

Determinants of capital expenditures by foreign affiliates of United States transnational corporations

Baban Hasnat *

Capital expenditures by transnational corporations are a more appropriate measure of these firms' commitment to international production than foreign direct investment. An empirical examination of the determinants of capital expenditures by majority-owned nonbank foreign affiliates of nonbank United States transnational corporations in five developed countries during the period 1975-1992 is provided here. Using the least squares dummy variables technique, various versions of a reduced-form model are estimated with market size, market growth, exchange rates, interest rates and tariffs as the independent variables. The coefficients of all variables are significant and have the expected signs.

Introduction

During the past two decades, the international production activities of transnational corporations (TNCs) have attracted considerable attention. An extensive literature has emerged to explain the determinants of international production by TNCs. Pioneering work on the theory of TNCs includes, among others, that by S. Hymer (1976), P. Buckley and M. Casson (1976), A. Rugman (1979), J. Dunning (1977, 1979), R. Aliber (1970), K. Kojima (1978), R. Vernon (1966) and R. Caves (1971). The literature has been surveyed in recent years by D. Rayome and J. C. Baker (1995), S. Lizondo (1993) and the United Nations Centre on Transnational Corporations (1992).

* Assistant Professor, International Business and Economics, Department of Business Administration and Economics, State University of New York, College at Brockport, Brockport, New York, United States.

Although there are a variety of measures of international production, empirical research has used mostly foreign-direct-investment (FDI) data. These data are popular because they are more accessible than other measures of international production, such as TNC-related sales, profits, employment, etc. In fact, some international organizations, such as IMF and UNCTAD, have been instrumental in making FDI data widely available.

One measure of the international production activities of TNCs, namely, capital expenditures by foreign affiliates, has not received much attention in the literature. This lack of interest is particularly surprising in the case of the United States, because time-series data on capital expenditures by majority-owned (nonbank) foreign affiliates (MOFAs) of United States-based (nonbank) parent firms have been available for a while. Data on capital expenditures are an alternative measure of a TNC's commitment to international production. This research note provides an empirical examination of the determinants of capital expenditures by MOFAs of (nonbank) United States TNCs.

Since international production, like exports, is important for supplying goods and services to foreign markets, there is a need to understand what motivates TNCs to increase or decrease their productive capacity abroad, and what determines their decisions to expand productive capacity in one country as opposed to another. The simple single-equation econometric model presented here can contribute to understanding the influence of various factors that affect capital expenditures by foreign affiliates. The results of estimating the model should be viewed as complementary to other studies that examine determinants of TNC activity.

The next section discusses the reasons for using capital expenditures as a measure of TNC activity. The subsequent section reviews briefly other studies that have also used capital expenditures by foreign affiliates as a measure of TNC activity. This is followed by a discussion of the determinants of capital expenditures, the presentation of the model and the data and an analysis of the empirical results. Some policy observations are included in the concluding section.

Reasons for using data on capital expenditures by foreign affiliates

Focusing on data on capital expenditures by foreign affiliates is warranted because FDI data, although they provide valuable insights into TNC activities, also have a number of drawbacks (Kravis and Lipsey, 1988).

-
- One drawback is that FDI data do not reflect actual investment activity by TNCs in host countries. This point can be illustrated with reference to the United States. The United States Department of Commerce (USDOC) defines capital expenditures as “all expenditures that are charged to capital accounts and are made to acquire, add to, or improve property, plant, and equipment” (Nader, 1994, p. 58, footnote 1). As long as a transaction does not involve exchanging cash for capital goods (which would change the form in which assets are held, but not necessarily increase their value), an increase in capital expenditures by a foreign affiliate of a United States-based parent firm will increase the foreign affiliate’s asset base. However, an increase in these expenditures does not necessarily mean that United States FDI abroad increases as well. If the foreign affiliate uses its retained earnings, or receives funds in the form of loans or equity from the parent firm, the United States balance-of-payments account will record the transaction as a capital outflow and as an increase in United States FDI abroad. However, if the foreign affiliate uses funds from other sources, the United States balance-of-payments account will not necessarily recognize the transaction as a capital outflow, and it will certainly not be recorded as an increase in United States FDI abroad. But funds from other sources also increase a TNC’s productive capacity abroad.

In 1992, for example, all affiliates of United States-based parent firms accounted for \$17 billion worth of manufacturing FDI, whereas MOFAs accounted for \$29 billion worth of capital expenditures in manufacturing (USDOC, 1995). During the period 1980-1989, average United States FDI outflows for all affiliates were \$6 billion, whereas average capital expenditures by MOFAs were \$19 billion. The total assets of foreign affiliates of United States-based parent firms (funded by foreign affiliates, parent firms or other sources) were \$1.7 trillion in 1992, while the United States FDI position abroad (i.e., the part of foreign-affiliate total assets that is funded by United States parent firms in the form of equity or intra-firm loans, and the retained earnings of foreign affiliates) was only \$499 billion (Mataloni, 1995). According to Martin Feldstein (1994), during the past decade about 20 per cent of the value of the assets owned by foreign affiliates of United States-based TNCs has been financed by capital outflows from the United States, 18 per cent has been financed by retained earnings attributable to United States investors, and the remaining 62 per cent has been financed by foreign debt and equity.

-
- Another drawback with FDI data is that they typically attribute the location of an investment to the country of the immediate, and not the ultimate, destination of the investment. Therefore, when investment flows go to a country that is not the final destination (e.g., an offshore financial centre), FDI data may provide a misleading picture of the pattern of location of TNC production activities. For example, the United States FDI position (FDI stock measured on a historical cost basis) in Bermuda, an offshore financial centre, was \$26 billion in 1992 (Mataloni, 1995). Only five countries—Canada, Germany, Japan, Switzerland and the United Kingdom—had a higher FDI stock originating from the United States than Bermuda. Furthermore, Bermuda's average FDI stock attributable to the United States per employee was \$9 million in 1992, compared with a worldwide average of \$74,000. Likewise, in terms of FDI flows, only France and the United Kingdom received more investment from the United States in 1992 than Bermuda. In the example of Bermuda, FDI figures certainly give a distorting picture of the true location of TNC activity. In contrast, data on capital expenditures always refer to the actual location of TNC production.

The literature on capital expenditures by foreign affiliates

Few studies have used capital expenditures by foreign affiliates as a proxy for TNC activity abroad. Overall, all of these studies have demonstrated that data on capital expenditure can be used adequately as a proxy for foreign-affiliate investment and production activities abroad. More specifically, Richard Herring and Thomas Willett (1973), referring to the capital expenditures of foreign affiliates as the real side of FDI, found a positive relationship between United States capital expenditures at home and abroad. Guy Stevens (1969) and Guy Stevens and Robert Lipsey (1992) developed and tested models that focus on the interaction between domestic and foreign capital expenditures. In both studies there is evidence of overwhelming support for the interaction between domestic and foreign investment by United States TNCs.

I. J. Bernstein and M. Ishaq Nadiri (1984) have focused on the financing aspects of capital expenditures. L. A. Lupo (1978), Anthony Scaper-

landa and Robert Balough (1983), and Harry Grubert and John Mutti (1991) have examined the determinants of capital expenditures by foreign affiliates of United States-based TNCs. Edward J. Ray (1995) has examined the factors that determine the pattern of capital expenditures by affiliates in the United States of foreign-based TNCs. Finally, Catherine L. Mann (1989) has used capital expenditure data to study Japanese investments in the United States.

Determinants of capital expenditures by foreign affiliates

A number of host-country factors affect the capital-expenditure (and investment) decisions of foreign affiliates. The variables used commonly in the empirical literature on FDI determinants are market size, market growth, inflation, interest rates, exchange rates, trade barriers (including the existence of regional integration schemes) and tax rates. While there seems to be a general consensus that market size and market growth are important determinants of FDI, no consensus has emerged as far as the other variables are concerned. With regard to the determinants of foreign-affiliate capital expenditures, attention is paid here only to those factors that have been shown to be important determinants of FDI in the literature. Factors that lack operational definition or are difficult to measure are excluded from the analysis of the determinants of foreign-affiliates' capital expenditures.

Conventional wisdom suggests that a host country's market size—as measured by the level of gross domestic product (GDP), gross national product (GNP), or domestic sales—should be related positively to foreign affiliates' capital expenditures. Over three fourths of total sales by United States MOFAs in 1992 were geared towards host-country markets (Nader, 1994). It is reasonable to assume that a host country's market size should play an important role in a foreign affiliate's decision to expand productive capacity in that market. A large market over which scale and scope economies may be achieved offers opportunities for all firms, including foreign affiliates. The larger the market size, the larger should be the capital expenditures by foreign affiliates. Lupo (1978), Scaperlanda and Balough (1983), and Gruber and Mutti (1991) have all found a significant positive relationship between foreign affiliates' capital expenditures and market size. Only a few studies, including the one by Riad A. Ajami and Ran BarNiv (1984), suggest that market size is not an important determinant of foreign affiliates' capital expenditures.

The market growth rate—as measured by the growth of GDP, GNP, or domestic sales—should also be related positively to foreign affiliates' capital expenditures. A high growth rate in a host country would indicate that its market is attractive to foreign and domestic producers alike. Growth rates also reflect cyclical fluctuations in economic activity. A high growth rate reflecting a cyclical upturn can lead to an increase in cash flows to both domestic and foreign firms, providing funds that can be used to finance new projects that had been put on hold. Likewise, a cyclical slowdown in economic growth may lead to the postponement or even cancellation of new projects by all firms, including foreign affiliates. The empirical evidence is mixed. Ray (1995), in the most comprehensive treatment of foreign-affiliate capital expenditure determinants to date, finds that capital expenditures by foreign affiliates in the United States of foreign-based TNCs respond positively to industrial growth rates. Scaperlanda and Balough (1983) find a positive, but insignificant, relationship between foreign affiliates' capital expenditures and changes in current sales and predicted future sales after one year. However, predicted future sales after a two-year lag are found to be negatively related to foreign affiliates' capital expenditures, although that relationship is not statistically significant. Stephen Martin (1991) finds mixed support for the hypothesis of a positive relationship between growth rates and foreign-affiliate capital expenditures.

The impact of inflation—as measured by changes in the consumer price index, the wholesale price index, or by the GNP deflator—on foreign affiliates' capital expenditures is ambiguous. Higher inflation in a host country may be related positively to the nominal value of foreign affiliates' capital expenditures because it increases the nominal cost of projects. Lupo (1978) finds a significant positive relationship between foreign affiliates' capital expenditures and changes in the wholesale price index in the host country. However, it can also be argued that the relationship between foreign affiliates' capital expenditures and inflation rates in host countries is negative because higher inflation can be perceived to reflect economic vulnerability, weakness, and/or macroeconomic mismanagement that could induce firms, including foreign affiliates, to decrease their planned capital expenditures. A. Schneider and B. S. Frey (1985) find evidence supporting the negative relationship between inflation rates and foreign affiliates' capital expenditures.

Interest rates should be related negatively to capital expenditures because higher (nominal) interest rates increase the cost of capital and discourage expenditures by all firms, including foreign affiliates. Martin

(1991), Ajami and BarNiv (1984) and Petrochilos (1984, 1989) find evidence that supports this hypothesis. Wright (1987) finds that a positive difference between real interest rates in the United States and real interest rates in the countries of origin of foreign-based TNCs has a positive impact on acquisitions of United States firms by foreign-based firms. Martin (1991) does not see overwhelming evidence to support the negative relationship between foreign affiliates' capital expenditures and real interest rates.

Exchange rates—measured by the value of the home currency *vis-à-vis* a foreign currency—may also influence capital expenditure decisions by foreign affiliates. According to Lipsey (1993), exchange rate movements influence significantly FDI in a number of ways. A real appreciation of the host country's currency increases the cost of projects expressed in the home country's currency, and that could lead to a decrease in foreign affiliates' capital expenditures if the appreciation discourages the foreign affiliates from embarking upon new projects. Froot and Stein (1991), Klein and Rosengren (1994), Cushman (1985, 1987), Culem (1988), UNCTAD (1994), and Ajami and BarNiv (1984) all find support for the existence of a negative relationship between exchange rate movements and FDI or foreign affiliates' capital expenditures, but Martin (1991) does not find exchange rates to be statistically significant.

Trade (tariff and non-tariff) barriers in host countries are likely to encourage foreign affiliates' capital expenditures because a greater level of protection would encourage higher local production to substitute for actual and potential imports. There are no empirical studies that have used foreign-affiliates' capital expenditures to support or refute this hypothesis. Evidence that mostly supports this hypothesis has therefore been borrowed from the FDI determinants literature. Gruber and Mutti (1991) find a significant positive relationship between foreign affiliates' stock of net capital and host-country tariff rates. Earlier FDI studies, such as those by Caves (1971) and Horst (1972), as well as more recent studies by Petrochilos (1989), Balasubramanyam and Greenaway (1992), Heitger and Stehn (1990), and Martin, Milner and Pentecost (1994), find support for a positive relationship between trade barriers and FDI. Azrak and Wynne (1995) find that an increase in the likelihood of greater protection in the United States encourages Japanese investment in that country. However, Agodo (1978), Caves, Porter and Spence (1980) and Ray (1995) do not find support for this relationship.

Other variables, such as taxation, regional integration schemes, political stability and incentives, may also affect the capital expenditure decisions

of foreign affiliates. They are not included here, however, because they are difficult to measure quantitatively, and most proxies for these variables are not available on a cross-country or time-series basis.

The model

Since there is no widely accepted structural model of capital expenditures by foreign affiliates, the empirical analysis presented here is based upon estimating an ad hoc single-equation model that includes the principal determinants of these expenditures used in the literature (discussed in the previous section): market size, market growth rates, exchange rates, interest rates and tariff rates. Because of potential high correlation between nominal interest rates and inflation rates, the latter variable is excluded from the estimated equation and, instead, the real interest rate (*RINT*) is used in the actual estimation of the model. After experimenting with alternative lag specifications, market size (*lnRGDP*), market growth rates (*lnRGDPGR*) and exchange rates (*lnREER*) were lagged by one year.

The following single-equation semi-logarithmic model was estimated:

$$\ln RKEX_{it} = \beta_1 \ln RGDP_{it-1} + \beta_2 \ln RGDPGR_{it-1} + \beta_3 \ln REER_{it-1} + \beta_4 RINT_{it} + \beta_5 \ln TARIFF_{it} + \beta_6 \text{CONSTANT} + \beta_7 D2_{it} + \beta_8 D3_{it} + \beta_9 D4_{it} + \beta_{10} D5_{it} + \epsilon_{it}$$

where:

- ln* = The natural log.
- i* = 1, 2, . . . 5.
- t* = 1975 = 1, 1976 = 2, . . . , 1992 = 18.
- RKEX* = Real manufacturing capital expenditures by majority-owned nonbank foreign affiliates in Canada, France, Germany, Japan and the United Kingdom¹ of nonbank United States TNCs (in 1985 dollars).
- RGDP* = Real GDP in the host country (in 1985 dollars).
- RGDPGR* = Real GDP growth rate of the host country.
- REER* = Real effective exchange rate (expressed in terms of dollars per unit of foreign currency) index for the host country (1985 = 100).
- RINT* = Real interest rate in the host country, defined as the long-term government bond yields minus changes in the GDP deflator.
- TARIFF* = The value of import duties as a percentage share of the value of total imports of the host country.

¹ In 1992, these five countries together accounted for 57 per cent of all MOFAs' \$29 billion worth of manufacturing capital expenditures worldwide (USDOC, 1993).

$D2 - D5$ = Four country-specific (intercept) dummy variables used in pooling the time-series data (there is no separate model specification for Canada)

Model specification 1	$D2 = 1$ for $i = \text{France}$, 0 otherwise;
Model specification 2	$D3 = 1$ for $i = \text{Germany}$, 0 otherwise;
Model specification 3	$D4 = 1$ for $i = \text{Japan}$, 0 otherwise;
Model specification 4	$D5 = 1$ for $i = \text{United Kingdom}$, 0 otherwise.

A semi-logarithmic form of the model was used because that allowed the calculation of elasticities. The natural log of $RINT$ was not used because real interest rates can be negative. The measure of $TARIFF$ is obviously crude; consistent time-series data for a country's average tariff rates are difficult to obtain. The proxy for tariff rates used here can be defended on the grounds that it provides an idea of the importance of tariff revenues in relation to a country's imports. Thus, in most cases, if a country lowers its average tariff rates, tariff revenues as a percentage of total imports will be expected to decline.

The availability of a consistent data set allows the use of annual data for the period 1975-1992. Since a time lag in the response of MOFAs' manufacturing capital expenditures (the dependent variable) to changes in the independent variables was expected, but the duration of that lag was not known in advance, there was concern that there might not be a sufficient number of observations that would allow the estimation of the model for each country separately. To resolve that potential problem, time-series and cross-section data were pooled, giving rise to 90 observations (5 countries over 18 years). The fact that annual time-series data for several countries have been pooled introduces the possibility of auto-correlation. For the sake of simplicity, a first-order auto-correlation structure for the errors: $\epsilon_{it} = \rho\epsilon_{i,t-1} + \nu_{it}$, where ν_{it} is distributed independent normal was assumed.

Data sources

The data used in the estimation of the model originate from a variety of sources. Capital expenditures data have been taken from various issues of the *Survey of Current Business*, published by the United States Department of Commerce; data on GDP, GDP growth rates, real effective exchange rates, imports and interest rates are from the International Monetary Fund's, *International Financial Statistics Yearbook* (various issues); and data on import duties are from the International Monetary Fund's, *Government Finance Statistics Yearbook* (various issues).

Results

The results of *least squares dummy variables* estimations for various specifications of the model are presented in table 1. All estimations contain a common set of explanatory variables: *lnRGDP* (market size), *lnRGDPGR* (market growth) and *lnREER* (exchange rate). In addition, *RINT* (interest rate) and *lnTARIFF* (tariff rate) are entered alternatively, as well as jointly, in order to capture better their impact on foreign affiliates' capital expenditures.

The regressions fit the data well, with an adjusted R^2 of at least 91.5 per cent. The F-statistics reveal that the null hypothesis that the coefficients are jointly equal to zero can be rejected at the 1 per cent level for all model specifications. Breusch-Pagan tests indicate the absence of heteroskedasticity for all model specifications.

The coefficients of all the explanatory variables have the expected signs and are significant at least at the 5 per cent level. The coefficients for *lnRGDP* are strongly significant in all model specifications. For example, model 2 indicates that a 1 per cent increase in the real GDP lagged by one year is associated with a 0.95 per cent increase in MOFAs' capital expenditures, holding all other variables constant. The coefficients of *lnRGDPGR* do not change in all model specifications. The coefficient of *lnREER* is surprisingly strong, especially in model 2, indicating that a 1 per cent appreciation of the host country's currency is associated with a 0.83 per cent decrease in MOFAs' capital expenditures, holding all other variables constant. The significant negative coefficients of *RINT* are interesting to note because, despite theoretical arguments, empirical studies do not find generally a strong association between capital expenditures and interest rates. The coefficient of *lnTARIFF* has the expected sign, although the size of the coefficient varies substantially depending on the model specification. The elasticities calculated at the mean values for *RINT* and *lnTARIFF* for model 4 are -0.10 and 0.27, respectively.

The signs of the coefficients of *lnRGDP*, *lnRGDGR* and *lnREER* remain the same regardless of whether *RINT* or *lnTARIFF*, or both, are excluded. These coefficients also have the expected signs and remain significant. The adjusted R^2 does not change much either. The coefficients of the dummy variables are generally significant at the 1 per cent level, with the exception of Germany (model specification 2) and the United Kingdom (model specifications 2 and 4). The significance of dummy variables for

Table. The determinants of manufacturing capital expenditures by majority-owned foreign affiliates of (nonbank) United States parent firms

(Least square coefficients with absolute t-values in parentheses)

Independent variables	Model 1	Model 2	Model 3	Model 4
<i>lnRGDP</i> _{t-1}	0.90 ^a (10.11)	0.95 ^a (11.00)	0.90 ^a (11.83)	0.92 ^a (12.67)
<i>lnRGDPGR</i> _{t-1}	0.02 ^b (2.15)	0.02 ^b (2.18)	0.02 ^c (1.72)	0.02 ^c (1.85)
<i>lnREER</i> _{t-1}	-0.65 ^a (2.65)	-0.83 ^a (3.50)	-0.44 ^b (2.10)	-0.60 ^a (2.50)
<i>RINT</i>	-	-	-0.04 ^a (5.82)	-0.03 ^a (4.00)
<i>lnTARIFF</i>	-	0.18 ^a (2.44)	-	0.05 ^c (1.68)
<i>CONSTANT</i>	5.75 ^a (6.16)	5.09 ^a (6.95)	5.11 ^a (6.48)	5.00 ^a (6.00)
<i>FRANCE</i>	-1.40 ^a (14.67)	-0.60 ^a (2.99)	-1.45 ^a (18.04)	-1.01 ^a (4.02)
<i>GERMANY</i>	-0.89 ^a (9.67)	-0.09 (0.60)	-0.93 ^a (11.99)	-0.68 ^a (2.02)
<i>JAPAN</i>	-2.71 ^a (20.89)	-2.51 ^a (20.59)	-2.74 ^a (25.20)	-2.61 ^a (20.22)
<i>UNITED KINGDOM</i>	-0.60 ^a (7.18)	-0.19 (0.81)	-0.68 ^a (9.59)	-0.30 (1.50)
<i>Adj-R²</i>	91.5	91.8	94.1	93.3
<i>n</i>	85	85	85	85
<i>F</i>	130.38	133.00	166.98	149.76
<i>DW</i>	1.43 ^d	1.71 ^d	1.91	1.95

Source: Author's estimates.

NOTE: The country dummy variable for Canada is the value of the constant.

^a Significant at the 1 per cent level.

^b Significant at the 2.5 per cent level.

^c Significant at the 5 per cent level.

^d Inconclusive.

individual countries suggests that missing variables, such as taxation rates, regional economic integration schemes and so on, may be important for understanding foreign-affiliate capital expenditures behaviour (Froot and Hines, 1994).

The *DW* statistics for model specifications 3 and 4 suggest the absence of first-order auto-correlation. However, *DW* statistics fall in the inconclusive region for model specifications 1 and 2. Calculating Amemiya's Predic-

tion Criterion (PC) to see whether omitted variables were responsible for the low *DW* statistics for model specifications 1 and 2 shows the PCs for model specifications 1 through 4 to be 2.85, 2.46, 2.07 and 2.0, respectively. The calculated PCs are higher for model specifications 1 and 2 than for model specifications 3 and 4, suggesting that omitted variables (most likely *RINT*) may, indeed, have caused the low *DW* statistics in the first two model specifications.

Summary and conclusions

A discussion of the relative merits of using capital expenditures data for studying the determinants of production activities of TNCs has been presented here. The choice of variables used in measuring TNC production activities is important because of the implications for policy. Clearly, countries need to devise policies that will not only attract new FDI, but will also induce existing foreign affiliates to increase their production capacity in the host country. Apart from maintaining a favourable investment environment, the provision of after-care services can play a role in this respect. And capital expenditure data can be used as one indicator to monitor the success of host countries in inducing existing foreign affiliates to expand production.

An empirical examination of the determinants of manufacturing capital expenditures by MOFAs of United States-based (nonbank) parent firms in five developed countries during 1975-1992 has also been undertaken. Using the least squares dummy variables technique, various specifications of an ad hoc single-equation model of the determinants of these expenditures have been estimated, with market size, market growth rates, exchange rates, interest rates and tariff rates as the independent variables. The coefficients of all variables had the expected signs and were significant. Among the obvious limitations is the exclusion of factors such as taxation, regional integration schemes and political stability as determinants of foreign-affiliate capital expenditures. A recent study by Kenneth Froot and Jeremy Hines (1994), for example, found taxation to be an important determinant of FDI. While it is difficult to obtain consistent time-series and cross-section data on taxation rates (not to mention the complications involved in calculating effective rates of taxation), an area for future research could be finding a way to include taxation rates in models of the determinants of foreign-affiliate capital expenditures. (The same applies to regional integration schemes and political stability.)

An important finding is that the set of variables that explains the location of FDI is found to explain the location of foreign-affiliate capital expenditures as well. From a policy perspective, this means that if host countries wish to induce foreign affiliates to increase their capital expenditures, they should pay attention to their domestic macroeconomic environment and to the same set of factors influencing firms' FDI decision. In other words, a growing and stable macroeconomic environment, low and stable inflation and appropriate interest and exchange rates are all conducive to inducing foreign affiliates to expand their production capacities in the host country in question. Although, like in several studies on the determinants of FDI, trade barriers are shown to play a positive role in foreign-affiliate capital expenditures decisions, artificially raising these barriers would be regarded as inappropriate and distorting. Since exchange rate fluctuations in the host country may induce foreign affiliates to adopt a wait-and-see approach to increasing capital expenditures in that country, special attention may also need to be paid to having a reasonably stable exchange-rate regime. ■

References

- Agodo, O. (1978). "The determinants of US private manufacturing investments in Africa", *Journal of International Business Studies*, 9, 3 (Winter), pp. 95-107.
- Ajami, Riad A. and Ran BarNiv (1984). "Utilizing economic indicators in explaining foreign direct investment in the U.S.", *Management International Review*, 4, pp. 16-26.
- Aliber, Robert (1970). "A theory of direct foreign investment", in Charles Kindleberger, ed., *The International Corporation* (Cambridge, Massachusetts: The MIT Press), pp. 17-34.
- Azrak, Paul and Kevin Wynne (1995). "Protectionism and Japanese investment in the United States", *Journal of Policy Modeling*, 17, 3, pp. 293-305.
- Balasubramanyam, V. N. and David Greenaway (1992). "Economic integration and foreign direct investment: Japanese investment in the EC", *Journal of Common Market Studies*, 61, pp. 175-193.
- Bernstein, Jeffery Ian and M. Ishaq Nadiri (1982). "Financing and investment in plant and equipment and research development", Carleton Economic Papers Series, 82-17, Ottawa, Canada.
- Buckley, Peter and Mark Casson (1976). *The Future of Multinational Enterprise* (New York: Holmes and Meiers).

Caves, Richard E. (1971). "International corporations: the industrial economics of foreign investment", *Economica*, 38 (February), pp. 1-27.

——— Michael E. Porter and A. Michael Spence (1980). *Competition in the Open Economy* (Cambridge, Massachusetts: Harvard University Press).

Culem, C. (1988). "The location determinants of direct investment among industrialized countries", *European Economic Review*, 32, pp. 885-904.

Cushman, David (1985). "Real exchange rate risk, expectations, and the level of direct investment", *The Review of Economics and Statistics*, 67, pp. 297-308.

——— (1987). "Real exchange rate risk, expectations, and the level of direct investment", *The Review of Economics and Statistics*, 67, pp. 297-308.

Dunning, John, ed. (1977). *The Multinational Enterprise* (London: George Allen and Unwin).

——— (1979). "Explaining changing patterns of international production: in defence of the eclectic theory", *Oxford Bulletin of Economics and Statistics*, 41, 4, pp. 269-295.

Feldstein, Martin (1994). "The effects of outbound foreign direct investment on the domestic capital stock", paper presented at the National Bureau of Economic Research Summer Conference, Cambridge, Massachusetts.

Froot, Kenneth A. and Jeremy C. Stein (1991). "Exchange rates and foreign direct investment: an imperfect capital markets approach", *Quarterly Journal of Economics*, 106, pp. 1191-1281.

——— and James R. Hines (1994). "Interest allocation rules, financing patterns, and the operations of U.S. multinationals", National Bureau of Economic Research Working Paper Series, No. 2924.

Gruber, Harry and John Mutti (1991). "Taxes, tariffs and transfer pricing in multinational corporate decision making", *The Review of Economics and Statistics*, 73, pp. 285-293.

Heitger, B. and J. Stehn (1990). "Japanese direct investments in the EC: response to the internal market?", *Journal of Common Market Studies*, 28, pp. 1-15.

Herring, Richard and Thomas D. Willett (1973). "The relationship between U.S. direct investment at home and abroad", *Revista Internazionale di Scienze Economiche e Commerciali*, 20, pp. 72-80.

Horst, Thomas (1972). "Firm and industry determinants of the decisions to invest abroad: an empirical study", *The Review of Economics and Statistics*, 54 (August), pp. 258-266.

Hymer, Stephen (1976). *International Operations of National Firms: A Study of Direct Foreign Investment* (Cambridge, Massachusetts: The MIT Press).

International Monetary Fund (various issues). *International Financial Statistics Yearbook*.

_____ (various issues). *Government Finance Statistics Yearbook*.

Kim, Wi Saeng and Esmerelda O. Lyn (1987). "Foreign direct investment theories, entry barriers, and reverse investments in U.S. manufacturing industries", *Journal of International Business Studies*, 18 (Summer), pp. 53-66.

Klein, Michael and Eric Rosengren (1994). "The real exchange rate and foreign direct investment in the United States: relative wealth vs. relative wage effect", *Journal of International Economics*, 36, pp. 373-389.

Kojima, Kiyoshi (1978). *Direct Foreign Investment* (New York: Praeger).

Kravis, Irving B. and Robert E. Lipsey (1988). "The effect of multinational firms' foreign operations on their domestic employment", National Bureau of Economic Research Working Paper Series, No. 2714.

Lipsey, Robert E. (1993). "Foreign direct investment in the United States and U.S. trade", *Annals of the American Academy of Political and Social Science*, 516 (July), pp. 76-90.

Lizondo, J. Saúl (1993). "Foreign direct investment", in Robert Z. Aliber and Reid W. Click, eds., *Readings in International Business: A Decision Approach* (Cambridge, Massachusetts: The MIT Press), pp. 85-114.

Lupo, L. A. (1978). "Manufacturing affiliates capital expenditures and host-country output, prices, and exchange rates", *Survey of Current Business*, 58, 10 (October), pp. 50-53.

Mann, Catherine L. (1989). "Determinants of Japanese direct investment in U.S. manufacturing industries", Washington, D.C.: Board of Governors of the Federal Reserve System, International Finance Discussion Paper 362 (September).

Martin, Stephen (1991). "Direct foreign investment in the United States", *Journal of Economic Behavior and Organization*, 16, pp. 283-293.

Mataloni, Raymond J., Jr. (1995). "A guide to BEA statistics on U.S. multinational companies", *Survey of Current Business*, 75, 3 (March), pp. 38-55.

Milner, C. and E. Pentecost (1994). "The determinants of the composition of U.S. foreign direct investment", in D. Sapsford and V. N. Balasubramanyam, eds., *The Economics of International Investment* (London: Edward Elgar), pp. 85-102.

Nader, Mahnaz-Fahim (1994). "Capital expenditures by majority-owned foreign affiliates of U.S. companies", *Survey of Current Business*, 74, 9 (September), pp. 58-68.

Petrochilos, George A. (1984). "The determinants of foreign direct investment in the Greek economy", *British Review of Economic Issues*, 6 (Spring), pp. 27-54.

-
- _____ (1989). *Foreign direct investment and the development process* (Brookfield, Vermont: Avebury).
- Ray, Edward John (1995). "Old myth and new realities: foreign direct investment in the United States", *The International Trade Journal*, 9 (Summer), pp. 225-246.
- Rayome, David and James C. Baker (1995). "Foreign direct investment: a review and analysis of the literature", *The International Trade Journal*, 9 (Spring), pp. 3-37.
- Rugman, Alan (1979). *International Diversification and the Multinational Enterprise* (Lexington, Kentucky: D. C. Heath).
- Scaperlanda, Anthony and Robert S. Balough (1983). "Determinants of U.S. direct investment in the E.E.C. revisited", *European Economic Review*, 21, pp. 381-390.
- Schneider, A. and B. S. Frey (1985). "Economic and political determinants of foreign direct investment", *World Development*, 13 (February), pp. 161-175.
- Stevens, Guy (1969). "Fixed investment expenditures of foreign manufacturing affiliates of U.S. firms", *Yale Economic Essays*, 8 (Spring), pp. 137-200.
- _____ and Robert E. Lipsey (1992). "Interactions between domestic and foreign investment", *Journal of International Money and Finance*, 11, pp. 40-62.
- United Nations Centre on Transnational Corporations (1992). *The Determinants of Foreign Direct Investment: A Survey of the Evidence* (New York: United Nations). Sales No. E.92.II.A.2.
- United Nations Conference on Trade and Development (UNCTAD) (1994). *Explaining and Forecasting Regional Flows of Foreign Direct Investment* (Geneva: United Nations). Sales No. E.94.II.A.5.
- United States Department of Commerce (USDOC) (1995). *Survey of Current Business*, 75, 8 (August), pp. 88-116.
- Vernon, Raymond (1966). "International investment and international trade in the product cycle", *Quarterly Journal of Economics*, 30 (May), pp. 190-207.
- Wright, Deborah, Lynne (1987). "Acquisitions for U.S. companies by foreign firms", unpublished doctoral dissertation, University of Florida.