems to decrease exports, as if affiliates were first developed for export markets but tended over time to become naturalized, more focussed on host country markets.

These differences between the two machinery industries and manufacturing as a whole suggest that there must be some industries with behavior very different from that of the machinery industries. We examine two of the more important other industries, Foods and Chemicals, in Tables 13 and 14. In these industries, less geared to export markets, large market size is a strongly significant attraction for U.S. affiliates, while long distance from the United

States is a significant obstacle to investment. The exception to these relationships is net exports in the Food industry. Large market size was negatively related to net exports and distance from the United States encouraged net exports. High per capita GDP was generally a positive influence but usually not a significant one, and high tax rates were positively associated with most activity measures except exporting. Thus, what attracted U.S. affiliate activity in these industries was quite different from what attracted those in the machinery industries.

Conclusions and Directions for Research

The most consistent characteristic attracting U.S. direct investment and FDI activity to developing countries in general was large market size, but even that influence varied among industries and activities. Large market size did not appear to promote exports by U.S. affiliates and did not attract U.S. manufacturing investment in the export-oriented nonelectrical and electrical machinery industries.

High per capita income also attracted U.S. affiliates, and that influence was particularly notable in the two machinery industries, but was not a major factor in the food and chemical industries.

The rate of growth of the host economy in the preceding period generally appeared to be a negative influence on U.S. investment and affiliate activity, a surprising relationship. It was rarely a statistically significant influence in equations for all industries or for total manufacturing, but it did appear to have a negative effect on exports in the two machinery industries and a positive effect on several aspects of affiliate activity in the food industry. A possible explanation of the negative effect on machinery exports is that rapid growth in the host country may have caused affiliates to shift their sales from export markets to local host country markets.

Distance from the United States was another variable with little visible influence on most affiliate activities, usually negative except on affiliate exports, particularly net exports for

all industries as a group. In manufacturing, the effect was stronger and consistently negative. The negative influence was absent in the machinery industries but strong in foods and chemicals, except for a positive effect on net exports of chemicals. Thus, there is no evidence that FDI is placed in distant markets to replace potential exports for which distance imposes high transport costs. Instead, distance, even crudely measured by shipping distance, seems to impose costs of operation that discourage investments in those industries specializing in local sales. However, there was no such effect in industries specialized in exports.

Tax rates on U.S. affiliates do not appear to be a significant influence on FDI in all industries taken together, but do appear as a paradoxical positive influence in equations for total manufacturing activity. That relationship too can be traced to the two industries mainly dependent on local or host country sales, foods and chemicals. The tax rate may be a fee for access to local markets, a proxy for desirable characteristics of local markets that we have not identified, but that make them attractive to investors.

Among the ten Asian countries that are the focus of this paper, Singapore and Malaysia had the highest U.S. affiliate shares of total output, followed by Hong Kong, the Philippines, and Indonesia. India, China, and Korea were at the low end of the distribution. In terms of employment shares, Singapore and Hong Kong were at the top, followed by Malaysia, with India and China again at the bottom. These shares are roughly related to measures of institutional characteristics, such as those published in World Economic Forum(1998).

The equations across all developing countries do help to explain U.S. affiliate activity in the ten Asian countries. They also provide a ranking for them by the residuals from the equations, a measure of the influence of factors not included in the equations, a ranking that is different from that of the production or employment shares. Given the characteristics described above and included as independent variables in the equations, Singapore, Malaysia, and Thailand have the most unexplained U.S. FDI activity; that is, the largest positive residuals

(actual minus expected levels), from the equations for many FDI activities. That is the case for investment stocks, sales, exports, net exports, and R&D. Malaysia is close behind for these activities and at the top for output, employment, and employee compensation. Korea is the country with the least FDI activity, considering its other characteristics. That is, Korea had the largest negative residuals, followed by China, Taiwan, Hong, and India. In general, the countries with higher FDI activity than expected in one respect are higher in most other respects as well.

In FDI manufacturing activity by U.S. firms, Singapore is again the most frequent leader, relative to its attributes, but is surpassed by Malaysia in some respects, and the Philippines and Thailand also show higher than expected U.S. affiliate activity. All the other Asian countries show less than the expected activity that would be implied by their characteristics and the equations for developing countries. China and Korea, and in some respects, Hong Kong, were among the lowest.

The generality of these measures of attractiveness to U.S. FDI activity is reflected also in persistence over time. The residuals for one period add substantially to the predictions of activity for the next period. In other words, while the variables included in the equations explain about half of the variation in U.S. affiliate across countries, there are other persistent country characteristics not identified here that explain much of the rest of that variation. A country with less than expected inward FDI and FDI activity in one period will almost always be below average ten or fifteen years later

The rankings of Asian countries by their residuals, that is their deviations from the values implied by the equations, do not appear to have any obvious relation to the institutional variables mentioned earlier. That fact suggests that the institutional variables themselves, as measured in these surveys, are partly explained by the same economic factors that explain FDI activity. That is not to say that no institutional variables are important; it is hard not to suspect

that there is some impact of the long period of hostility toward inward FDI in China, India, and Korea, and the active pro-investment policies of Singapore, Malaysia, and Thailand.

It is clear that differences among industries are an important part of the explanation of location and characteristics of FDI. A major factor appears to be the distinction between export-oriented and host country-oriented industries, but other industry characteristics, such as capital intensity, may be important. The results therefore suggest the desirability of industry disaggregation in understanding the location decisions of multinational firms and differences in behavior among affiliates in different countries.

A different strategy would be to go beyond U.S. FDI to examine FDI from other countries. Since only a few countries report outward FDI data, such a program might involve shifting from home country data on outward investment to host country data on inward investment such as that reported in Ramstetter (1996) or the studies of individual studies in Dobson and Chia (1997). Some comparability across host countries would be sacrificed to produce more observations and the opportunity to study the combined effect of host-country and home-country characteristics.

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Table 1

Monetary Measures of the Size of US FDI in Ten Asian Locations, 1994
(\$ Million)

Country	US MOFAs					
	Stock	Gross Product	Sales	Assets	Fixed Assets	Exports
China	2,044	678	3,225	5,199	2,093	705
Hong Kong	9,024	4,900	29,729	48,237	5,120	671
India	280	232	983	1,061	317	49
Indonesia	6,109	4,649	8,229	13,487	7,446	2,989
Korea ^a	1,727	1,452	5,554	5,098	1,256	5,217
Malaysia	2,761	3,579	11,579	11,837	4,484	2,608
Philippines	1,751	1,803	5,211	4,555	1,246	12,960
Singapore	10,722	5,750	46,871	32,164	5,408	29,063
Taiwan	2,771	2,810	13,690	12,575	1,783	4,879
Thailand	2,765	2,644	9,627	10,755	4,130	1,327

Country	Non Bank Affiliates of Non Bank Parents			
	Stock	Sales	Assets	Fixed Assets
China	2,455	4,630	7,466	2,865
Hong Kong	9,509	31,015	51,593	5,796
India	470	n.a.	2,271	647
Indonesia	6,214	8,871	14,357	8,029
Korea ^a	2,967	14,849	15,283	5,148
Malaysia	2,867	12,086	12,681	4,843
Philippines	1,874	6,622	6,504	2,392
Singapore	10,811	48,088	33,675	6,289
Taiwan	3,314	15,476	15,460	3,176
Thailand	3,208	11,348	16,151	7,140

^aRepublic of Korea

Source: U.S. Department of Commerce (1998).

Table 2

Employment Measures of the Size of US FDI in Ten Asian Locations
(000)

Country	All US Affiliates	Nonbank Affiliates of Nonbank Parents	MOFAs	Affiliates 50% or Less US-owned
China	88	87	62	25
Hong Kong	123	112	91	21
India	51	48	18	30
Indonesia	63	61	52	9
Korea ^a	65	61	29	32
Malaysia	131	129	121	8
Philippines	104	94	66	28
Singapore	106	102	94	8
Taiwan	69	66	59	7
Thailand	102	100	70	30

^aRepublic of Korea

Source: U.S. Department of Commerce (1998).

Table 3

Measures of Country Size and Relative US Affiliate Size, 1994

Country	GDP Millions of US\$	Employment (000s)	MOFA Gross Product as % of GDP	MOFA Empl. as % of Total Employment	Affiliate Employment As % of Total Employment
China	540,925	671,990	0.13	0.009	0.013
Hong Kong	130,801	2,870	3.75	3.171	4.286
India	303,720	360,000	0.08	0.005	0.014
Indonesia	176,892	82,039	2.63	0.063	0.077
Korea, Republic of	380,820	19,837	0.38	0.146	0.308
Malaysia	70,759	7,618	5.06	1.588	1.720
Philippines	64,139	25,166	2.81	0.262	0.413
Singapore	71,039	1,649	8.09	5.700	6.428
Taiwan	243,285	8,939	1.16	0.660	0.772
Thailand	143,038	32,095	1.85	0.218	0.318

Table 4

Changes in the Size of US FDI in Ten Asian Locations, 1994/1982

Country	US FDI Stock	US MOFA				Fixed Assets
		Gross Product	Sales	Empl.	Assets	
China						
Hong Kong	4.19	5.11	3.96	2.46	7.87	3.23
India	1.87	1.01	1.59	.72	2.16	2.71
Indonesia	2.74	.74	.66	1.00	2.06	1.84
Korea, Republic of	10.04	6.63	9.20	2.07	9.55	7.30
Malaysia	2.35	2.12	2.68	2.05	3.79	2.80
Philippines	1.69	1.68	1.45	.81	1.72	1.74
Singapore	7.46	5.18	3.32	2.19	5.71	4.59
Taiwan	8.74	4.56	7.33	1.11	9.85	4.46
Thailand	3.86	4.02	3.72	3.33	8.40	7.17

Table 5

Coefficients for Four Explanatory Variables in Equations for
Various Aspects of U.S. Affiliate Activity in Developing Countries

Measures of U.S. Affiliate Activity	Explanatory Variables				\bar{R}^2 (Prob. F)
	Nominal GDP (\$Million)	Growth in Real GDP	Real GDP per Capita	Distance from U.S.	
1989					
Investment stock	17.2 (5.0)	-2,298 (1.2)	.367 (3.0)	-.138 (0.7)	.567 (0.001)
Gross Product	21.4 (4.8)	-2,004 (0.8)	.339 (2.1)	-.133 (0.5)	.546 (0.001)
Sales	39.5 (4.1)	-4,741 (0.9)	1.311 (3.9)	-.192 (0.3)	.554 (0.001)
Employment	0.61 (5.0)	-121 (1.8)	.009 (2.2)	-.006 (0.9)	.518 (0.002)
Employee compensation	7.5 (6.0)	-1,021 (1.5)	.127 (2.9)	-.080 (1.1)	.635 (0.000)
Assets	28.6 (4.0)	-2,966 (0.7)	1.040 (4.1)	-.136 (0.3)	.568 (0.001)
Fixed assets	11.3 (3.7)	-887 (0.5)	.226 (2.1)	-.037 (0.2)	.441 (0.007)
Exports	2.2 (0.5)	-264 (0.1)	.637 (4.2)	.112 (0.4)	.480 (0.005)
Net exports	-3.5 (1.0)	1,433 (0.8)	.427 (3.5)	.205 (1.0)	.487 (0.006)
R & D expenditures	0.18 (6.5)	-29 (2.6)	.0020 (2.2)	-.000 (0.1)	.793 (0.000)
1994					
Investment stock	13.0 (3.9)	-1,485 (1.2)	.454 (4.4)	-.495 (2.0)	.588 (0.000)
Gross Product	12.6 (4.4)	-1,178 (1.0)	.325 (3.7)	-.466 (2.2)	.599 (0.000)
Sales	27.9 (2.6)	-5,296 (1.3)	1.585 (4.9)	-.927 (1.2)	.563 (0.000)
Employment	0.39 (3.7)	-10 (0.2)	.005 (1.5)	-.016 (2.1)	.334 (0.016)
Employee compensation	5.27 (4.9)	-320 (0.8)	.123 (3.7)	-.237 (3.0)	.601 (0.000)
Assets	22.6 (2.7)	-7,893 (2.4)	1.754 (6.9)	-.609 (1.0)	.700 (0.000)
Fixed assets	7.4 (2.9)	-66 (0.1)	.202 (2.6)	-.157 (0.8)	.461 (0.002)
Exports	0.4 (0.1)	-2,527 (1.0)	.717 (3.5)	.162 (0.3)	.390 (0.014)
Net exports	-7.3 (1.4)	-2,011 (1.0)	.485 (3.0)	.622 (1.6)	.389 (0.014)
R & D expenditures	0.21 (3.2)	-50 (1.9)	.0074 (3.6)	-.007 (1.5)	.446 (0.008)

Note: Figures in parentheses are t-statistics

Table 6

Residuals From Equations Across All Developing Countries, 1994

Country	Investment Stock	Sales	Gross Product	Employment	Employee Compensation
China	-1,553.82	-4,406.86	-2,586.73	-95.70	-1,320.22
Hong Kong	-921.84	-7,448.83	-1,481.81	-31.37	-562.45
India	-1,466.33	-2,784.63	-1,735.25	-19.68	-238.78
Indonesia	2,661.18	2,112.66	562.39	10.07	-78.75
Korea, Republic of	-4,841.04	-13,734.33	-3,873.70	-112.58	-1,334.96
Malaysia	2,064.68	7,180.82	3,437.34	133.49	1,237.97
Philippines	618.77	3,584.75	297.35	61.78	431.23
Singapore	4,440.88	19,656.71	2,592.21	38.04	728.45
Taiwan	-3,229.56	-5,769.56	-1,659.24	-50.02	-521.73
Thailand	1,311.82	5,197.12	1,339.45	60.10	469.58

Country	Assets	Fixed Assets	Exports	Net Exports	R & D
China	1,144.37	-642.13	1,558.85	4,053.76	-46.00
Hong Kong	8,578.57	-81.80	-4,775.68	-4,546.40	-96.47
India	-3,860.20	-2,067.79	-801.10	-1,347.42	-20.88
Indonesia	5,855.58	3,205.47	4,209.02	3,031.07	-18.40
Korea, Republic of	-13,671.33	-3,142.03	-5,428.59	-3,156.15	-76.05
Malaysia	6,555.20	2,835.00	1,244.78	-1,405.86	35.57
Philippines	1,560.06	-962.63	813.74	-535.71	15.85
Singapore	3,403.08	1,794.79	14,119.06	12,631.99	86.32
Taiwan	-7,435.25	-1,950.64	-4,580.37	-2,850.77	22.51
Thailand	5,824.98	1,596.59	218.87	-1,238.31	6.22

Table 7
Coefficients for Explanatory Variables Including Previous Period Residuals
in Equations for Various Aspects of U.S. Affiliate Activity in Developing Countries

Measures of U.S. Affiliate Activity	Explanatory Variables				Residual From Previous Period	\bar{R}^2 (Prob.F)
	Nominal GDP (\$Million)	Growth in Real GDP	Real GDP per Capita	Distance from U.S.		
1989						
Investment stock	22.6 (8.7)	-1,837 (1.2)	.288 (3.0)	-.042 (0.3)	.81 (2.8)	.897 (.000)
Gross Product	29.3 (10.3)	-1,500 (0.9)	.212 (2.0)	.017 (0.1)	.83 (3.6)	.922 (.000)
Sales	54.1 (8.0)	-4,091 (1.0)	1.106 (4.4)	.172 (0.4)	.57 (3.0)	.891 (.000)
Employment	0.8 (5.2)	-110 (1.4)	.004 (0.8)	-.002 (0.2)	.48 (0.9)	.807 (.001)
Employee compensation	9.2 (14.5)	-740 (2.2)	.101 (4.3)	-.072 (1.8)	.90 (4.6)	.968 (.000)
Assets	37.7 (6.7)	-2,285 (0.7)	.924 (4.4)	.060 (0.2)	.80 (3.0)	.872 (.000)
Fixed assets	15.6 (5.2)	-605 (0.4)	.145 (1.3)	.053 (0.3)	.69 (2.1)	.742 (.003)
Exports	6.3 (1.4)	-1,561 (0.6)	.629 (3.6)	.389 (1.4)	.45 (2.4)	.744 (.005)
Net exports	-1.9 (0.7)	483 (0.3)	.491 (4.9)	.388 (2.4)	.48 (4.7)	.887 (.001)
R & D expenditures	0.2 (19.9)	-17 (5.5)	.001 (2.5)	-.001 (1.6)	.46 (6.2)	.994 (.000)
1994						
Investment stock	14.6 (6.4)	-1,567 (1.7)	.387 (5.3)	-.362 (1.9)	1.31 (5.1)	.829 (.000)
Gross Product	14.6 (7.9)	-872 (1.2)	.252 (4.2)	-.352 (2.3)	.91 (5.5)	.858 (.000)
Sales	32.9 (4.5)	-3,621 (1.2)	1.292 (5.5)	-.513 (0.8)	1.58 (5.4)	.818 (.000)
Employment	.40 (6.3)	-17 (0.7)	.003 (1.6)	-.012 (2.3)	1.26 (6.4)	.781 (.000)
Employee compensation	5.8 (6.5)	-255 (0.7)	.104 (3.6)	-.212 (2.9)	1.05 (3.8)	.765 (.000)
Assets	26.8 (4.8)	-6,980 (3.1)	1.534 (8.4)	-.265 (0.6)	1.61 (5.3)	.878 (.000)
Fixed assets	8.6 (5.3)	-350 (0.5)	.150 (2.9)	-.009 (0.1)	1.12 (5.4)	.796 (.000)
Exports	0.9 (0.3)	-1,279 (1.0)	.550 (5.5)	.304 (1.2)	2.32 (8.6)	.892 (.000)
Net exports	-5.3 (1.7)	-51 (0.0)	.304 (3.0)	.732 (2.9)	2.30 (6.5)	.841 (.000)
R & D expenditures	.4 (5.6)	-22 (1.1)	.004 (2.0)	-.004 (1.0)	4.72 (4.6)	.792 (.000)

Note: Figures in parentheses are t-statistics

Table 8

U.S. MOFA Characteristics in Ten Asian Locations, 1994

	<u>Gross Prod.</u> <u>Stock</u>	<u>Gross Prod.</u> <u>Sales</u>	<u>Exports</u> <u>Sales</u>	<u>Fixed Assets</u> <u>Employment</u> (\$000)	<u>Fixed Assets</u> <u>Assets</u>	<u>R & D</u> <u>Sales</u>
China	.332	.210	.219	33.8	.403	.22
Hong Kong	.543	.165	.436	56.3	.106	.17
India	.829	.236	.050	17.6	.299	.51
Indonesia	.761	.565	.634	143.2	.552	.06
Korea	.841	.261	.121	43.3	.246	.31
Malaysia	1.296	.309	.421	37.1	.379	.23
Philippines	1.030	.346	.255	18.9	.274	.27
Singapore	.536	.123	.620	57.5	.168	.36
Taiwan	1.014	.205	.218	30.2	.142	.80
Thailand	.956	.275	.271	59.0	.384	.03

Source: Table 1 and U.S. Department of Commerce (1998).

Table 9

Coefficients for Five Explanatory Variables in Equations for
Various Aspects of U.S. Affiliate Activity in Manufacturing in Developing Countries, 1994

	Nominal GDP	Growth in Real GDP	Real GDP Per Capita	Distance from U.S.	Tax Rate	\bar{R}^2 (Prob.F)
Investment Stock	12.2 (5.1)	-1,034 (1.1)	.217 (2.9)	-.471 (2.6)	17.7 (2.3)	.564 (.000)
Gross Product	11.7 (4.7)	-1,052 (1.1)	.214 (2.8)	-.492 (2.7)	22.4 (2.8)	.540 (.001)
Sales	27.3 (3.6)	-1,543 (0.5)	.662 (2.8)	-1.11 (1.9)	34.9 (1.4)	.419 (.005)
Employment	0.34 (3.8)	-9 (0.3)	.004 (1.3)	-.013 (2.0)	.226 (0.8)	.319 (.020)
Employee Compensation	4.5 (4.8)	-223 (0.6)	.073 (2.5)	-.202 (2.9)	6.5 (2.2)	.525 (.001)
Assets	21.7 (4.1)	-1,769 (0.9)	.469 (2.9)	-.765 (1.9)	33.9 (2.0)	.472 (.002)
Fixed Assets	8.7 (5.3)	-517 (0.8)	.119 (2.3)	-.329 (2.7)	13.1 (2.5)	.561 (.000)
Exports	47.5 (3.5)	-4,461 (0.8)	1.10 (2.6)	-2.46 (2.4)	96.5 (1.9)	.461 (.009)
Net Exports	51.9 (3.6)	-3,103 (0.7)	.76 (1.9)	-1.78 (2.1)	57.2 (1.1)	.553 (.005)
R&D Expenditures	.20 (5.0)	-29 (1.5)	.004 (2.3)	-.011 (2.9)	.39 (2.5)	.579 (.001)

Note: Figures in parentheses are t-statistics

Table 10

Residuals from Equations for Manufacturing Across All Developing Countries, 1994
(\$ million except for employment, in thousands)

	Investment Stock	Value Added	Fixed Assets	Assets	Sales	Employment	Employee Compensation	R & D Expenditures	Exports	Net Exports
China	-2,878.1	-2,709.5	-1,965.3	-4,561.0	-7,093.7	-82.9	-1,247.1	-62.7	-10,258.9	.
Hong Kong	-2,379.5	-2,325.4	-1,618.2	-6,830.1	-9,117.3	-31.5	-829.6	-13.4	-12,648.4	-9,225.4
India	-787.0	-710.9	-635.1	-1,588.6	-1,131.5	-17.7	-176.2	-12.6	-1,817.7	-5,540.6
Indonesia	-1,263.5	-1,447.0	-862.9	-1,932.8	-1,500.6	-6.5	-375.4	-18.4	-5,074.5	-4,070.9
Korea, Republic of	-2,330.8	-3,000.3	-1,681.4	-5,784.7	-8,360.1	-96.3	-1,067.6	-54.5	-12,531.6	-14,303.5
Malaysia	2,721.3	2,661.0	2,180.6	5,332.5	7,133.9	127.3	1,114.7	58.9	11,943.9	8,601.8
Philippines	1,076.4	820.8	555.5	1,485.8	3,214.9	55.1	397.3	17.0	3,197.4	3,563.8
Singapore	2,499.2	2,740.8	1,472.1	9,090.9	12,666.6	37.4	772.6	.	16,374.6	15,203.4
Taiwan	-1,013.6	-1,337.2	-731.4	-2,965.5	-3,203.0	-46.7	-349.8	.	-5,255.7	-5,553.1
Thailand	1,357.8	930.9	823.7	1,698.0	2,958.8	54.6	395.7	18.7	4,885.0	2,724.2

Table 11

Coefficients for 5 Explanatory Variables in Equations for Various
Aspects of U.S. Affiliate Activity in Nonelectrical Machinery in Developing Countries, 1994

	Nominal GDP	Growth in Real GDP	Real GDP Per Capita	Distance from U.S.	Taxes as a Ratio of Sales	\bar{R}^2 (Prob. F)
Investment Stock	0.653 (2.3)	-170 (-1.5)	0.031 (3.3)	-0.014 (-0.6)	984 (1.1)	0.370 (0.018)
Gross Product	0.238 (0.4)	-156 (-0.7)	0.038 (2.2)	0.018 (0.4)	626 (0.3)	0.126 (0.185)
Sales	-1.609 (-0.4)	-652 (-0.4)	0.211 (1.7)	0.290 (0.9)	-2,309 (-0.2)	0.140 (0.207)
Employment	0.017 (1.8)	-4 (-1.0)	0.001 (2.3)	0.000 (0.3)	15 (0.5)	0.217 (0.068)
Employee Compensation	0.235 (1.3)	-69 (-1.0)	0.014 (2.6)	-0.002 (-0.1)	466 (0.8)	0.213 (0.086)
Assets	-0.780 (-0.3)	-415 (-0.4)	0.130 (1.8)	0.160 (0.7)	-106 (0.0)	0.102 (0.262)
Fixed Assets	0.492 (1.8)	-91 (-1.0)	0.015 (2.0)	-0.008 (-0.3)	1,038 (1.3)	0.190 (0.147)
Exports	-2.628 (-0.5)	-3,407 (-2.0)	0.738 (2.6)	-0.274 (-0.4)	15,081 (0.7)	0.495 (0.031)
Net Exports	-2.821 (-0.6)	-3,134 (-2.0)	0.672 (2.6)	-0.202 (-0.3)	14,123 (0.8)	0.497 (0.030)
R & D Expenditures	0.006 (2.6)	-4 (-3.5)	0.001 (4.3)	0.000 (-0.5)	1 (0.2)	0.540 (0.001)

Note: Figures in parentheses are t-statistics

Table 12

Coefficients for 5 Explanatory Variables in Equations for Various Aspects of U.S. Affiliate Activity in Electrical Machinery in Developing Countries, 1994

	Nominal GDP	Growth in Real GDP	Real GDP Per Capita	Distance from U.S.	Taxes as a Ratio of Sales	\bar{R}^2 (Prob. F)
Investment Stock	.488 (0.7)	-299 (-1.2)	0.057 (2.8)	0.048 (1.0)	-9 (-0.0)	0.3107 (0.0411)
Gross Product	.598 (1.4)	-142 (-0.9)	0.032 (2.5)	-0.006 (-0.2)	-625 (-0.5)	0.2639 (0.0578)
Assets	.279 (0.2)	-510 (-1.2)	0.062 (1.8)	0.185 (1.9)	-1297 (-0.4)	0.2889 (0.0674)
Fixed Assets	-.009 (-0.0)	-111 (-0.9)	0.008 (0.8)	0.078 (2.7)	-1045 (-1.0)	0.3004 (0.061)
Sales	.738 (0.4)	-560 (-0.8)	0.106 (1.9)	0.185 (1.2)	-3467 (-0.6)	0.2542 (0.0103)
Employment	.087 (2.1)	1 (0.1)	0.001 (0.5)	-0.002 (-0.6)	-88 (-0.7)	0.0482 (0.3163)
Employee Compensation	.559 (1.9)	-43 (-0.4)	0.013 (1.4)	-0.022 (-0.9)	-296. (-0.3)	0.0998 (0.236)
Exports	1.229 (0.7)	-2102 (-3.5)	0.339 (5.2)	0.087 (0.5)	-1854 (-0.4)	0.7823 (0.0025)
Net Exports	.678 (0.6)	-1425 (-3.4)	0.229 (5.0)	0.060 (0.5)	-1326 (-0.4)	0.7673 (0.0032)
R & D Expenditures	.006 (0.8)	-3 (-1.2)	0.000 (1.9)	0.000 (0.6)	15 (0.7)	0.0526 (0.3188)

Note: Figures in parentheses are t-statistics

Table 13

Coefficients for 5 Explanatory Variables in Equations for
Various Aspects of U.S. Affiliate Activity in the Food Industry

	Nominal GDP	Growth in Real GDP	Real GDP Per Capita	Distance from U.S.	Taxes as a Ratio of Sales	\bar{R}^2 (Prob. F)
Gross Product	1.888 (5.5)	35 (0.2)	0.031 (2.2)	-0.091 (-3.4)	2,980 (2.6)	0.6606 (0.0001)
Assets	3.697 (4.9)	246 (0.8)	0.048 (1.6)	-0.227 (-3.9)	6,786 (2.6)	0.6427 (0.0004)
Fixed Assets	1.026 (5.2)	191 (2.5)	0.010 (1.7)	-0.069 (-4.1)	2,124 (3.2)	0.7223 (0.0001)
Sales	4.701 (4.5)	554 (1.4)	0.044 (1.4)	-0.328 (-3.7)	9,099 (2.6)	0.6193 (0.0007)
Employment	0.042 (4.0)	3 (0.7)	0.000 (0.9)	-0.003 (-3.3)	67 (2.0)	0.4487 (0.0028)
Employee Compensation	0.528 (4.3)	78 (1.4)	0.006 (1.2)	-0.035 (-3.8)	943 (2.3)	0.6003 (0.0004)
Exports	0.249 (1.2)	229 (2.9)	-0.003 (-0.5)	0.002 (0.2)	467 (0.7)	0.2846 (0.0311)
Net Exports	0.185 (0.9)	235 (2.9)	-0.004 (-0.6)	0.009 (0.6)	476 (0.7)	0.2863 (0.0305)
R & D Expenditures	0.011 (4.9)	2 (2.1)	0.000 (1.2)	-0.001 (-3.8)	22 (2.9)	0.6249 (0.0001)

Note: Figures in parentheses are t-statistics

Table 14

Coefficients for 5 Explanatory Variables in Equations for
Various Aspects of U.S. Affiliate Activity in the Chemical Industry

	Nominal GDP	Growth in Real GDP	Real GDP Per Capita	Distance from U.S.	Taxes as a Ratio of Sales	\bar{R}^2 (Prob. F)
Gross Product	3.422 (5.8)	-172 (-0.8)	0.033 (1.8)	-0.109 (-2.5)	4,360 (2.3)	0.5898 (0.0002)
Assets	4.713 (5.5)	-295 (-0.9)	0.063 (2.4)	-0.183 (-2.9)	10,717 (3.6)	0.6640 (0.0001)
Fixed Assets	1.598 (5.1)	-162 (-1.3)	0.023 (2.4)	-0.060 (-2.6)	3,624 (3.4)	0.6257 (0.0002)
Sales	6.088 (4.8)	-173 (-0.4)	0.066 (1.7)	-0.259 (-2.8)	12,522 (2.8)	0.5809 (0.0006)
Employment	0.051 (7.1)	-3 (-0.9)	0.000 (2.0)	-0.002 (-3.3)	66 (2.9)	0.6923 (0.0001)
Employee Compensation	1.006 (5.6)	-18 (-0.3)	0.010 (1.8)	-0.046 (-3.4)	1,661 (2.9)	0.5980 (0.0001)
Exports	0.264 (1.7)	-13 (-0.2)	0.005 (0.9)	-0.004 (-0.3)	30 (0.1)	-0.0228 (0.5089)
Net Exports	-0.331 (-2.7)	-10 (-0.2)	-0.001 (-0.3)	0.020 (2.2)	-630 (-1.6)	0.2254 (0.0621)
R&D Expenditures	0.095 (4.0)	-1 (-0.1)	0.001 (1.2)	-0.006 (-3.0)	86 (1.1)	0.4019 (0.0094)

Note: Figures in parentheses are t-statistics