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REASONS FOR FOREIGN INVESTMENT IN MANUFACTURING FACILITIES: U.S. VERSUS NON-U.S. MULTINATIONAL COMPANIES

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Pedro Nueno [1]

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Introduction

Many studies on the decision to invest abroad have been undertaken during the last decade. Basic, exploratory research and case studies are available, looking at this decision from a wide variety of standpoints. Nevertheless, among the questions that still remain unanswered is: do U.S. and non-U.S. multinational companies have the same reasons for investing abroad? Or, in other words, are there any nationality related reasons for investing abroad?

This paper is a study of the factors that influence the decision to invest abroad in manufacturing facilities, and explicitly focuses on any systematic differences that exist for U.S. and non-U.S. multinational companies. The study is restricted to investments involving manufacturing facilities; therefore investments in marketing, financial or distribution subsidiaries will not be considered.

Yair Aharoni conducted one of the pioneering studies of foreign investment decisions.[1] He looked deeply into how such a decision is made in U.S. companies, and described and analyzed the process. Aharoni did not find this decision process to be different from any other process leading to major decisions in a complex organization.

He analyzed "the forces leading some individuals in a company to focus attention on the possibilities of investing abroad" and called them *initiating forces*. It is worthwhile briefly going over the findings of Aharoni's excellent study. He classified the initiating forces into two groups: those arising from a strong interest by one or several high-ranking executives inside the organization, and those exogenous to the organization, such as an outside proposal, fear of losing a market, imitation of what competitors do, and strong competition from abroad in the home market.

In addition to this, Aharoni considered what he called *auxiliary forces*; these are forces that can help sell the investment proposal. He pointed out:

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[1] Aharoni, Yahir, The Foreign Investment Decision Process, (Boston: Division of Research Graduate School of Business Administration Harvard University, 1966).

> "Such factors will not by themselves cause a decision to look abroad, but may work as a catalyst toward such a decision. These factors augment the impact of the initiating force and may therefore be regarded as auxiliary forces".[2]

The auxiliary forces found by Aharoni are the following:

1. Creation of a market for components and other products
2. Utilization of old machinery
3. Capitalization of know-how; spreading of research and development and other fixed costs
4. Indirect return to a lost market

Nevertheless, Aharoni was probably more interested in the way decisions are made in complex organizations than in the forces leading to investing abroad. Besides, his study was based on interviews with a sample of 38 companies which had invested or had considered investing in Israel and, in fact, 18 of the firms interviewed were single-country investors, i.e., had only looked at Israel. Nevertheless, he was (probably) the first researcher to offer some insights on the reasons for investing abroad.

It is not denied in this paper that the basic initiating force of any business decision can be the strong interest of one or more high ranking executives. Nevertheless, it seems plausible to state that, if executives behave rationally, they will only decide to invest abroad when exogenous reasons provide a critical minimum amount of evidence that the foreign venture will succeed or will survive. The "size" of this minimum will be determined in each case by a combination of the strength of these exogenous reasons and the risk-taking capacity of the executives involved, which in turn will reflect the more difficult to assess personal wants and personal characteristics. Therefore, it is accepted in this paper that the reasons why companies invest abroad fall within what have so far been called exogenous reasons (exogenous to the managers, but not necessarily exogenous to their companies).

The basic hypothesis

Some studies have been done on the reasons why U.S. multinational companies invest abroad in manufacturing facilities,[3] but few are available on the motives of foreign multinational companies.[4] After some thinking over the available literature on both subjects, the researcher is bound to suspect that U.S. and non-U.S. companies do not behave equally in their foreign investments in manufacturing facilities, but the differences in behavior can be explained by reasons arising within the economic theory, without having to resort to variables arising from other sciences such as history, sociology or political sciences. In other words, it might be

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[2] Aharoni, Yahir, op. cit., p. 70.

[3] Besides Aharoni's study, op. cit., see, for instance, Polk, Judd, et al. U.S. Production Abroad and the Balance of Payments: a survey of corporate investment experience., (New York; National Industrial Conference Board, Inc .1966) and Basi, R., Determinants of United States Direct Investment in Foreign Countries (Kent, Ohio: Kent State University Bureau of Economic and Business Research, 1963).

[4] See for instance Tsurumi, Yoshi, "The Strategic Framework for Japanese Investments in the United States", The Columbia Journal of World Business, Winter 1973, pp. 19-25, and Franko, Lawrence G., "Doing Business in America: the European Experience", The McKinsey Quarterly, Volume IX, Number 3, pp. 17-31.

possible to find two companies, one American, the other not, competing in the same industry and investing abroad for different reasons, or one investing abroad while the other finds it unnecessary or inadequate. Nevertheless, this difference in behavior is motivated by forces which can be explained by the same economic theory.

Methodology

The methodology adopted for this paper is first to build a model of multinational enterprise behavior regardless of nationality. Emphasis is put on aspects closely related to the decision to invest abroad in manufacturing facilities. Then, data on foreign direct investment by U.S. and by non-U.S. companies are shown and analyzed.

Next, the model is illustrated with the available data. This exercise can:

(i) Provide some evidence on the validity of the basic hypothesis

(ii) Contribute to the better understanding of why companies invest abroad

(iii) Suggest certain hypotheses for further testing

A model of multinational enterprise behavior with regard to foreign investment in manufacturing facilities

To build a model of multinational enterprise behavior with regard to foreign investment in manufacturing facilities, it seems reasonable to start from the product lifecycle theory.[5] This is because the theory gives the most complete explanation (to date) of international trade, the product lifecycle model for trade has been subjected to several empirical tests,[6] and, although research building on the product lifecycle model seems to have put emphasis on trade, the theory, as initially formulated by Vernon, also attempted to explain foreign investment.[7]

The product lifecycle theory[8]

Briefly, this theory states that highly industrialized nations have a demand for labor-saving products and products appealing to customers with high income levels. Besides, these countries are well endowed with the engineers, scientists and skilled personnel necessary for research and development projects. Therefore, most new products are first introduced into the markets of these nations. In the early stages of the product lifecycle, the nation that first introduced it –

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[5] Probably the first complete account of this theory must be credited to Vernon, Raymond, "International Investment and International Trade in the Product Cycle" Quarterly Journal of Economics, Vol. 80, May 1966, pp. 190-207.

[6] See for instance, Wells, Louis T., Jr., "Test of a Product Cycle Model of International Trade: U.S. Export of Consumer Durables" Quarterly Journal of Economics, Vol. 83, February 1969, and Stobaugh, Robert B. "The Neotechnology Account of International Trade: The Case of Petrochemicals", Journal of International Business Studies, Fall 1971, pp. 41-60.

[7] See Vernon, Raymond op. cit. and also Stobaugh, Robert B., The Product Lifecycle, U.S. Exports and International Investment, unpublished doctoral dissertation, (Boston: Harvard Business School, 1968).

[8] A good selection of articles on this subject can be found in Wells, Louis T., Editor, The Product Lifecycle and International Trade, (Boston: Division of Research Graduate School of Business Administration Harvard University, 1972).

the U.S. in most instances – becomes a net exporter of the product to the rest of the world. During this stage, the market is tested, the customers' real needs become apparent and the product undergoes changes, and finally becomes standardized.

The product then enters the growth stage. A demand explosion takes place, in the pioneer country and abroad. The product is already a standard item and its price has become the main differentiating aspect. At the same time, the know-how associated with the product has become widespread. It might very well happen that, as demand for the product grows worldwide, it is produced in countries other than the pioneer as an import-substitution activity. The pioneer nation might continue as a net exporter during the growth stage, particularly if balancing exports take place[9] because the minimum economic output of a manufacturer is a relevant percentage of total world trade.

As demand grows worldwide and price becomes the critical differentiating element, it might occur that a developing or even less developed nation can gather the mix of resources necessary to manufacture the product at a total manufacturing cost below the marginal cost of the pioneer and early follower nations. The technological know-how associated with the manufacture of the product does not represent at this point a barrier to entry into this industry because it is available from different sources (consultants, licensors, etc.). In this stage of the product lifecycle, the developing or less developed nation can become a world supplier of the mature product.

From this description of the product lifecycle model of international trade it is possible to derive a model of international investment in manufacturing facilities.

A. Foreign investment in manufacturing facilities with products early in their product lifecycle

According to the product lifecycle theory, a company with products in this stage is unlikely to invest abroad as far as it can be a net exporter from its domestic location. Its technological leadership will grant a monopolistic advantage for supplying the world markets.

What reasons, then, might a company with new products – a high-tech company – have for establishing manufacturing facilities abroad? To the extent that a company in this stage of the product lifecycle can find abroad a better or cheaper mix of the resources it needs (scientists, engineers, customers, laboratories, researchers, etc.), it might decide to invest in manufacturing facilities there. Thus, it is possible to find multinational companies, in high-tech fields, establishing manufacturing facilities in countries where they can benefit more efficiently than at home from the abundant resources described above.

These companies might say that they invested abroad to learn. It is possible to imagine high-tech U.S. companies, for example, investing abroad, either in countries where highly educated employees are cheap (like Israel), or where great technological advances have been made (like Japan or Germany).

This hypothesis can be further explored in face of previous relevant studies. How can a foreign company manufacturing high-tech products learn in the U.S. market, or vice-versa? Product innovation, as well as the more comprehensive phenomenon from which it stems – technological change – is nothing more than a process where the flows are pieces of information. An excellent

[9] See Stobaugh, R. B., "The Neotechnology Account of International Trade: The Case of Petrochemicals" op. cit. p. 53.

study of these flows, by R. Rosenbloom and F. Woleck,[10] shows that, to maintain linkages with the sources of knowledge (which will be needed inside the company to carry on the process of innovation) it is extremely important to provide opportunities for scientists and engineers to follow their professional interests, sharing them with others in order to learn from them and to contribute to them. These opportunities include membership of professional societies, close contact with suppliers, attendance at conferences and seminars, and so on; from them a company can draw on the highly developed environment and obtain the technical information it needs to lead in product innovation. This alone might be reason enough for investing abroad.

On the other hand, Seev Hirsh[11] found that the manufacture of high-tech products benefits from being located near the sophisticated customers who buy them. There is an important interaction between manufacturer and customer which helps the former to find out the needs of the latter, so the product can be appropriately defined. Thus, a company leading in product innovation might conceivably invest abroad to seek the quick, reliable feedback from this sophisticated customer.

B. Foreign investment in manufacturing facilities with products in the growth stage of their lifecycle

If one had to generalize about the aspect in which a company must be strongest to successfully compete in a given stage of the product lifecycle, the following classification would probably make sense: companies manufacturing products in the early stage of the lifecycle would need strong research and development capabilities; companies manufacturing products in the growth stage of the lifecycle should be strong in marketing to be able to conquer the market that rapidly develops; companies manufacturing products in the mature stage of their lifecycles would need strong production capabilities to be able to achieve low costs, which is the main competitive advantage in this stage of the cycle.[12]

By definition, the characteristics of products in their growth stage are: rapidly expanding demand, product specifications becoming standard, technology associated with the manufacture of the product becoming widespread. During this stage, the company that first introduced the product and the early followers will start losing their export markets to foreign producers who will in turn start manufacturing the product.

What can a company manufacturing products in the growth stage do abroad under these circumstances? The answer is probably, above all, to secure the market. This can be done either by investing there preventively, when local companies might still perceive the manufacture of the product, somewhat risky, or by investing there aggressively, hoping to battle down local companies on the basis of

(i) better product know-how

(ii) better marketing know-how

(iii) better process know-how

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[10] Rosenbloom, Richard S., and Francis W. Wolek, Technology and Information Transfer, (Boston: Division of Research Graduate School of Business Administration Harvard University, 1970).

[11] Hirsch, Seev, Location of Industry and International Competitiveness (Oxford: The Clarendon Press, 1967).

[12] A discussion of the needs of companies manufacturing products in each stage of the lifecycle can be seen also in: Stobaugh, Robert B., "Using Technical Know-how in a Foreign Investment and Licensing Program", Proceedings of the Chemical Marketing Research Association, Houston, February 1970.

In the first case, product innovation, or product associated know-how, is the main source of the competitive strength of the investing company. It must be considered that the product is not new, in absolute terms, because it was developed some time previously and since then has been exported. Nevertheless, in the second market, the product is still relatively new or "perceived-new", hence the opportunity for preventive investment in manufacturing aimed at discouraging local companies. The leading company, because of its experience with the product, has many advantages: it can bring personnel to design the plant, to adjust the design of the product to the local conditions, and to set up appropriate quality and cost controls. In some cases it may also bring dies and tooling.

In the second case, the strength of the investing company which is manufacturing abroad a product in the growth stage can be marketing know-how: the experience combining the variables of the marketing mix (design, size, price, packaging, advertising, brand, distribution outlet, etc.) into marketing strategies would be the source of the advantage in these cases, regardless of the fact that local companies can manufacture a comparable product.

In the third case, to the extent that efficient manufacturing begins to be important with products in the growth stage, those companies capable of rapid process innovation leading to lower costs or better quality can find the advantage which enables them to penetrate a foreign market, establishing a manufacturing subsidiary there.

These hypotheses seem rational in the light of previous studies. For example, Stopford and Wells's study of 187 U.S. multinational companies[13] looked at their foreign investments in manufacturing, classifying the companies according to their international strategy into: (a) strategies concentrating on marketing, (b) strategies concentrating on production, (c) strategies concentrating on product innovation, and (d) strategies seeking raw-materials. They found that the U.S. companies studied, particularly those with products in the growth stage, were able to build barriers to entry abroad (on the basis of their product, marketing or process leadership) which granted them a monopolistic advantage. In many cases, these companies did not attach any relevant value to the possible contributions of local partners, and they did not need or want to share the control of their investments with locals.

C. Foreign investment in manufacturing facilities with products in the mature stage of their lifecycle

For products in this stage, efficient manufacturing becomes extremely important. The product is completely standard and its associated know-how is available elsewhere. Low manufacturing costs are keenly needed for competitive survival.

Therefore, the same methodology will be used to find out what a multinational company which manufactures a mature product is more likely to do, in terms of foreign investment in manufacturing facilities. As in the other cases, the basic inputs for this methodology will be the product lifecycle theory and the assumption of reasonable behavior. With this in mind, one might say that a company in these circumstances will tend to invest abroad whenever this investment yields lower manufacturing costs than other facilities serving the same market, controlled by the company or by its competitors, or whenever the new investment helps the total manufacturing system (the company plus its subsidiaries) to achieve lower manufacturing costs.

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[13] Stopford, John M. and Louis T. Wells, Jr., Managing the Multinational Enterprise, (New York: Basic Books, 1972).

This reason (seeking low manufacturing costs) may generate several types of foreign investments in manufacturing facilities. First, a company might engage in foreign investments seeking cheap resources (labor or materials). These investments, in turn, can be aimed to serve the local market (where the investment is made), the domestic market (where the parent company comes from), and/or third markets. This would be the case, for instance, for companies manufacturing labor-intensive mature products and who decide to establish manufacturing facilities in locations where labor costs are cheap. These investments can often be considered defensive moves because, given the maturity of the product, a company from a less industrialized or even a less developed nation can be in the position to manufacture the product and to penetrate international markets.

Second, a foreign manufacturing investment might help to lower the cost of the total system because of economies of scale. There are many products which have components that are very sensitive to economies of scale, such as cold rolled steel, automobiles, trucks, etc. With products like these, a company might find it attractive to establish manufacturing facilities abroad to produce the final product, but retaining in only one location the production of the components more sensitive to economies of scale. By doing this, the company will achieve lower overall costs and will then be able to gain market share.

As in previous cases, the rationality of these hypotheses can be checked against previous studies. Y.S. Chang[14] and R. Moxon[15] studied the exodus of many U.S. companies in the electronic industry to countries with cheap labor. R. Stobaugh[16] also found that, in many cases, U.S. foreign investment was a defensive move: unless U.S. companies invest abroad to obtain low manufacturing costs, foreign companies could penetrate the U.S. market or third markets served from the U.S. by U.S. companies. P. Nueno[17] suggested that, in industries very sensitive to economies of scale, such as the steel industry, companies technologically capable of building and operating the largest equipment units have been able to penetrate foreign markets. In some cases these companies have kept in only one location the subprocesses more sensitive to economies of scale.

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[14] Chang, Y. S., "The Transfer of Technology: Economics of Off-shore Assembly, The Case of the Semiconductor Industry" UNITAR Research Report No. 11 (New York: United Nations, 1971).

[15] Moxon, Richard W., Offshore Production in the Less Developed Countries by American Electronics Companies, Unpublished Doctoral Dissertation (Boston: Harvard Business School, 1973).

[16] Stobaugh, Robert B., Jr. and Associates, "U.S. Multinational Enterprises and the U.S. Economy", in Bureau of International Commerce, U.S. Department of Commerce, The Multinational Corporation (Washington; Superintendent of Documents, 1972).

[17] Nueno, Pedro, A Comparative Study of the Capacity Decision Process in the Steel Industry: the U.S. and Europe. Unpublished Doctoral Dissertation (Boston: Harvard Business School, 1973).

Summary of hypotheses

The previous paragraphs have been schematically summarized in Table 1. This table shows the critical needs of a company according to the stage in the lifecycle of the main product manufactured. It also shows the reasons for investing abroad that a company might have in each stage, as deduced from the product lifecycle theory.

Table 1

Summary of hypotheses

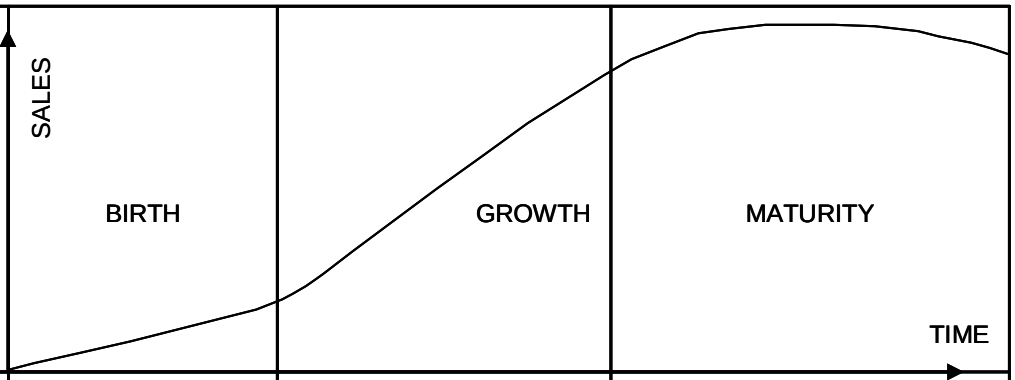
STAGES OF THE PRODUCT LIFECYCLE			
CRITICAL NEEDS OF THE COMPANY	EFFICIENT R & D	EFFICIENT MARKETING	EFFICIENT MANUFACTURING
	- scientists - engineers - skilled personnel - sophisticated customers	- perception of consumer needs and behavior - product design - advertising, sales and distribution expertise	- optimal plant sizes - low cost resources
REASONS FOR INVESTING ABROAD	1.- Learn from the technological environment (use R & D resources) 2.- Learn from the market (use feedback from customers to define products)	3.- Keep a formerly export market on the basis of technological leadership, preventing import substitution by locals 4.- Gain a rapidly growing market on the basis of marketing know-how 5.- Gain market on the basis of technologi-cal leadership 6.- Gain market on the basis of lower costs/ better quality due to process innovation	7.- Protect domestic market using foreign low-cost resources. 8.- Keep third markets using foreign low-cost resources. 9.- Achieve economies of scale in whole system

Table 2 shows the kind of environment (looking only to the relevant variables discussed so far) in which multinational companies operate; in the U.S., in most advanced countries (where most of the non-U.S. multinationals come from), and in third markets (industrial and developing nations).

Table 2

Characteristics relevant for this study of the domestic environments of several categories of nations

U.S.	ADVANCED NATIONS	INDUSTRIAL NATIONS
	West Germany, Japan, France, U.K., etc. (where most non-U.S. multinational companies are headquartered)	Australia, Mexico, Spain, Brazil, Argentina, etc. (where few non-U.S. multinational companies are headquartered)
- Abundant R & D resources - Sophisticated customers ("need for new products") - Large market for growth and mature products - Expensive labor	- Relatively (to the U.S.) scarce R&D resources - Relatively (to the U.S.) lower labor costs - Some growth products in the U.S. are "perceived new" products in these markets - Large market for some growth products and for mature products	- R & D resources very scarce - Cheap labor costs - Some mature products in the U.S. are "perceived growth" products in these markets - Large market for some growth products and for mature products

It is difficult to draw exact lines grouping countries in terms of those characteristics of their domestic environments which are relevant for this study. Nevertheless, we can probably generalize and say that countries such as Japan, West Germany, France, and the U.K. have, to a great extent, the kind of environment reflected by Table 2, with relation to the U.S., while countries like Mexico, Spain, and Brazil have, to a great, extent, the kind of environment reflected by the same table. It would be worthwhile, however, developing a formal classification of countries relevant for this study, i.e., relevant for studying which countries' companies invest abroad and why. This classification could probably be made using some combination of two criteria: level of industrialization and size of the market. A proxy for this combination is what R. Stobaugh calls "total manufacturing output".[18] This proxy has been used in this study, considering, however, that the order of countries in the classification is much more important than the exact position of the line separating the categories.[19]

A combination of both the critical needs of the company and the characteristics of the environment leads to the qualification of the hypotheses in the following way:

a) In the birth stage of the lifecycle, U.S. companies will be less interested in foreign investments in manufacturing facilities than non-U.S. companies. Non-U.S. companies might be interested in foreign investments in the U.S. or in highly industrialized countries in order to learn from the technological environment or from the market.

[18] Stobaugh, Robert B., Jr., "Where in the world should we put that plant?", Harvard Business Review, January-February 1969, pp. 129-137.

[19] Robert Stobaugh published a list of "manufacturing output" of all the countries estimated to have a manufacturing output in excess of 1 billion dollars in 1974, See R. Stobaugh "Where in the world should we put that plant?" op. cit. p. 137, The classification suggested in the text has been made according to this list.

b) In the growth stage of the lifecycle, there will be fewer differences between U.S. and non-U.S. companies. Nevertheless, to the extent that non-U.S. companies are considered to rely more than their U.S. competitors on process innovation, it might be possible to find more non-U.S. companies in this stage of the cycle establishing manufacturing subsidiaries because of their process innovation capability.[20]

c) In the mature stage of the lifecycle, it is very likely that U.S. companies will tend to use more cheap, foreign resources (mainly labor) than U.S. companies, because of the greater importance of manufacturing costs on the overall competitiveness of the company, coupled with the higher costs of these resources in the U.S. Besides, U.S. companies, will probably be able to achieve all possible economies of scale within the U.S. market, which is a very large market, and therefore will not need to make foreign investments in manufacturing for this purpose. Non-U.S. companies, however, serving smaller domestic markets, might find that a foreign investment, which can absorb some centrally manufactured components, helps the whole system to lower overall manufacturing costs on the basis of economies of scale.

Table 3 summarizes these points, qualifying the hypotheses of Table 2 according to the nationality of the company.

Table 3

Hypotheses: reasons why U.S. and non-U.S. companies invest abroad in manufacturing facilities

REASONS (according to Table 1)			
Stages in the product lifecycle	Birth	Growth	Maturity
U.S. companies are more likely to invest abroad because of	none	3,4 and 5	7 and 8
Non-U.S. companies are more likely to invest abroad because of	1 and 2	3,4,5 and 6	9

It could be argued at this point that there might be other motives for investing abroad in manufacturing facilities, not directly stemming from the concepts of the product lifecycle. The researcher does not want to be conclusive about this, and prefers to leave it open to further research, but there is a possible motive that was also explored to some extent: government incentives.

A subset of the data, regarding 34 investments in Brazil, contained specific information about the influence on the investing company's decision of the Brazilian government's incentives to attract foreign investments. In only three cases were government incentives considered critical (i.e., the plant would have not been built without the incentives), but in all cases there seem to have been more profound reasons, of the type discussed above, leading to the investment. In more cases, seven out of 34, government incentives were considered "important" in the choice of a specific site within the host country.

[20] The emphasis on process innovation of non-U.S. companies, relatively to their U.S. competitors has been suggested in many instances. See, for example, Miller, R. E. Innovation, Organization and Environment (Sherbroke: Institut de Recherche et de Perfectionnement en Administration, 1971).

The data

This study is based on the data gathered in personal interviews held by interviewers from the Harvard Business School and IESE Business School with company managers in the headquarters and subsidiaries of U.S. and non-U.S. multinational companies. In total, data collected in 72 interviews conducted in 11 countries with 52 firms of eight nationalities covering a variety of industries and products were used for this paper. Table 4 shows the number and nationality of the parent companies and subsidiaries contacted, as well as the source of the information within each company.

Only those interviews which provided a convincing reason or reasons for why the company had proceeded with the foreign investments were used in the study. The interviewers gathered a vast amount of information and the researcher wanted to make sure that the reasons for investing abroad given by the managers were consistent with the rest of the data (for example, if the reason was to benefit from economies of scale, the researcher expected that economies of scale were important in that industry).

The reasons for investing abroad in manufacturing facilities given by the managers interviewed are shown in Tables 5 and 6. These tables show also the type of country where the investment was made and the stage of the product in its lifecycle. The data in these tables need some qualifications, however:

a. Number of answers

In most instances, the managers interviewed offered one specific reason, more important than the others, why the investment was made. In some cases though, there were two or more reasons of apparently equal importance. Tables 5 and 6 contain a total of 89 reasons. This is a result of the fact, mentioned above, that some managers offered more than one reason, of comparable importance, for investing abroad.

Table 4

Number and nationality of parents and subsidiaries contacted, and source of the information

Parent Nationality	Subsidiary Nationality	Source of information	
		Interview in Headquarters	Interview in Subsidiary
28 U.S.	16 Brazil	4	16
	4 Colombia 6 Spain	4	4
	1 Belgium	3	4
	1 Italy	1	1
	4 Less developed nations	1	1
		4	2
8 Japan	6 U.S.		6
	1 Brazil		1
	1 Spain		1
4 German	2 U.S.	1	2
	3 Brazil		3
3 France	3 Brazil		3
2 Netherlands & "British Dutch"	1 Brazil		1
	1 Canada	1	
2 Swiss	2 Brazil		2
3 Italy	3 Brazil	2	3
2 Spain	1 Chile	1	
	1 Brazil	1	
52 Firms, 8 Nationalities	57 Subsidiaries	22	50

Table 5

Number of companies giving each reason as most important for making foreign investment, and type of country where investment was made

U.S. MULTINATIONAL COMPANIES																		
Stage in the Product Lifecycle of the product manufactured abroad	NUMBER OF COMPANIES GIVING EACH REASON AS MOST IMPORTANT FOR MAKING FOREIGN INVESTMENT AND TYPE OF COUNTRY WHERE INVESTMENT WAS MADE																	
	(1) Learn from technological environment		(2) Learn from the market		(3) Keep formerly export market on the basis of technological leadership, preventing import substitution by locals		(4) Gain market on basis of marketing know-how		(5) Gain Market on the basis of technological leader-ship		(6) Gain market on the basis of process innovation		(7) Protect domestic market on basis of low-cost resources		(8) Keep third markets using low-cost resources		(9) Achieve economies of scale in whole system	
BIRTH	A (Advanced)		A		A		A		A		A		A		A		A	
	B (Industrial)		B		B		B		B		B		B		B		B	
	C (Less Developed)		C		C		C		C		C		C		C		C	
GROWTH	A		A		A		A		A	1	A		A		A		A	1
	B		B		B	3	B	2	B	3	B		B		B	1	B	
	C		C		C		C		C		C		C	2	C		C	
MATURITY	A		A		A		A	3	A	2	A		A		A		A	
	B		B		B	4	B	5	B	5	B		B	1	B	5	B	1
	C		C		C	1	C	3	C		C		C	1	C	1		

Table 6

Number of companies giving each reason as most important for making foreign investment, and type of country where investment was made

NON-U.S. MULTINATIONAL COMPANIES																		
Stage in the Product Life Cycle of the product manufactured abroad	NUMBER OF COMPANIES GIVING EACH REASON AS MORE IMPORTANT FOR MAKING FOREIGN INVESTMENT AND TYPE OF COUNTRY WHERE INVESTMENT WAS MADE																	
	(1) Learn from technological environment		(2) Learn from the market		(3) Keep formerly export market on the basis of technological leadership, preventing import substitution by locals		(4) Gain market on the basis of marketing know-how		(5) Gain market on the basis of technological leader- ship		(6) Gain market cm basis of process innovation		(7) Protect domestic market on basis of low-cost resources		(8) Keep third markets using low-cost resources		(9) Achieve economies of scale in whole system	
BIRTH	U.S.	3	U. S.	4	U.S.		U. S.		U.S.	3	U. S.		U.S.		U.S.		U.S.	
	A (Advanced)	1	A	1	A		A		A		A		A		A		A	1
	B (Industrial)		B		B		B		B		B		B		B		B	
	C (Less Developed)		C		C		C		C		C		C		C		C	
GROWTH	U.S.		U.S.		U.S.		U.S.		U.S.		U.S.	1	U.S.		U.S.		U.S.	
	A		A	1	A		A		A		A		A		A		A	
	B		B		B	5	B		B		B		B		B		B	1
	C		C		C		C		C		C		C		C		C	
MATURITY	U.S.		U.S.	1	U.S.		U.S.		U.S.		U.S.	2	U.S.		U.S:		U.S.	2
	A		A		A		A		A		A		A		A		A	
	B		B		B	10	B	3	B	2	B		B		B	1	B	
	C		C		C		C		C		C		C		C		C	1

b. Stage of the product in its lifecycle

The first problem that arose was to decide which stage of the lifecycle the product was considered to be. One could say that under practically any product definition it is possible to find varieties in different stages of the lifecycle; take elevators, for instance: there are very sophisticated computer-controlled elevators, as well as very standard electromechanic ones. Considering that neither the interviewers nor the researcher were experts in all the industries covered by the study, it seems necessary to explain how each product manufactured abroad was assigned a stage in the lifecycle.

A product was considered to be in its early stage of the lifecycle when several of the following characteristics applied it were new in the market: it was not yet well defined, i.e., it was undergoing design changes; it was being manufactured by just a few companies; it was the result of a high level of technology controlled by a certain company; or the managers interviewed said that it was a new product and expected a rapid growth in future demand, but that this growth had not started yet. A few products in the pharmaceutical, electronic, optical and chemical fields were found to meet all or most of the above characteristics and were thus assigned the early stage.

A product was considered to be in its growth stage when: it was clearly defined; it was mass-produced and marketed by several companies; competition took place on the basis of a of brand differentiation, product differentiation and price; prices were substantially decreasing; and total annual sales of the product were growing faster than macroeconomic variables such as gross national product or population. Many products fell into this stage.

Finally, a product was considered to be in the mature stage when: total annual sales were growing at a rate comparable to the rate of growth of macroeconomic variables; the product was very standard; and competition was taking place primarily on the basis of price. Products such as zip fasteners, light bulbs, canned fruits, and cold rolled steel, were assigned this stage.

The second problem that arose was that similar products were in different stages of the lifecycle in different countries at a given moment. For example, standard TV sets were a mature product in most advanced countries, a growth product in most industrial countries, and a new product in most less developed countries. It was decided to classify the products according to their stage in the lifecycle in the advanced countries. Therefore standard TV sets would be considered mature products.

c. Type of country where the investment was made

The following groups were considered: the U.S., advanced countries, industrial countries and developing and less developed countries. Japan, EEC member countries, and Canada were considered advanced countries. Spain, Brazil and Switzerland were considered industrial countries. Colombia, Chile, and another four countries fell into the last group. This classification was made according to the already mentioned criterion “total manufacturing output”.[21]

[21] Stobaugh, Robert, B. Jr., “Where in the world should we put that plant?” op. cit. p. 137.

Analysis of the data

The layout of the data exposed in Tables 5 and 6 leads directly to the following tentative findings:

a) Companies manufacturing products in the early stage of the lifecycle:

Non-U.S. companies offered "learning" – either from the market or from the technological environment – as the reason for nine out of 13 foreign investments (69%). In ten cases (77%) the investment was made in the U.S.

In three cases (23%), companies manufacturing products in the early stage invested abroad to gain a market on the basis of their technological leadership.

No U.S. company manufacturing products in this stage was included in the study. This does not necessarily mean that U.S. companies in this stage do not invest abroad. Nevertheless, as only companies with foreign manufacturing investments were selected for the study, one might conclude that U.S. companies are less prone to invest abroad, at this stage, than their foreign counterparts.

b) Companies manufacturing products in the growth stage:

Nine out of 13 (69%) U.S. companies invested abroad with the objective of gaining market share on the basis of their leadership, in marketing or in technology, or to prevent import substitution by locals on the same basis.

Six out of nine non-U.S. companies (66%), invested abroad for similar reasons.

In both cases, most of the investments were made in industrial countries, where large markets exist.

c) Companies manufacturing products in the mature stage:

Most of the foreign investments studied included products at the mature stage. In most instances, however, these products were "perceived growth products" in the markets where the investment had been made.

Eight out of 32 U.S. companies (25%) invested abroad to use cheap resources (labor, in most cases), to defend either the domestic market or third markets.

Conversely, only one non-U.S. company alleged similar reasons. Besides, three out of 32 (3%) went abroad to achieve economies of scale.

In both categories, U.S. and non-U.S., the majority of the investments in this stage of the lifecycle had been made with the objective of penetrating a foreign market (72% of the U. S. cases and 77% of the non-U.S. cases).

If the answers are grouped regardless of the product's stage in its lifecycle, the main differences observed become more pronounced.

1. Twenty five per cent of the non-U.S. companies invested abroad to learn from the market or from the technological environment, while no U.S. company at all had these objectives.

2. Twenty four per cent of the U.S. companies invested abroad to use cheap resources (labor in most cases), while only two per cent of the non-U.S. companies offered that reason.

3. Eleven per cent of the non-U.S. companies, against four per cent of the U.S. invested abroad with the objective of achieving economies of scale.

4. Seven per cent of the non-U.S. companies expected to penetrate foreign markets on the basis of process innovation, while no U.S. company gave that motive.

5. Seventy per cent of the U.S. investments and fifty four per cent of the non-U.S. investments, the largest proportion in both cases, were after foreign markets on the basis of know-how.

Validity of the findings

It was already pointed out that the data would be used to illustrate several hypotheses derived from a theory. To a great extent, the data are consistent with the hypotheses.

Nevertheless, the data covered only 57 subsidiaries, this is to say 57 decisions to invest abroad. As R. Vernon pointed out, in 1967 the 187 leading U.S. multinational companies already had more than 5,500 subsidiaries.[22] Therefore, the total population from which the sample studied was drawn probably contains over 10,000 subsidiaries. This is an indication of how carefully the tentative findings must be taken. The sample was chosen trying to include a variety of products and industries and on the basis of the companies' willingness to cooperate.

On the other hand, these findings are a step forwards in the process of understanding the complex phenomenon of foreign investment, and provide some suggestive evidence on what the outcome of more rigorous testing could be.

Summary

The concepts of the product lifecycle theory of international trade are used as a basis for the generation of hypotheses regarding foreign direct investment in manufacturing facilities. These hypotheses are then illustrated with data gathered in in-depth interviews with managers of U.S. and non-U.S. companies.

The study provides some suggestive evidence on the following points: U.S. companies manufacturing new products do not tend to invest abroad, while their non-U.S. counterparts do invest, to some extent, to "learn" either from the market or from the technological environment; most U.S. and non-U.S. companies invest abroad to gain market share on the basis of their know-how when they manufacture either growth or mature products; non-U.S. companies rely more than U.S. companies on their process know-how for investing abroad; U.S. companies tend to go abroad, more than non-U.S. companies, to use cheap labor; non-U.S. companies do invest abroad to enhance economies of scale more frequently than U.S. companies.

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[22] Vernon, Raymond, The Economic Consequences of Multinational Enterprise: An Anthology (Boston: Division of Research Graduate School of Business Administration Harvard University, 1972), p. 214.