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Foreign Direct Investment

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Abstract

This paper summarizes the theory and empirical evidence on the determinants of foreign direct investment. These determinants include expected relative rates of return, risk diversification, market size, technological advantage, market failure, oligopolistic rivalry, liquidity, currency strength, political instability, tax policy, and government regulations. While most explanations of foreign direct investment receive some empirical support, there is not sufficient favorable evidence on any one of them to merit rejection of all the others.

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Summary

This paper summarizes the theory and empirical evidence of the determinants of foreign direct investment. One set of hypotheses emphasizes expected relative rates of returns (i.e., capital flowing from low-return countries to high-return countries), risk reduction (i.e., capital flowing among countries in order to diversify risk), and market size (i.e., capital flowing to countries that provide attractive markets). A second set of hypotheses is based on some type of market imperfection and suggests that foreign direct investment is the result of some firms having special skills, such as technological or managerial advantages. Those firms use those advantages themselves, rather than sell them or lease them, owing to the difficulties inherent in designing and enforcing contractual arrangements in those intermediate products. In addition, those firms produce in a foreign country rather than in the home country because of locational advantages, such as cheaper labor or proximity to markets. Yet a third set of theories stresses dynamic considerations arising from oligopolistic rivalry. In the product cycle hypothesis, innovator firms react to the threat of losing foreign markets as the product matures, by investing abroad and capturing the remaining rents from the development of the product. In the oligopolistic reaction hypothesis, foreign direct investment by one firm stimulates other leading firms in the industry to take similar actions in order to maintain their market share. Yet other hypotheses focus on the liquidity of subsidiaries, with higher liquidity leading to higher foreign direct investment, and on exchange rate considerations, with overvaluation of the domestic currency leading to higher foreign direct investment outflows and lower direct investment inflows, and vice versa. Political instability and tax considerations also play a role in some explanations. Government regulations, particularly those imposing restrictions on the operations of foreign firms, are also considered to have an impact on foreign direct investment.

The paper concludes that at present there is no unique and widely accepted theory of foreign direct investment. While most hypotheses have some empirical support, there is insufficient favorable evidence to accept one to the exclusion of all the others. However, the support received by theories based on the industrial organization approach suggests that, in explaining the determination of international capital movements, direct investment flows must be distinguished from portfolio flows.

I. Introduction

Foreign direct investment has been a subject of interest for a long time. This interest has been renewed in recent years for a number of reasons. One of them is the rapid growth in global foreign direct investment flows, which increased from $47 billion in 1985 to $139 billion in 1988. 1/ Another reason is the recent sharp increase in foreign direct investment inflows in the United States, which caused some concern regarding the causes and consequences of such expansion in foreign ownership. A third reason is the possibility offered by foreign direct investment for channeling resources to developing countries. Although foreign direct investment has not been a very significant component of total capital inflows in those countries, its relative importance may increase now that a large number of developing countries have very limited access to other sources of financing. 2/

As a result of the continuous interest in foreign direct investment, there is a large number of studies analyzing both the determinants and the effects of such investments. This paper reviews the conclusions that have been reached in some of these studies regarding the determinants of foreign direct investment. The paper includes hypotheses that emphasize a variety of factors. Some of these hypotheses use arguments that could also be applied, and in some cases were typically applied, to the analysis of portfolio investment. In contrast, other hypotheses stress that for understanding foreign direct investment, it is essential to take into account the fundamental difference between portfolio investment and direct investment in terms of the control exercised over the operations of the firm. 3/

1/ Reported foreign direct investment inflows, IMF Balance of Payments Statistics. Recent studies describing the evolution of foreign direct investment include Thomsen (1988), De Anne and Thomsen (1988 and 1989), and Lipsey (1989).

2/ Foreign direct instrument inflows in net debtor developing countries increased gradually from $2 billion in 1970 to $15 billion in 1981. These inflows declined afterwards, remaining around $10 billion for a few years, before increasing again to reach $17 billion in 1988.

3/ It is not obvious what constitutes control of a firm. In general, countries classify as a direct investment enterprise those in which the percentage of foreign ownership is above certain limit, usually between 10 and 25 percent. Although there is no uniform criteria among countries, moderate differences in the percentage used for the classification do not alter significantly the measurement of foreign direct investment, since the share of foreign ownership in firms considered to be foreign affiliates is usually much larger. For the discussion of some of these issues, and other methodological and data problems, see Thomsen (1988).

The rest of the paper is organized as follows. 1/ Section II examines the determinants of foreign direct investment that have been identified in theories that assume perfect markets, which focus on differential rates of return, portfolio diversification, and market size. Section III considers the factors that have been viewed as important in theories that assume imperfect markets and emphasize the role of industrial organization considerations, internalization, the product cycle, and oligopolistic reaction. Section IV discusses the theories based on liquidity considerations, currency areas, diversification with barriers to international capital flows, and the Kojima hypothesis. Section V examines some factors that are considered to have an important effect on foreign direct investment, but which sometimes are not included explicitly in the theories mentioned above. Finally, Section VI presents the overall conclusions.

II. Theories that Assume Perfect Markets

1. Differential rates of return

This approach argues that foreign direct investment is the result of capital flowing from countries with low rates of returns to countries with high rates of return. This proposition follows from the idea that, in evaluating their investment decisions, firms equate expected marginal returns with the marginal cost of capital. If expected marginal returns are higher abroad than at home, and assuming that marginal cost of capital is the same for both types of investment, then there is an incentive to invest abroad rather than at home.

This theory gained wide acceptance in the late 1950s when U.S. foreign direct investment in manufacturing in Europe increased sharply. At that time, after-tax rates of return of U.S. subsidiaries in manufacturing were consistently above the rate of return on U.S. domestic manufacturing. However, this relationship proved to be unstable. During the 1960s U.S. foreign direct investment in Europe continued to rise, despite the fact that rates of returns for U.S. subsidiaries in Europe were below rates of return on domestic manufacturing. 2/

1/ The structure of this presentation is based on that employed in the comprehensive survey by Agarwal (1980). There are also other alternative ways of organizing the discussion. For example Boddewyn (1985) groups the theories according to whether they refer to conditions, motivations, or precipitating circumstances for foreign direct investment. Kojima and Ozawa (1984) distinguishes between macro- and micromodels of foreign direct investment.

2/ See Hufbauer (1975).

Empirical tests of this hypothesis proceeded along several lines. Some authors tried to find a positive relationship between the ratio of a firm's foreign direct investment to its domestic investment, and the ratio of its foreign profits to its domestic profits. Others tried to relate foreign direct investment and the rate of foreign profits, usually allowing for a certain time lag. Another approach was to examine the relationship between relative rates of returns in several countries, and the allocation of foreign direct investment among those countries.

As reported by Agarwal (1980), these empirical studies failed to provide strong supporting evidence. This may be partly due to the difficulties of measuring expected profits. In the various tests, reported profits were used to represent expected profits. However, reported profits are likely to differ from actual profits, which in turn may differ from expected profits. The main reason for a divergence of reported profits from actual profits is intra-firm pricing for transactions between a subsidiary and the parent firm, and among subsidiaries. Multinational firms may establish intra-firm prices that are different from market prices, for example, in order to reduce their overall tax burden, to avoid exchange controls, or to improve their negotiating position with trade unions or the host country government. In turn, actual profits may differ from expected profits due to unexpected events, and due to the difficulties in using observations for a few years to represent the expected results from an investment that has a longer time horizon.

In addition to these inconclusive empirical results, there are certain aspects of foreign direct investment that this theory cannot explain. Since this theory postulates that capital flows from countries with low rates of returns to countries with high rates of return, it assumes implicitly that there is a single rate of return across activities within a country. Therefore, this theory is not consistent with some countries experiencing simultaneously inflows and outflows of foreign direct investment. Similarly, it cannot account for the uneven distribution of foreign direct investment among different types of industries. These considerations, as well as the weak empirical results, suggest that the differential-rates-of-return theory does not provide a satisfactory explanation of the determinants of foreign direct investment flows.

2. Portfolio diversification

Since expected returns did not appear to provide an adequate explanation of foreign direct investment, attention was next focused on the role of risk. In choosing among the various available projects, a firm would presumably be guided by both expected returns and the possibility of reducing risk. Since the returns on activities in different countries are likely to have less than perfect correlation, a firm could reduce its overall risk by undertaking projects in more than one country. Foreign direct investment can, therefore, be viewed as international portfolio diversification at the corporate level.

There have been various attempts to test this theory. One approach was to try to explain the share of foreign direct investment going to a group of countries by relating it to the average return on those investments, and to the risk associated with those investments, as measured by the variance of the average returns. A variant of this procedure was to estimate first the optimal geographical distribution of assets of multinational firms based on portfolio considerations, and then to assume that firms gradually adjust their flow of foreign direct investment to obtain that optimal distribution. Another line of inquiry was to ascertain whether large firms with more extensive foreign activities showed smaller fluctuations in global profits and sales.

The results from these tests offered only weak support for the portfolio diversification theory, as documented in Hufbauer (1975) and in Agarwal (1980). In some cases, results that were favorable for a group of countries failed to hold for individual countries. In other cases, the results were not significant or were more consistent with alternative theories. Although the lack of strong empirical support may be due partly to the difficulties associated with measuring expected profits and risk, there are more basic, theoretical, problems with this approach.

The portfolio diversification theory is an improvement over the differential rates of return theory in the sense that, by including the risk factor, it is able to account for the existence of countries experiencing simultaneously inflows and outflows of foreign direct investment. However, it is unable to account for the observed differences in the propensities of different industries to invest abroad. In other words, it does not explain why foreign direct investment is more concentrated in some industries than in others.

A more fundamental criticism against this theory has been the argument that in a perfect capital market there is no reason to have firms diversifying activities just to reduce risk for their stockholders. If individual investors want reduced risk, they can obtain it directly by diversifying their individual portfolios. This criticism implies that for the diversification motive to have any explanatory power for direct foreign investment, the assumption of perfect capital markets must be dropped. 1/

3. Output and market size

Two other approaches worth reporting on relate foreign direct investment to some measure of output of the multinational firm in the host county. The output approach considers the relevant variable to be output (sales), while the market size approach uses the host country's GNP or GDP, which can be considered as a proxy for potential sales. The relevance of output for foreign direct investment can be derived from models of

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1/ The discussion of this point is continued in the section on diversification with barriers to international capital flows.

neoclassical domestic investment theory; whereas the relevance of the host country's market size has generally been postulated rather than derived from a theoretical model. Despite this lack of explicit theoretical backing, the market size model has been very popular, and a variable representing the size of the host country appears in a large number of empirical papers.

These hypotheses have been tested in a variety of ways. 1/ One approach was to take models of domestic investment and estimate them using foreign direct investment data to see whether the output of multinational firms in host countries is a significant explanatory variable. Another technique was to see whether the share of foreign direct investment of a given country going to a group of countries was correlated with the income level of the individual host countries. Sometimes, the rate of growth of income in the host country, or the difference between the rate of growth of income in the host and the investing country, were also used as explanatory variables. Some authors distinguished between external and internal determinants of foreign direct investment with market size being an external factor and sales of foreign subsidiaries an internal factor.

These empirical studies provide support for the notion that higher levels of sales by the foreign subsidiary and of the host country's income, or income growth, have been associated with higher foreign direct investment. The broad support for these hypotheses is generally valid across a variety of countries, periods, estimation techniques, and specification of the variables.

This support, however, has to be carefully interpreted (Agarwal (1980)). As mentioned above, proponents of the market size hypothesis have seldom presented an explicit theoretical model from which the estimated relationships are derived. Therefore, the correlation between direct foreign investment and market size may be consistent with various structural models. Also, the size and growth of the host country's market should affect foreign direct investment that is used to produce for the domestic market, not for exports. In most of the empirical studies, however, no distinction is made between the two types of investment. Finally, there is some evidence suggesting that the decisions of firms regarding foreign direct investment may be guided by different considerations depending on whether it is or is not the firm's initial investment in the country. In this case, it would be incorrect to use the same variables to explain all types of foreign direct investment.

III. Theories Based on Imperfect Markets

The theories outlined in section II did not make any specific assumption about market imperfections or market failures. Hymer (1976), was perhaps the first analyst to point out that the structure of the markets and

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1/ See Agarwal (1980).

specific characteristics of the firms should play a key role in explaining foreign direct investment. 1/ The role of these factors has been analyzed in both a static context, which focuses on issues associated with industrial organization and the internalization of decisions, and in a dynamic framework, which highlights oligopolistic rivalry and product-cycle considerations.

1. Industrial organization

Hymer (1976) argued that the very existence of multinational firms rests on market imperfections. Two types of market imperfections are of particular importance: structural imperfections and transaction-cost imperfections. 2/ Structural imperfections, which help the multinational firm to increase its market power, arise as a result of scale economies, knowledge advantages, distribution networks, product diversification, and credit advantages. Transaction-costs, on the other hand, make it profitable for the multinational firm to substitute an internal "market" for external transactions. The literature focusing on structural imperfections gave rise to the industrial organization theory of foreign direct investment, whereas that focusing on transaction-costs lead to the internalization theory of foreign direct investment. 3/

The industrial organization approach argues that, when a foreign firm, establishes a subsidiary in another country, it faces a number of disadvantages when competing with domestic firms. These include the difficulties of managing operations spread out in distant places, and dealing with different languages, cultures, legal systems, technical standards, and customer preferences. If, in spite of those disadvantages, a foreign firm does engage in foreign direct investment, the foreign firm must have some firm-specific advantages with respect to domestic firms. The advantages of the multinational firm are those associated with brand name, patent-protected superior technology, marketing and managerial skills, cheaper sources of financing, preferential access to markets, and economies of scale.

The industrial organization approach has been used recently by Graham and Krugman (1989) to explain the growth of foreign direct investment in the U.S. They argue that twenty years ago U.S. firms had significant advantages over firms from other countries in terms of technology and management

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1/ Although Hymer's dissertation was completed in 1960, it was not published until 1976. See also Kindleberger (1969).

2/ See Dunning (1981).

3/ The concept of "industrial organization theory of foreign direct investment" is not used uniformly in the literature. Sometimes it is meant to encompass all the theories derived from Hymer's work, i.e., all the theories included in this section. In this paper, the concept is used in its more restrictive sense, to refer to the literature focusing on structural imperfections.

skills. U.S. firms were also superior to foreign rivals in producing abroad, as well as at home. As a result, there was not much foreign direct investment in the U.S. Since then, there has been a decline in the U.S. technological and managerial superiority. Foreign firms can therefore compete with U.S. firms in the U.S. market. Thus, the authors interpret the growing inflow of foreign direct investment in the U.S. as evidence supporting their hypothesis.

The industrial organization theory, in the restrictive sense employed in this paper, is not a complete theory of foreign direct investment. While the existence of some firm-specific advantages explains why a foreign firm can compete successfully in the domestic market, such advantages do not explain why this competition must take the form of foreign direct investment. The foreign firm could just as well export to the domestic market or license, or sell its special skills to domestic firms. The internalization theory and the eclectic approach, discussed below, offer explanations about why firms choose foreign direct investment over the other alternatives.

2. Internalization

This hypothesis explains the existence of foreign direct investment as a the result of firms replacing market transactions by internal transactions. This in turn is seen as a way of avoiding imperfections in the markets for intermediate inputs (see Buckley and Casson (1976)). Modern businesses carry out many activities apart from the routine production of goods and services. All these activities, including marketing, research and development, and training of labor, are interdependent and are related through flows of intermediate products, mostly in the form of knowledge and expertise. However, market imperfections make it difficult to price some types of intermediate products. For example, it is often hard to design and enforce contractual arrangements that prevent someone who has purchased or leased a technology (such as a computer software program) from passing it on to others without the knowledge of the original producer. This provides an incentive to bypass the market and keep the use of the technology within the firm. This produces an incentive for the creation of intrafirm markets.

The internalization theory of foreign direct investment is intimately related to the theory of the firm. The question of why firms exist was first risen by Coase (1937), and later examined by Williamson (1975). They argue that, in the presence of certain transaction costs, the firm's internal procedures are better suited than the market to organize transactions. These transaction costs arise when strategic or opportunistic behavior is present among agents to an exchange, the commodities or services traded are ambiguously defined, and contractual obligations extend in time. When these three conditions are present, enforcement and monitoring costs may become prohibitive. Under those circumstances, the firm opts for

internalizing those transactions. The main feature of this approach is therefore treating markets on the one hand, and firms on the other, as alternative modes of organizing production. 1/

It is the internalization of markets across national boundaries which gives rise to the international enterprise, and thus, to foreign direct investment. This process continues until the benefits from further internalization are outweighed by the costs. As indicated in Agarwal (1980), benefits include avoidance of time lags, bargaining and buyer uncertainty, minimization of the impact of government intervention through transfer pricing, and the ability to use discriminatory pricing. Cost of internalization include administrative and communication expenses.

The internalization hypothesis is a rather general theory of foreign direct investment. In fact, Rugman (1980) has argued that most, if not all, of the other hypothesis for foreign direct investment are particular cases of this general theory. As a result of this generality, this approach has been accused of being almost tautological, and having no empirical content. Rugman (1986), however, argues that with a precise specification of additional conditions and restrictions, this approach can be used to generate powerful implications.

The difficulties in formulating appropriate tests for the internalization theory were examined further in Buckley (1988). He agreed that the general theory cannot be tested directly, but argued that it may be sharpened up so as to obtain relevant testable implications. Since much of the argument rests on the incidence of costs in external and internal markets, the specification and measurement of those costs is crucial for any test. Empirical evidence suggests that transaction costs are particularly high in vertically integrated process industries, knowledge intensive industries, quality assurance-dependent products, and communication intensive industries. Therefore, the internalization theory predicts that those will be the industries dominated by multinational firms. Buckley also cited evidence showing that the pattern of foreign direct investment across industries, and nationalities, is broadly consistent with the theory's predictions. The author, however, emphasizes that tests need to be more precise and rigorous for increasing our confidence in the theory.

3. An eclectic approach

Dunning (1977, 1979, 1988) developed an eclectic approach by integrating three strands of the literature on foreign direct investment: the industrial organization theory, the internalization theory, and the

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1/ This approach also implies that the motivation behind multinational production, and therefore foreign direct investment, may well be the search for efficiency, rather than the attempt to profit from monopoly power. This change in focus has important welfare implications. See Dunning and Rugman (1985), and Teece (1985).

location theory. He argued that three conditions that must be satisfied if a firm is to engage in foreign direct investment. First, the firm must have some ownership advantages with respect to other firms; these advantages usually arise from the possession of firm-specific intangible assets. Second, it must be more beneficial for the firm to use these advantages rather to sell them or lease them to other independent firms. Finally, it must be more profitable to use these advantages in combination with at least some factor inputs located abroad, otherwise foreign markets would be served exclusively by exports. Thus, for foreign direct investment to take place, the firm must have ownership and internationalization advantages, and a foreign country must have locational advantages over the firm's home country. 1/

The eclectic approach postulates that all foreign direct investment can be explained by reference to the above conditions. It also postulates that the advantages mentioned above are not likely to be uniformly spread among countries, industries, and enterprises and are likely to change over time. The flows of foreign direct investment of a particular country at a particular point in time depend on the ownership and internationalization advantages of the country's firms, and on the locational advantages of the country, at that point in time. Dunning (1979, 1980) used this approach to suggest reasons for differences in the industrial pattern of the outward direct investment by five developed countries, and to evaluate the significance of ownership and location variables in explaining the industrial pattern and geographical distribution of the sales of U.S. affiliates in fourteen manufacturing industries in seven countries.

4. Product cycle

This hypothesis postulates that most products follow a life cycle, in which they first appear as innovations and ultimately become completely standardized. Foreign direct investment results when firms react to the threat of losing markets as the product matures, by expanding overseas and capturing the remaining rents from the product development. This hypothesis, developed by Vernon (1966), was mainly intended to explain the expansion of U.S. multinational firms after World War II.

Innovation can be stimulated by the need to respond to more intense competition or to the perception of a new profit opportunity. The new product is developed and produced locally (in the U.S.) both because it will be designed to satisfy local demand and because this will facilitate the efficient coordination between research, development, and production units. Once the first production unit is established in the home market, any demand that may develop in a foreign market (Europe) would ordinarily be satisfied by exports. However, rival producers will eventually emerge in foreign markets since they can produce more cheaply (due to lower distribution

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1/ Dunning (1979) presents a list of advantages for each of the categories mentioned above.

costs) than the original innovator. At this stage, the innovator is compelled to examine the possibility of setting up a production unit in the foreign location. If the conditions are considered favorable, the innovator engages in foreign direct investment. Finally, when the product is standardized and its production technique is no longer an exclusive possession of the innovator, he may decide to invest in developing countries in order to obtain some cost advantages, such as cheaper labor.

Agarwal (1980) describes a number of studies offering support for the product-cycle hypothesis. Those studies generally refer to U.S. foreign direct investment, although they also cover some German and U.K. foreign direct investment.

Despite those favorable results, the explanatory power of the product cycle hypothesis has declined considerably as a result of changes in the international environment. Vernon (1979) has noted that, since U.S. multilateral firms now have better knowledge of market demands all around the world, they no longer follow the typical geographical sequence of first setting up subsidiaries in the markets with which it is most familiar, such as in Canada and the United Kingdom, and then in less familiar areas, such as Asia and Africa. Therefore, the assumption that U.S. firms receive stimulus for the development of new products only from its home market is no longer tenable. Furthermore, since the income and technological gap between the United States and other industrial countries has declined, it is less defensible to assume that U.S. firms are exposed to very different home environment from that faced by firms from other countries. Vernon (1979) speculated that the hypothesis is likely to remain important in explaining foreign direct investment carried out by small firms and in developing countries.

5. Oligopolistic reaction

Knickerbocker (1973) suggested that, in an oligopolistic environment, foreign direct investment by one firm will trigger similar investments by other leading firms in the industry in order to maintain their market shares. 1/ Using data from a large number of U.S. multinational firms, he calculated an entry concentration index for each industry, which showed the extent to which subsidiaries entry dates were bunched in time. As indicated in Hufbauer (1975), the entry concentration index was positively correlated with the U.S. industry concentration index, implying that increased industrial concentration caused increased reaction by competitors so as to reduce the possibility of one rival gaining a significant cost or marketing advantage over the others. The entry concentration index was also positively correlated with market size, implying that the reaction was

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1/ A variant of this "follow the leader" hypothesis, is the "exchange of threat" hypothesis, in which intraindustry foreign direct investment results from firms invading each others' home markets due to oligopolistic rivalry (see Graham (1978, 1989)).

stronger the larger was the market at stake. The entry concentration index was negatively correlated with product diversity of the multinational firms and with their expenditure on research and development. This suggested that the reaction of firms was less intense if they had a variety of investment opportunities, or if their relative positions depended on technological considerations. Flowers (1976) also tested this hypothesis with data on foreign direct investment by Canadian and European firms in the United States. He found a significant positive correlation between the concentration of foreign direct investment in the United States and the industrial concentration in the source countries.

An implication of this hypothesis is that the process of foreign direct investment by multinational firms is self limiting, since the invasion of each others' home market will increase competition and thus reduce the intensity of oligopolistic reaction (Agarwal (1980)). However, while foreign direct investment has increased competition in many industries, this has not resulted in a corresponding reduction in foreign direct investment. This hypothesis has also been criticized for not recognizing that foreign direct investment is only one of several methods of servicing foreign markets. In addition, there is no explanation of the reason for the initial investment that starts the foreign investment process.

To examine the factors motivating the initial investment of multinational firms, Yu and Ito (1988) studied one oligopolistic and one competitive industry. Their results suggest that in an oligopolistic industry, foreign direct investment is motivated by the behavior of rivals, as well as host country-related and firm-related factors; in contrast, in more competitive industries, firms do not generally match their competitors' foreign direct investments. As a result, the authors argued that firms in oligopolistic industries, besides considering their competitors' activities, make their foreign direct investment decisions on the basis of same economic factors as firms in competitive industries.

IV. Other Theories of Foreign Direct Investment

1. Liquidity

U.S. multinational firms have traditionally committed only modest amounts of resources to their initial foreign direct investment, and subsequent expansions of their activities were carried out by reinvesting local profits. As a result, it has been postulated that there is a positive relationship between internal cash flows and the investment outlays of subsidiaries of multinational firms. This relationship is said to arise because the cost of internal funds is lower than for external funds.

Agarwal (1980) presented the results of empirical studies, which provided mixed support for this hypothesis. Some studies concluded that there was no evidence that the expansion of subsidiaries was financed only

by their retained earnings. Internally generated funds seemed to be allocated between the parent and the subsidiaries so as to maximize overall profits of the firm. However, other studies found that the most important sources of funds for the expansion of subsidiaries were undistributed profits and depreciation allowances, although the share of new investment thus financed varied from country to country. In other studies, liquidity related variables had a higher explanatory power for foreign direct investment than variables based on the accelerator theory of investment.

Some other studies, based on interview data suggested that small and large international firms may behave differently, with subsidiaries of smaller firms being more dependent on internally generated funds to finance their expansion, and therefore behaving more in agreement with the liquidity hypothesis. These studies also suggested that it is important to distinguish between overall cash flow of the firm and the cash flow of the subsidiary, particularly when examining foreign direct investment in developing countries. Since new investment in developing countries is likely to be only one component of a variety of reinvestment opportunities open to the firm, the overall cash flow of the firm may not be an important determinant in a particular country. Cash flows of the subsidiary, on the other hand, may be important, particularly in countries that place restrictions on repatriation of profits and capital.

Based on the results mentioned above, Agarwal (1980) concludes that the liquidity hypothesis has some empirical support. An expansion of foreign direct investment seems to be partly determined by the subsidiaries' internally generated funds. This may be particularly valid for investment in developing countries due to their restrictions on movements of funds of foreign firms, and the lower degree of development of their financial and capital markets.

2. Currency area

Aliber (1970, 1971) postulated that the pattern of foreign direct investment can be best explained in terms of the relative strength of the various currencies. The stronger is the currency of a certain country, the more likely it is that firms from that country will engage in foreign investment, and the less likely it is that foreign firms will invest in the domestic country. The argument is based on capital market relationships, exchange rate risks, and the market's preference for holding assets in selected currencies.

The crucial assumption of this theory is the existence of a certain bias in the capital market. This bias is assumed to arise because an income stream located in a country with a weak currency has associated with it a certain exchange risk. Investors, however, are less concerned with this exchange risk when the income stream is owned by a firm from a strong currency country, than when it is owned by a firm from a weak currency country. According to Aliber (1971), this could reflect the view that the

strong currency firm might be more efficient in hedging the exchange risk or that the strong currency firm can provide the investors with a diversified portfolio at a lower cost than the investor can acquire on his own. Alternatively, investors may take into account exchange risk for a strong currency firm only if a substantial portion of its earnings are from foreign sources.

For any of these reasons, an income stream is capitalized at a higher rate by the market (has a higher price), when it is owned by a strong currency firm than when owned by a weak currency firm. As a result, firms from countries with strong currencies have an advantage in the capital market in acquiring this income stream. Strong currency countries therefore tend to be sources of foreign direct investment, and weak currency countries tend to become host countries.

Most empirical studies have tested the currency area hypothesis by focussing on whether an overvaluation of a currency is associated with foreign direct investment outflows and undervaluation with foreign direct investment inflows. Studies of foreign direct investment in the United States, the United Kingdom, the Federal Republic of Germany, France, and Canada yielded results that were consistent with the currency area hypothesis (see Agarwal (1980)).

Despite this empirical support, the currency area theory is unable to account for cross investment between currency areas, for direct investment in countries in the same currency area, and for the concentration of foreign direct investment in certain type of industries. Furthermore, it is not clear why hedging or a diversification advantage should accrue solely to the strong currency firms, or investors show persistent ignorance or shortsightedness.

A more elaborate theory based on capital market imperfections, with similar implications to those of the currency area hypothesis, was developed by Froot and Stein (1989). They argued that a low real value of the domestic currency may be associated with foreign direct investment inflows due to informational imperfections in the capital market which cause firms' external financing to be more expensive than their internal financing. Since the availability of internal funds depends on the level of net worth, a real depreciation of the domestic currency which lowers the wealth of domestic residents and raises that of foreign residents can lead to foreign acquisition of some domestic assets.

Their analysis of U.S. data indicate that foreign direct investment inflows in the U.S. are negatively correlated with the real value of the dollar. Moreover, other types of capital inflows have not shown a similar negative correlation, so that this relationship is a distinctive characteristic of foreign direct investment, as expected from the theory.

However, this negative correlation between foreign direct investment inflows and the real value of its currency was not evident in three out of the other four countries examined.

Additional evidence regarding the relationship between exchange rates levels and foreign direct investment was presented by Caves (1988). He argued that exchange rates have an impact on foreign direct investment inflows through two channels. First, changes in the real exchange rate modify the attractiveness of foreign investment in the United States by changing a firm's real costs and revenues. The net effect on foreign direct investment is ambiguous, depending on certain characteristics of the firm's activity, such as the share of imported inputs in total costs, and the share of output that is exported. The second channel is associated with expected short-run exchange rate movements. A depreciation that is expected to be reversed will encourage foreign direct investment inflows so as to obtain a capital gain when the domestic currency appreciates.

Caves studied the behavior of foreign direct investment inflows into the United States using panel data from several source countries. The results showed a significant negative correlation between the level of the exchange rate, both nominal and real, and inflows of foreign direct investment. Despite these empirical results, the theory cannot satisfactorily explain why foreign residents would have an advantage over domestic residents at bidding for a given firm; nor is it clear why expected changes in the exchange rate would lead to direct investment inflows instead of portfolio inflows.

Either due to the arguments used by the currency area theory, or by other theories with similar implications, there is some evidence that the decline in the real value of the domestic currency encourages inflows and discourages outflows of foreign direct investment. However, neither the theory, nor the evidence about this relationship is completely satisfactory.

3. Diversification with barriers to international capital flows

As noted earlier, there would be no reason why firms would carry out diversification activities for their stockholders in perfect capital markets, since any desired diversification could be obtained directly by individual investors. Agmon and Lessard (1977) have argued that for international diversification to be carried out through corporations, two conditions must hold. First, there must exist barriers or costs to portfolio flows that are greater than those to foreign direct investment. Secondly, investors must recognize that multinational firms provide a diversification opportunity which otherwise is not available. After providing some examples that justify assuming that the first condition holds, they postulate a simple model in which the rate of return of a security is a function of both a domestic market factor and of a rest-of-the-world market factor. They tested the proposition that securities prices of firms with relatively large international operations were more closely

related to the rest of the world market factor and less to the domestic market factors than shares of firms that are essentially domestic. They obtained favorable results for a sample of data applying to U.S. firms. However, as noted by Adler (1981) and Agmon and Lessard (1981), these results are consistent with the second condition mentioned above, but do not provide support for a fully developed theoretical model.

Errunza and Senbet (1981) developed a framework in which both firms and investors face barriers to international capital flows. As a result, individual investors have a demand for diversification services and multinational firms are able to supply diversification services. In equilibrium, individual investors accept lower expected returns on multinational stocks than on domestic stocks in order to obtain diversification benefits. Since the diversification services provided by multinationals are reflected in the price of their stocks, Errunza and Senbet's empirical test is based on a market-value theoretic framework, which is applied to the U.S. capital market over subperiods characterized by differential government control. Their results suggest that there exist a systematic relationship between the current degree of international involvement and excess market value. This relationship was stronger during the period characterized by barriers to capital flows in comparison with the period in which no substantial restrictions were in effect. 1/

4. The Kojima hypothesis

Kojima (1973, 1975, 1985) was concerned with explaining the differences in the patterns of U.S. and Japanese foreign direct investment in developing countries, and the consequences of those differences for the expansion of international trade and global welfare. 2/ Foreign direct investment was viewed as providing a means of transferring capital, technology and managerial skills from the source country to the host country. However, it was argued that there were two types of foreign direct investment: trade-oriented and anti-trade-oriented. Foreign direct investment is trade-oriented if it generates an excess demand for imports and an excess supply of exports at the original terms of trade. The opposite occurs if foreign direct investment is anti-trade-oriented.

1/ In Errunza and Senbet (1984), the authors further developed the theoretical basis for their view that indirect portfolio diversification by multinational firms helps complete international capital markets, and they expanded their empirical investigation. Some limitations of this paper are indicated in Bicksler (1984).

2/ Kojima's hypothesis is mainly concerned with international economic relationships between industrial and developing countries. This is clear from several passages of his papers, and is explicitly stated in Kojima (1975), where he speculates that two-way direct foreign investment between advanced industrial countries may be explained by other theories.

Kojima also proposed that trade-oriented foreign direct investment was welfare improving in both source and host countries, while anti-trade-oriented foreign direct investment was welfare reducing. Since trade-oriented foreign direct investment implied investment in industries in which the source country has a comparative disadvantage, it would accelerate trade between the two nations, and promoted a beneficial industrial restructuring in both countries. In contrast, anti-trade-oriented foreign direct investment would imply investment in industries in which the source country has a comparative advantage. Thus, international trade would be reduced, and industry would be restructured in a direction opposite to that recommended by comparative advantages considerations. This would reduce welfare in both countries, creating balance of payments problems, the export of jobs, and incentives for trade protectionism in the source country.

It was also argued that Japanese foreign direct investment has been trade-oriented, while U.S. foreign direct investment has been anti-trade-oriented. This reflected the fact that Japanese foreign direct investment was mainly directed towards natural resource development in which Japan has a comparative disadvantage, and toward some manufacturing sectors in which Japan had been losing its comparative advantage. Japanese investment was also viewed as being more export-oriented, occurring in less sophisticated industries with smaller firms being more labor intensive, and with a higher share of local ownership. In contrast, he suggested that the United States has transferred abroad those industries in which it had a comparative advantage. The reason for this was found in a dualistic structure of the U.S. economy, with a group of innovative and oligoplistic new industries, coexisting alongside a group of traditional price-competitive stagnant industries. Only the innovative and oligopolistic industry group undertook foreign direct investment, since this group's rate of return on foreign investment was higher due to its oligopolistic advantages. Since these were the industries in which the United States had a comparative advantage, such foreign direct investment was anti-trade-oriented.

Kojima therefore concluded that while U.S. foreign direct investment was rational from the multinational firms' point of view, it was damaging to national welfare and economic development. As a result, some policies were needed to modify the characteristics of these investments. These policies could potentially involve selecting the types of industries where foreign direct investment would be allowed, requiring the use of licensing arrangements instead of foreign direct investment, allowing only joint ventures with local capital instead of wholly owned subsidiaries, and requiring a progressive transfer of ownership to local residents. Kojima viewed his proposed code of behavior for international investment as consistent with comparative advantage, and resulting in a higher level of international welfare.

This hypothesis has been evaluated at two levels. At the empirical level, there is the issue of whether there are significant differences in the patterns of U.S. and Japanese foreign direct investment as implied by

the hypothesis. On this score, the evidence is not conclusive. While favorable evidence was presented in Kojima (1985) for investment in a group of Asian developing countries, Lee's (1983) analysis of the Korean experience, and Chou's (1988) discussion of Taiwan Province of China yielded mixed results. In addition, Mason (1980) argued that the existing differences in the pattern of foreign direct investment reflected mainly different stages in the evolution of U.S. and Japanese multinational firms.

At the theoretical level, there is the issue of whether the neoclassical framework adopted by Kojima is appropriate for studying foreign direct investment. According to Dunning (1988), Kojima's approach can neither explain, nor evaluate the welfare implications, of foreign direct investments prompted by the desire to rationalize international production since it ignores the essential characteristic of foreign direct investment, that is, the internalization of intermediate products markets. This is because the neoclassical framework of perfect competition used by Kojima does not allow for the possibility of market failures. Furthermore, Lee (1984) argued that Kojima did not succeed in establishing a plausible microeconomic basis for his theory. In summary, although the Kojima hypothesis is consistent with some characteristics of U.S. and Japanese foreign direct investment behavior, the welfare implications, and policy recommendations derived from this approach, have not been widely endorsed.

V. Other Variables

Although political instability, tax policy, and government regulations, in some circumstances have been incorporated into the theories reviewed above, their importance justifies a more explicit consideration.

1. Political instability

An unstable political and social environment is not conducive to inflows of foreign capital. The fear is that large and unexpected modifications of the legal and fiscal frameworks may drastically change the economic outcome of a given investment. However, empirical tests of this proposition have yielded rather mixed results.

The role of political instability has been examined empirically using both survey data and econometric analysis. Survey studies have employed data collected by contacting multinational firms and inquiring how their investment policies in foreign countries are affected by political risk. Almost all of these studies have concluded that political risk is an important factor in the decisions regarding foreign direct investment. The other type of study has used traditional econometric techniques, such as regression analysis, to test for the effect of political risk on foreign

direct investment. While some studies have found a negative relationship between political risk and inflows of foreign direct investment, others fail to find any statistically significant relationship. 1/

These mixed results may reflect a variety of factors. For one thing, it is difficult to measure political risk or political instability. Second, a given political event may give rise to different levels of risk depending on the country of origin of the investment, or on the type of industry in which the investment was made. Furthermore, some cross-country econometric studies did not allow for lags between the time when a change in risk is perceived and the time when the change in foreign direct investment takes place. Finally, some of the early studies did not include factors, other than political risk, as explanatory variables of foreign direct investment.

More recent studies have addressed some of those problems, and offered new evidence on the effects of political risk on foreign direct investment. Nigh (1985) uses pooled, time-series, cross-sectional estimation to examine the role of political risk in affecting manufacturing foreign direct investment of U.S. multinationals. He distinguishes between industrial and developing host countries, and includes economic as well as political-event variables. Among the political-event variables, he distinguishes between intra-and inter-country conflict and cooperation variables. His empirical results suggested that U.S. multinational firms reacted to both intra-country and inter-country variables when the host country was a developing country, but that they only respond to inter-country variables when the host country was an industrial country. Schneider and Frey (1985) compared the predictive power of four different models in explaining inflows of foreign direct investment for a sample of developing countries. The analyses included: (1) a model with only political variables; (2) a model with only economic variables; (3) a model with a explanatory variable that incorporated political and economic factors in a single index; and (4) a model that included in a desegregated fashion both economic and political variables. They conclude that the fourth model provided the best forecasts, indicating that economic variables should also be included in the estimation, and that indices that try to capture simultaneously political and economic effects do not perform well.

Two recent papers have taken a different look at the problem. While the usual approach is to consider the effect of host-country political risk on inflows of foreign direct investment, Tallman (1988) examined whether political risk in the home country had an effect on outward foreign direct investment. Using the United States as the host country, and a number of industrial countries as home countries, he examined the effects of international and domestic political and economic events on foreign direct investment. His results indicated that reducing domestic political risk reduced outward foreign direct investment, while improved political

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1/ Surveys of the two types of studies mentioned above are presented in Agarwal (1980) and in Fatehi-Sedeh and Safizadeh (1989).

relations between countries increased outward foreign direct investment. Chase, Kuhle, and Walther (1988) also examined whether countries with relatively high political risk, as measured by available indices reported in commercial publications, provide higher returns on foreign direct investment. However, their empirical tests did not provide support for this hypothesis. The reasons may be that commercially available indices are not good representations of political risk, that reported returns are different from actual returns due to intra-company transfer pricing, or that expected returns are not well represented by actual returns.

2. Tax policy

Since the net return on foreign direct investment is affected by the tax system of both the home and the host country, tax policies affect the incentives to engage in foreign investment, as well as in the way in which that investment is financed.

There are two alternative approaches to avoiding the double taxation of income earned abroad if both the home and the host countries tax a multinational's earnings. Both approaches recognize the primary right of the host country to tax income generated within its jurisdiction, but differ on the portion of tax revenue that accrues to the home country. Under the territorial approach, the home country does not tax income earned abroad. Under the more common residence approach, the home country does tax income earned abroad, but allows for a tax credit on taxes paid to host governments. Furthermore, the home country tax payments can usually be deferred until the income earned abroad is repatriated to the domestic parent. Most analyses of tax effects focus on the residence approach.

A comprehensive theoretical treatment of the effects of taxes on direct investment capital flows has been developed by Jun (1989a). 1/ In this study, the author identifies three channels through which tax policy affects firms' decisions regarding foreign direct investment. First, the tax treatment of income generated abroad has a direct effect on the net return on foreign direct investment, which will be influenced by such instruments as the corporate tax rate, the foreign tax credit, and the deferral of home country taxes on unrepatriated income. Second, the tax treatment of income generated at home affects the net profitability of domestic investment, and thus the relative net profitability between domestic and foreign investment. Finally, tax policy can affect the relative net cost of external funds in different countries.

Jun uses an intertemporal optimizing model incorporating these three channels to discuss the effects on foreign direct investment of changes in tax policy. For example, an increase in the domestic corporate tax rate was shown to increase the outflow of foreign direct investment, although the

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1/ Other discussions of theoretical issues may be found in Gersovitz (1987), and in Alworth (1988).

magnitude of the effect depended on whether the marginal source of funds for the subsidiary is retained earnings, transfers from the parent firm, or external funds, and on whether the payment of taxes on unrepatriated income can be deferred. A reduction in the foreign tax credit would reduce foreign direct investment outflows unless the marginal source of financing of the subsidiary is retained earnings. An increase in the domestic investment tax credit, or the elimination of the deferral of tax payments on unrepatriated earnings, would reduce the outflow of foreign direct investment.

The limited empirical literature on this subject has recently been expanded by various studies of U.S. foreign direct investment inflows and outflows, starting with Hartman (1984). 1/ This paper examines inflows of foreign direct investment into the United States by first separating investment financed by retained earnings from investment financed by transfer from abroad. For both categories, the paper studies the response of investment to the after-tax rate of return obtained by foreign investors in the United States (as a proxy for expected rate of return for firms considering expansion of current operations), and the overall after-tax rate of return on capital in the United States (as a proxy for expected returns for firms considering acquisition of existing assets). The estimated coefficients had the expected positive sign for both rates of return. However, the model did not explain investments financed by transfers from abroad very satisfactorily. The same type of equations was estimated by Boskin and Gale (1987), and by Young (1988), using expanded samples, revised data, alternative functional forms, and some additional explanatory variables. Although the estimated coefficients differ from those of Hartman (1984), the qualitative results were similar.

Slemrod (1989) examined the affect of host country and home country tax policy on foreign direct investment in the United States. The estimation results were generally supportive of a negative impact of the U.S. effective rate of taxation on total foreign direct investment, and on transfers of funds, but not on retained earnings. The paper then disaggregated the data by seven major investing countries to test for the effect of home country tax policy on foreign direct investment and did not find a significant impact of home country tax policy on foreign direct investment. A different conclusion, however, was reached by Jun (1989b) who found that U.S. tax policy toward domestic investment had a significant effect on U.S. direct investment outflows by influencing the relative net rate of return between the U.S. and abroad. The overall conclusion based on the evidence examined above is that both home-country and host-country tax policies seem to have an effect on foreign direct investment flows. However, the ability of present models to capture those effects is not completely satisfactory.

1/ A summary of previous results can be found in Caves (1982).

3. Government regulations

There is a number of factors, in addition to those included in the theories examined above, that may have an impact on foreign direct investment decisions. They generally originate from government regulations that modify the risk and expected returns from a given investment project. Those regulations are sometimes implemented in order to counteract foreign firms' practices that are perceived to be harmful to the host country, such as intra-firm pricing and discriminatory input purchases. In other cases, they are implemented in the pursuit of other policy objectives, such as favoring the development of a particular industrial sector, the reduction of regional disparities, or the reduction of unemployment. Independently of their specific policy purpose, however, those regulations are likely to affect decisions regarding the size, timing, location, and sectorial allocation, of foreign direct investment.

The various government regulations can be classified into incentives and disincentives to foreign direct investment, according to whether they tend to increase or reduce the flow of investment to a given country. Incentives include, in addition to fiscal benefits such as tax credits and tax exemptions, some financial benefits such as grants and subsidized loans. Some countries provide nonfinancial benefits, such as public sector investment on infrastructure aimed at enhancing the profitability of a given foreign investment project, public sector purchasing contracts, and the establishment of free trade zones.

Disincentives include a number of impediments to foreign direct investment, which may range from the slow processing of authorizations for foreign investment, to the outright prohibition of foreign investment in specified regions or sectors. Most impediments, however, lay in between those extremes, and take the form of conditions attached to the authorization of foreign direct investment in general, or for certain regions and sectors. Those conditions may include setting a lower bound on the portion of inputs purchased from local sources, a lower bound on export levels, or a specified relationship between the value of exported output and the value of imported inputs. Other conditions may include requirements regarding levels of employment, transfer of technology, expenditure on research and development, or investment in unrelated areas. In addition, there may be some upper limit on foreign ownership of equity, and restrictions regarding foreign exchange transactions, specially those associated with profit remittances, and repatriation of capital. These regulations are particularly prevalent in developing countries.

The empirical effect of the various incentives and disincentives on the level of foreign direct investment has been examined by a number of authors. The results of those studies are documented in Agarwal (1980) and OECD (1989), which provide similar conclusions. In general, the incentives mentioned above appear to have a limited effect on the level of foreign direct investment. Investors seem to base their decisions on risk and

return considerations that are only marginally affected by those incentives. However, this result may be partly due to difficulties that exist in isolating the effect of a given factor, when various factors are operating simultaneously. Incentives are seldom granted without conditions; instead, they are usually subject to the compliance of requirements that constitute disincentives to foreign direct investment. Therefore, the empirical results may be capturing the net effect of incentives coupled with disincentives, which in principle can be positive or negative, depending on the strength of each component. If this is the case, the weak response to incentives shown by foreign direct investment implies that the benefits of incentives serve primarily to compensate for the additional costs arising from the performance requirements usually attached to those incentives.

Disincentives regulations seem to have a more definite impact on foreign investment, than incentives regulations. This is clearly the case when a certain type of foreign direct investment is directly prohibited. Also, specific requirements are sometimes imposed as a condition for authorizing the investment, rather than as a condition for receiving special benefits. In this situation, in which disincentives are not accompanied by matching incentives, those requirements may result too costly, and thus prevent the investment project from being undertaken. Furthermore, the existence of a wide range of disincentives may have a negative effect on foreign direct investment beyond the one originated from the additional costs of present regulations. To the extent that investors interpret those regulations as indication of an environment hostile towards foreign investment, they may decide against investing due to the possibility of future regulations that would reduce their profits even further.

VI. Conclusions

At present, there is no unique widely accepted theory of foreign direct investment. Instead, there are various hypotheses emphasizing different microeconomic and macroeconomic factors that are likely to have an effect on foreign direct investment. While most of those hypotheses have some empirical support, there is no sufficient support for any single hypothesis to lead to rejection of all the others.

Theories derived from the industrial organization approach have probably gained the widest acceptance. They seem to provide a better explanation for cross-country, intra-industry investment, and for the uneven concentration of foreign direct investment across industries, than do alternative models.

Regardless of the specific ranking of the various theories according to their explanatory power, it is clear from the review of the literature that in explaining the determination of international capital movements, direct investment flows must be distinguished from portfolio flows. The basis for this distinction is that direct investment implies control of the foreign

firm, and therefore the usual arguments regarding expected returns and diversification do not provide a satisfactory explanation. Other factors, usually associated with industrial organization and the theory of the firm, become crucial in explaining why residents of a given country would want to keep control of a foreign firm. The different reasons motivating direct investment flows and portfolio flows, also imply that those flows do not necessarily move together. As a result, a given pattern of foreign direct investment flows does not necessarily have to be associated with a particular pattern of overall capital flows.

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