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The entry mode choice of MNEs: an evolutionary approach

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Abstract

The literature on foreign direct investment (FDI) has recently analysed the nature of the firm's entry mode choice in a foreign market, particularly the choice between a joint venture and a wholly owned subsidiary. The paper aims at providing further empirical evidence on the influence of some key variables in explaining it. The theoretical framework relates to the resource-based view of the firm and to the more recent competence-based theory. It focuses on the concept of the firm as a collection of productive resources and assets, built through internal learning processes in the form of evolutionary experimentation. The inability of the firm to build internally all the needed knowledge and competencies forces it to acquire them outside, influencing the growth strategy of the firm. As resources and complementary assets are spread out, the firm has to deal with constraints which become more crucial when the firm enters into unfamiliar markets and areas of activity. In particular, when deciding about the entry mode on foreign markets, the firm has to face transaction costs concerning actors and potential partners and their opportunism, and costs related to the need for acquiring information about new institutional environments and their working. According to this view, the resort to co-operative solutions and joint ventures allows firms to reduce costs and uncertainty related to foreign markets, and rises if technological opportunities, tacit skills and competencies constitute an important source of competitive advantage for the firm. An empirical analysis, with reference to a representative sample of FDI undertaken by Italian firms in mining and manufacturing industries over the period 1986–1993, has been developed in order to test the hypotheses.

Keywords: Entry mode; Co-operative strategy; Competencies; Complementary assets

1. Introduction

The recent period was characterised by a marked change in the strategic behaviour of multinational enterprises (MNEs). Until the beginning of the 1980s, the MNE was considered like a *monad*, a self-contained and internally controlled administrative system in which a globally optimising parent supervises a constellation of controlled or wholly owned foreign subsidiaries, while recent years witnessed the striking emergence of joint ventures, strategic alliances and co-operative agreements.

In this context, one of the most important decisions faced by a firm going abroad through a foreign direct investment (FDI) is that related to the ownership arrangement, and in particular, the choice be-

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tween a wholly owned subsidiary and a joint venture. [1] A number of empirical studies, mainly focused on US firms going abroad or foreign multinationals investing in the US, have analysed the factors which influence that choice. Those approaches mainly reflect and explain the choice of MNEs within the conceptual framework of transaction costs and market imperfections (e.g., Anderson and Gatignon, 1986). Therefore, firms resort to governance structures which reduce risks and the hassle costs of going abroad.

In this paper, we focus on a different viewpoint considering the firm as a collection of productive resources and assets built through internal learning processes in the form of evolutionary experimentation. Competencies and assets are then firm-specific, unique, very difficult to reproduce outside the firm's boundaries, and path-dependent. The difficulty of firms in building and acquiring knowledge and competencies influences their growth strategies and in particular, their entry mode in foreign markets, that is the decision to undertake joint ventures and alliances rather than wholly owned subsidiaries.

The present study aims at providing empirical evidence on this subject. It relies on an extensive econometric analysis of a representative sample of Italian FDI in mining and manufacturing industries over the period 1986–1993. [2] Emphasis is placed on the matter that the entry mode choice of MNEs is influenced by firm-specific tangible and intangible assets affecting their ability to acquire complementary assets and resources and to reduce the related transaction costs and those concerning the need to gather information. The entry mode choice of the firm is also influenced by technological opportunities characterising its external environment and stimulating the need of complementary assets.

In particular, the role of the size of the parent company, in the sense that a bigger firm is better able to manage difficulties and costs concerning partners' opportunism; the international experience which allows it to reduce costs related to the need of gathering and processing information and of acquiring competencies and resources; and technological opportunities characterising the firm's environment, have been highlighted.

The organisation of the paper is as follows. Section 2 illustrates the theoretical framework and advances some hypotheses on key variables influencing the entry mode choice of the firm. Section 3 illustrates the characteristics of the sample, and the dependent and independent variables of the econometric model. Section 4 presents the findings of the econometric analysis. Summarising remarks, in Section 5, conclude the paper.

2. The theoretical framework

Joint ventures and strategic alliances have developed quite rapidly in a number of sectors from the end of the 1970s on. They have generally been interpreted as the types of transaction undertaken by two or more partners and which are intermediary between spot transaction on a market and mergers or acquisitions. They may actually be regarded as organisational forms that under specific circumstances allow the firm to economise on the costs associated with the use of both arm's length transactions based on market mechanisms and the administrative mechanisms typical of hierarchies.

In this paper, we develop a model which starts from a different viewpoint. The theoretical framework relates to the resource-based view of the firm originated from Penrose (1959) and to the more recent competence-based theory (Richardson, 1972; Winter, 1988; Loasby, 1991; Foss, 1993; Teece et al., 1994). The firm is seen as a collection of productive resources and capabilities. Core competencies enabling the firm to compete successfully in the market arena are built through internal learning processes in the form of evolutionary experiment.

[1] Many authors refer to this decision by calling it entry mode choice, and considering as main alternatives the full control over the foreign unit (either by acquisition or new creation) or joint ventures with a partner. From now on, we will refer indifferently to the entry mode choice or the ownership arrangement, meaning the degree of ownership exerted by the parent company on the subsidiary.

[2] This period can be considered the take-off phase of the internationalisation of the Italian industry. The number of Italian parent companies and that of their foreign subsidiaries and joint ventures in mining and manufacturing industries grew respectively by 69.8 and 122.1% (Cominotti and Mariotti, 1994).

Competencies relate to tangible assets and more importantly to intangible assets like distinctive skills, organisation and knowledge (Wernerfelt, 1984) that is tacit, context-specific know-how, skills and capabilities developed by the firm in the sphere of technology and management (Colombo, 1995). They are the result of a cumulative process based on learning through experience and of firm-specific problem solving activity through trials, errors and incremental adjustments. Therefore, they are the legacy of firm's own history. It is precisely because some firms may acquire resources and capabilities that other firms are incapable of imitating, that they can obtain sustainable competitive advantage (Foss, 1993). In this context, the inability of firms to build the knowledge and the competencies they need forces them to search for and to acquire them outside. That influences their growth strategy and in particular, when the needed resources and complementary assets are available abroad, their entry mode in foreign markets. In this process of searching and acquiring resources and assets, firms have to deal with transaction costs related to the need of interacting with other actors and their potential opportunistic behaviour, and to the difficulties in managing those relationships; and with broadly meant information costs concerning the need for acquiring knowledge and competencies about markets and partners.

Following this line of reasoning, we recast the firm's entry mode choice in foreign markets, shedding new light on the role of some key factors traditionally utilised for explaining it.

2.1. Technological opportunities

The technological intensity of the industry in which a FDI takes place has been said to discourage joint ventures in favour of wholly owned subsidiaries. Internalisation theory suggests, indeed, that greater control is appropriate and more efficient for highly proprietary products or processes because of the failures of markets for information and the risks of dissemination of knowledge when international transfer of tacit know-how is concerned (Arrow, 1972; Williamson, 1975, 1985; Buckley and Casson, 1976, 1979; Caves, 1982; Hill et al., 1990; Teece, 1993). This literature traditionally sought to explain the association between R&D intensity and MNE activity by focusing on the problems involved in the exchange of knowledge through external market. Analyses of knowledge transfer among firms tend to distinguish between the codifiable part on the one hand, and tacit knowledge and capabilities which involve the non-codifiable elements of the skills, routines and operational practices that accrue from collective as opposed to purely individual learning processes (Nelson, 1982) on the other. The tacit knowledge transfers are riddled with uncertainty and hence, high transaction costs; firms have thus to resort to governance structure that economises on transaction costs and facilitates know-how transfers (Teece, 1980, 1982; Hennart, 1988). Hence, a positive impact of the R&D intensity on the probability of choosing a wholly owned subsidiary has been generally hypothesised and tested (e.g., Fagre and Wells, 1982; Hennart, 1991a). [3]

However, it is worth considering that from the 1980s on, complementary resources and competencies required by firm's strategies have had to adapt to increasing costs of R&D, to the increasing product differentiation and to the process of market globalisation (Sachwald, 1995). Therefore, hierarchy and market have been frequently replaced by innovative and more complicated to manage intermediate organisation forms, as it is confirmed by the steadily rising number of technology-based alliances and joint ventures, whose purpose was mainly the opportunity for co-operation in learning and creation of tacit capability in each partner firm (Cantwell and Barrera, 1995).

Following this reasoning, co-operative agreements and joint ventures may be useful for coordinating complementary but dissimilar activities when the existence of information asymmetries makes coordination through market too costly. However, a joint venture could be the preferred alternative if the scope of the foreign entry is to source technology or if two or more partners are transferring knowledge to the unit (Kogut and Singh, 1988a; Blodgett, 1991; Sanna Randaccio, 1991).

The increasing scope for technological interchanges between MNEs has provided a greater in-

[3] Nonetheless, it is worth observing that in none of these studies, the positive coefficient was statistically significantly different from zero.

centive for firms not to restrict themselves just to creating their own intrafirm international networks, but also to join with other MNEs in interfirm networks in selected areas of parallel lines of activity, relying on the firm- and location-specific character of technology. In fact, in recent years, firms have increasingly favoured the creation of joint ventures in R&D-intensive industries to obtain access to new technical resources, either by acquiring minority interests in small innovating firms, or by pooling resources in new R&D projects, or by merging assets at a sovranational level in order to achieve relevant economies of scale and scope, thus reinforcing the competitive position of both partners. In sectors characterised by the increasing role of innovation in competition, joint ventures and strategic alliances have been used as a way of complementing internal R&D resources. It has also been noted that in high-tech industries, firms may gain advantages from linking innovative capability with complementary assets (Teece, 1986), typically lying downstream from production expertise, such us market knowledge and distribution networks (Kogut and Singh, 1988b). This helps to explain why interfirm exchanges of knowledge actually tend to be greater in R&D-intensive industries (Cantwell, 1994).

Likewise, technological sourcing has been found to be an important motive behind investment flows (Neven and Siotis, 1996) and a large share of such co-operations has historically aimed at transferring technology from American to European firms. Technological and tacit capabilities are differentiated across countries just as they are between firms, owing to the different natures of their traditions as encapsulated in the particularity of their institutions (Nelson, 1992). A variety of major locational centres can thus coexist in international competition, each with its own fields of expertise and thus, competitive strength (Dosi et al., 1990). Therefore, the decision of the MNE concerning the location of activities and the entry mode could be oriented towards different centres of this kind, especially when investment aims at the construction of international networks capable of supporting its technological development.

In particular, in the case of Italy, the weakness of the national system of innovation (Malerba, 1993) is likely to enhance the probability that Italian firms in high-tech industries will resort to cross-border joint ventures and other co-operative agreements to access and/or jointly develop tangible and intangible complementary assets which are not available in the home country.

2.2. Firm's size

Entry aiming to acquire resources and complementary assets in foreign markets generally involves greater uncertainty and risk than domestic investments as it requires facing a complex environment where the firm has to deal with many unfamiliar factors. Those reasons induce the firm to commit itself in the costly exercise of gathering and collecting information (Arrow, 1972; Radner, 1992; Casson, 1994a,b) and influence the internationalisation strategy of the firm, particularly its entry mode choice. That is crucial for small-sized firms which suffer from financial and managerial constraints. Constraints and the lack of complementary assets afflicting small-sized firms leave them with few means of reducing uncertainty and force them to resort to co-operative agreements with other (local) firms which enjoy easier access to information channels and assets, as a result of their close network of relations with the surrounding environment. Smaller firms going abroad are then particularly exposed to the risks inherent in FDI, because a failure could lead them to bankruptcy. For this reason, they would orient their internationalisation strategies towards prudent arrangements, i.e. joint ventures and alliances, in order to minimise risks (Kogut and Singh, 1988b; Larimo, 1994).

Nevertheless, the neo-institutionalist approach (Williamson, 1975, 1985) argues that large, widely diversified and internationalised firms, being very complex organisations, suffer from substantial costs due to inefficiencies of bureaucracy and the difficulty of exercising effective control over the different layers of the managerial hierarchies. Therefore, very large, diversified firms have very powerful *stimuli* to resorting to co-operative agreements with other firms when pure market relations are not viable because of assets specialisation, information asymmetries or other reasons (Colombo, 1995). However, the probability of forming joint ventures increases for biggest firms as large oligopolists can negotiate good conditions in joint ventures and better exploit

the benefits of co-operation. In fact, they enjoy managerial resources which favour a careful selection and assessment of potential partners as well as substantial bargaining power. [4] This is true, in particular, in oligopolistic industries where leader firms make use of agreements (either equity or non-equity) to a much larger extent than their smaller competitor.

2.3. Firm's international experience

Entry in foreign markets and the related uncertainty are also crucial for international neophytes which lack experience in managing foreign operations. The lack of international experience may cause the novice investor setting up a wholly owned subsidiary to take inappropriate decisions on matters such as the choice between producing certain inputs locally or importing them from the parent company, the location of plants in the foreign country, production levels, adaptation of products and services to local market requirements, management of relations with workforce, suppliers, customers, banks, local authorities (e.g., Mariotti and Piscitello, 1995). On the contrary, a joint venture may constitute an efficient solution to the problem, since it allows the novice foreign investor to exploit the positive externalities deriving from having a local partner, which can represent a precious accumulation point for information on the local economy and environment. Once the first experience of FDI has been gained, the firm sets in motion a cumulative evolutionary learning process in 'going abroad'. The perception of uncertainty decreases and the firm acquires increasing capabilities and knowledge about how to manage foreign operations and to correctly assess the risks and the expected economic returns of FDI. This is particularly true when the parent company already manages other subsidiaries in that country or if it has entered before other countries which are culturally similar to the country being entered. On this concept, strongly related to the path-dependency and the importance of the past history, Johanson and Vahlne (1977) explain the phenomenon of 'incremental internationalisation', i.e. a step-by-step increase of a firm's involvement in a foreign market. More generally, the capability of the firm to capture the gains from an internationally integrated structure depends positively upon its degree of multinationality (Cantwell and Sanna Randaccio, 1993) and the cumulative and incremental learning experience which determines the set of opportunities for growth. As a result, the propensity to gain full ownership of foreign subsidiaries tends to increase while experience in dealing with international operations is accumulated (e.g., Davidson, 1982; Anderson and Gatignon, 1986; Gatignon and Anderson, 1988; Kogut and Singh, 1988a; Zejan, 1990; Larimo, 1994). Set-up costs decrease if the firm has already acquired experience in managing foreign operations, and particularly if this experience is potentially relevant to the target country: for instance, if the firm has already undertaken FDI in that country, or has entered other environments similar to that of the being entered (Johanson and Vahlne, 1977). The empirical evidence confirms that earlier operations in the target country by the parent company increase the probability of choosing a wholly owned subsidiary (e.g., Kogut and Singh, 1988b; Hennart, 1991b; Larimo, 1994). [5]

In this context, it is also worth mentioning the role of differences in the geographical spread of FDI. Ceteris paribus, high physical and 'psychical' or 'sociocultural' distance (Hofstede, 1980) between the parent's home country and the target country engenders high information needs because of the uncertainty perceived by executives and the problems in transferring values, management techniques and operating methods from the home to the host country (see also Buckley and Casson, 1979; Davidson, 1982; Hedlund and Kverneland, 1983; Ronen and Shenkar, 1985; Anderson and Gatignon, 1986; Gatignon and Anderson, 1988; Kogut and Singh,

[4] For a similar approach, see the work of Sanna Randaccio (1991).

[5] Some authors proposed different hypotheses. For example, analysing the behaviour of 151 United States-based service firms, Erramilli (1991) departed from traditional linear conceptualisation and hypothesised and tested a U-shaped relationship between experience and integrated entry modes. Nevertheless, the author himself highlights differences in the behaviour of manufacturing firms and suggests caution in extending the hypothesis to them.

Table 1
Sample characteristics

Foreign entries by Italian firms in mining and manufacturing industries, 1986–1993	Census (A)		Sample (B)		B/A
	No.	%	*No.*	%	%
By entry mode					
Wholly owned subsidiary (share ≥ 95%)	366	27.7	351	37.1	95.9
Joint venture (share < 95%)	626	47.4	596	62.9	95.2
Unknown	330	25.0	–	–	0.0
Total	1,322	100.0	947	100.0	71.6
By size of the parent company					
1–499 employees	368	27.8	276	29.1	75.0
500–1,999 employees	183	13.8	124	13.1	67.8
2,000–9,999 employees	269	20.3	177	18.7	65.8
10,000 employees or more	502	38.0	370	39.1	73.7
By geographic area					
Western Europe	708	53.6	481	50.8	67.9
Eastern Europe	182	13.8	162	17.1	89.0
North America	158	12.0	113	11.9	71.5
Latin America	111	8.4	74	7.8	66.7
Other	163	12.3	117	12.4	71.8
By industry					
Food, beverages and tobacco	180	14.5	128	13.5	71.1
Textile mill products	53	3.8	34	3.6	64.2
Apparel	72	5.3	50	5.3	69.4
Leather and footwear	22	1.6	15	1.6	68.2
Wood, wood products and furniture	18	1.8	17	1.8	94.4
Paper and related products	40	3.2	20	2.1	50.0
Printing, publishing and related products	62	5.7	51	5.4	82.3
Chemical and allied products	121	9.2	93	9.8	76.9
Petroleum refining	19	1.4	17	1.8	89.5
Rubber and plastic products	110	8.3	60	6.3	54.5
Stone, clay, glass and concrete products	67	5.1	49	5.2	73.1
Primary metal industries	54	4.1	41	4.3	75.9
Fabricated metal products	48	3.6	38	4.0	72.6
Machinery	146	11.0	106	11.2	66.7
Electrical machinery and equipment	93	7.0	62	6.5	86.0
Electronic equipment and instruments	86	6.5	74	7.8	67.3
Transport equipment	113	8.5	76	8.0	88.9
Other manufacturing industries	18	1.4	16	1.7	71.6

Source: Reprint database, Politecnico di Milano.

1988a,b; Gomes-Casseres, 1989; Agarwal and Ramaswami, 1992; Larimo, 1994).

3. The sample and the econometric model

The source of data is the database REPRINT, developed at Politecnico di Milano with the support of CNEL (National Council for Economy and Labour). The database provides a census of 1,322 foreign investments in mining and manufacturing industries undertaken by Italian firms over the period 1986–1993. [6] Table 1 shows that a wholly owned subsidiary was chosen in 351 cases (37.1%), while in

[6] For the methodology used to set up the database, see the work of Cominotti and Mariotti (1994).

the remaining 596 cases (62.9%), a joint venture arrangement was preferred. Missing data, mainly concerning the lack of information about the equity share at the moment of entry, caused a loss of 29.1% of the observations and reduced the sample considered to 947 complete observations which refer to 386 Italian parent companies. The representativeness of the sample was assessed by comparing its distribution (by the size of the Italian parent company, the geographic area and the industry, respectively) with the census' (see Table 1).

The decision of the firm to undertake a FDI through a wholly owned initiative rather than joint venture is modelled as a function of firm's specific factors, technological opportunities, competencies and skills, in addition to some control variables.

The proxy considered for the dependent variable is the equity share held by the Italian parent company at the moment of entry (MODE). In order to maintain homogeneity with almost all the other empirical studies in the literature, we built the dependent variable considering the threshold between full control and joint venture as 95% ownership of the capital of the foreign unit. Similarly, the threshold between FDI and financial investment is assumed as 10% (e.g., Gatignon and Anderson, 1988; Gomes-Casseres, 1989; Sanna Randaccio, 1991; Larimo, 1994). Thus, the dependent variable is equal to unity in the case of a wholly owned subsidiary (i.e., if the Italian investor owned more than 95% of the foreign unit's equity at the moment of entry), and zero in the case of joint ventures (i.e., if the equity owned by the Italian investor is at least 10% and less than 95%).

Because of the dichotomous nature of the dependent variable, a logit binomial model has been used. For the ith observation, it can be expressed as:

$$P(\text{MODE}_i = 1) = \frac{1}{1 + e^{-(\alpha + x_i \beta)}}$$

The regression coefficients estimate the impact of the explanatory variables on the probability that the foreign unit is wholly owned by the Italian parent company. A positive coefficient means that the corresponding independent variable tends to increase the probability that wholly owned entry mode will be chosen, while a negative coefficient means that the independent variable tends to increase the probability of joint venture arrangements.

Concerning the explanatory effects, we considered the following set of independent variables.

3.1. Technological opportunities, non-codifiable skills and competencies

The R&D activity is the most important source of new knowledge for the MNE and contributes to technological innovation when it is associated with a systematic development of tacit capability through the evolution of collaborative skills and organisational routines (Cantwell, 1994). In this context, we assumed the average R&D intensity of the industry where the FDI is made as a proxy of technological opportunities for the firm. The variable R&D is measured by the average percentage of R&D expenditures to sales for the line of business of the foreign unit.

Likewise, we considered a proxy for the relevance of the skills, routines and operational practices incorporated in human resources that accrue from collective as opposed to purely individual learning processes. The variable SKILL is thus measured by the percentage of skilled workers with reference to the total workforce in the industry where the current entry is made. In both cases, the assumption that interindustry variations of the measures outweigh intraindustry variations is in force. [7]

Data for both variables have been gathered from the National Institute of Statistics (Istat) and refer to the average 1986–1988 figures for 72 mining and manufacturing sectors of the Italian industry.

3.2. Resource-based industries

Since the geographic distribution of resources endowments is uneven and vertical relations are char-

[7] The innovative activity and the firm's technological competence have been generally approximated by measures referring to patents data (e.g., Patel and Pavitt, 1991). Nevertheless, R&D expenditures are well-correlated with patenting especially for large firms (Griliches et al., 1987). Furthermore, Acs and Audretsch (1989) found that patenting varies across firms with R&D, skilled labour and size in the same manner as innovative activity when the latter is directly measured.

acterised by relevant market imperfections and transaction costs, internationalisation theory suggests several strategic and economic reasons why a firm might wish to engage in cross-border backward vertical integration. The most important reasons are to gain control over the supply of essential resources in order to protect or strengthen the firm's market position, on one side, and to ensure that the quality and efficiency of the raw materials and intermediate products supplied meet the purchaser's requirements and standards, on the other (Caves, 1982; Teece, 1983). Those suggest that transaction costs which characterise vertical relations may result decisive in influencing the entry choice and induce firms to prefer wholly owned subsidiaries. To control for this factor, we introduced a dummy variable (RESOURCE) which is equal to unity if the main line of product of the foreign unit was in a resource-based industry. [8]

It is worth observing that some authors found that joint ventures are likely to be more common in resource-based industries and they attributed this finding to a preference of the host governments (mainly in developing countries) for the local ownership of primary products, which leads to restrictions for wholly owned FDI in those sectors (Gomes-Casseres, 1989; Hennart, 1991b; Larimo, 1994). However, in recent years, national legislations have generally moved towards greater liberalisation and limitations to FDI have been relaxed in many countries. Nevertheless, since we allowed for restrictions towards FDI (see below) the assumption is that of a positive impact of RESOURCE on the ownership arrangement.

3.3. Product differentiation

When the parent company is diversifying through a FDI, uncertainty and information costs may be higher, so that less-control ownership modes should be preferred. Foreign investors are also more likely to enter a foreign market through joint ventures or strategic alliances if they are diversifying into a different industry, as they need tacit industry-specific knowledge, which is subject to relevant transaction costs and is also costly to acquire on the market (Hennart, 1991b, 1994). DIV is a dummy variable which is equal to unity if the market being entered does not belong to the same two-digit industry as the parent's prime product line.

3.4. Dimensional aspects

The variable SIZE is a proxy of the parent company's size. It was measured by the logarithm of the number of the parent's domestic employees. Moreover, to take into account that very large and diversified firms may have very powerful *stimuli* to resorting to co-operative agreements, the second-order term has been introduced ($SIZE^2$). They are indeed very complex organisations suffering from substantial costs due to inefficiencies of bureaucracy and the difficulty of exercising effective control over the different layers of the managerial hierarchies. Therefore, they may prefer to resort to co-operative arrangements and joint ventures.

The variable INDIGEST was introduced to reflect the 'indigestibility' of the target firm for the parent company, and to capture the impediments to a full acquisition which arise when the desired assets of the target company are difficult to disentangle from non-desired ones (Hennart, 1994), in case the size of the foreign unit is large in comparison to the parent company. Since these problems do not arise when the FDI is a greenfield initiative, the variable INDIGEST is measured by the relative size of the foreign unit with respect to the parent company, multiplied by a dummy which assumes value one if the current entry is an acquisition, and zero otherwise.

3.5. International experience

The cumulative international experience of the firm has been proxied by the variable AGE which measures the length of time the parent company has been engaged in international operations prior to the current entry. Since we expect time to have a decreasing impact on the firm's stock of multinational

[8] The following two-digit SIC groups were considered resource-based industries (see Gomes-Casseres, 1990; Larimo, 1994): food and beverages (SIC 20), tobacco (SIC 21), textile mills (SIC 22), wood except furniture (SIC 24), pulp and paper (SIC 26), petroleum (SIC 29), rubber (SIC 30), leather (SIC 31), stone and glass (SIC 32), and primary metals (SIC 33).

Table 2
Country clusters[a]

Latin Europe	Germanic	Anglo	Nordic	Mediterranean
Belgium	Austria	Australia	Denmark	Cyprus
France	Switzerland	Canada	Finland	Greece
Luxembourg	The Netherlands	Ireland	Norway	Malta
Spain	West Germany	New Zealand	Sweden	Turkey
Portugal		South Africa		
		United Kingdom		
		United States		

Eastern Europe	Latin America	Far Eastern	Arab	Other African
Albania	Argentina	China	Algeria	Angola
Bulgaria	Brazil	Hong Kong	Egypt	Côte d'Ivoire
Czech Republic	Chile	India	Iran	Gabon
Hungary	Colombia	Indonesia	Kuwait	Ghana
Poland	Dominican Rep.	Japan	Morocco	Mauritius
Romania	Ecuador	Malaysia	Pakistan	Nigeria
Slovakia	Mexico	Philippines	Qatar	Uganda
ex-USSR	Paraguay	Singapore	Saudi Arabia	
ex-Yugoslavia	Peru	South Korea	Tunisia	
	Puerto Rico	Taiwan	Arab Emirates	
	Trinidad and Tobago	Thailand		
	Uruguay	Vietnam		
	Venezuela			

[a]The table refers only to target countries for Italian FDI in the 1986–1993 period.
Source: adapted from Ronen and Shenkar (1985) and Gatignon and Anderson (1988).

experience, AGE has been introduced in logarithmic form. Mathematically, it can be represented as:

$$\text{AGE} = \log(y_e - y_0 + 1),$$

where y_e is the year of the current entry and y_0 the year in which the parent company has made its first FDI. By definition, the variable equals zero when the current entry represents the first FDI for the parent company. [9]

In order to take into account other aspects of the firm's international experience, we considered the dummies EARLYOP and CLUSTER. EARLYOP indicates earlier operations by the parent company in the target country and it is equal to unity if the Italian parent has had other subsidiaries in that country prior to the current entry, whether they are still operative or not. Likewise, CLUSTER indicates earlier operations by the parent company in other countries culturally similar to that being entered. For this purpose, countries were grouped in 10 clusters (see Table 2), adapted from Ronen and Shenkar (1985) and Gatignon and Anderson (1988). CLUSTER is equal to unity if the Italian parent has already undertaken FDI in countries belonging to the same cluster of the country where the current entry is taking place.

3.6. Sociocultural distance

The literature is unanimous in recognising that the higher the sociocultural distance between home and host countries, the lower the degree of control demanded by foreign investors. The proxy of sociocultural distance (CULTDIST) was built by applying to

[9] Likewise, we considered a variable aiming at capturing the learning process associated with each additional FDI. This variable, named FDI was measured by the number of foreign investments made by the parent company before the current entry. Like AGE, it was built in a logarithmic form, being equal to zero when the current entry represents the first FDI of the firm. Since the coefficient of correlation between FDI and AGE is equal to 0.91, the two variables were used alternatively in the model. Nevertheless, the impact of FDI on the dependent variable is always lower than that of AGE's one and then it is not included in the final model here reported.

Italy the formula proposed by Kogut and Singh (1988b), based on the four indicators suggested by Hofstede (1980) which have already been used in empirical studies concerning the entry mode choice (e.g., Erramilli, 1991; Larimo, 1994). [10]

3.7. Size of the target market, legal barriers and country risk

Three further variables were considered to control for country-specific effects that might influence the choice of the ownership arrangement.

The economic size of the market being entered is proxied by the variable GDP, measured by the target country's GDP in the year prior to the entry. The bigger the target market, the more fascinating the country is for a FDI. However, it may be difficult for a foreign firm to enter a large foreign market on its own if the investment requires a lot of resources for local sales networks, after sales services, etc.; in addition, a large economic size of the target market probably means better availability of potential partners for joint ventures (Larimo, 1994).

The legislative and fiscal aspects which influence the openness of the target country to FDI is measured by the variable BARRIER which was built on the basis of the classification of Frost and Sullivan (1988). [11] The importance of this variable is mainly linked to the fact that firms could be forced to choose a joint ventures arrangement to enter a foreign market because of regulations and preferences from host governments (Mowery, 1988).

Finally, a variable allowing for the country risk as perceived by the foreign investor was introduced. RISK represents the opposite of the mean of the values assumed by the IICRI (Institutional Investors Credit Rating Index) in the 3 years preceding the current entry.

4. Empirical results

Table 3 gives descriptive statistics and the correlation matrix for the variables used in the study. Variables related to different aspects of the firm's international experience (AGE, EARLYOP and CLUSTER) are highly positively correlated with the dimensional aspect (SIZE). The expected correlation between the country-specific variables is also evident. In particular, RISK is positively correlated with BARRIER and negatively with GDP.

Since a number of correlations appear to be noteworthy, we examined a range of diagnostic statistics, such as the variance inflation factor and tolerance factor (Neter et al., 1985; Sen and Srivastava, 1990), but none of these indicated the presence of serious multicollinearity.

The results of the analysis are shown in Table 4. Model (1) illustrates the regression for the full sample while Models (2) and (3) illustrate the regressions only for Italian FDI in Western Europe and North America, respectively. The table shows the values of the coefficients and the level of significance measured by a two-tail Student's *T*-test. In addition, the number of cases correctly predicted by the model and the respective percentage of the total and the values of the likelihood function are reported as well. [12]

The evidence strongly supports the hypothesis that the propensity to go abroad through a wholly owned initiative rather than a joint venture is not only influenced by factors related to technological opportunities characterising the industrial environment, and by competencies and skills, but also by

[10] It is perhaps worth reminding that according to Hofstede, the characteristic aspects of national cultures can be exemplified by the following four indicators: power distance, individualism vs. collectivism, masculinity vs. femininity and uncertainty avoidance.

[11] This classification gives a point score between 1 and 5 (maximum openness), assigned with reference to nine factors: government approval, possibility of control of property, means of resolving disputes, limitations in repatriation of capital, management directives, investment incentives, fiscal rates, government control of trade, guarantees in case of nationalisation.

[12] It is not out of place to remind that, as the dependent variable is equal to one when the subsidiary is wholly owned at entry, a positive coefficient signifies that the higher the corresponding variable, the more likely whole ownership will be chosen. On the contrary, negative coefficients indicate that higher values of the corresponding variable encourage joint ownership.

Table 3
Descriptive statistics and correlation matrix

	MODE	AGE	EARLYOP	CLUSTER	SIZE	INDIGEST	R&D	SKILL	RESOURCE	DIV	GDP	CULTDIST	BARRIER	RISK
Minimum	0	0	0	0	1.099	−10.819	0.0001	0.071	0	0	0.0004	0.226	−5	−96
Maximum	1	4.499	1	1	12.941	4.284	0.179	0.593	1	1	1	3.865	−1	−5
Mean	0.371	2.356	0.266	0.206	8.324	−2.521	0.012	0.288	0.282	0.062	0.195	1.369	−4.515	−67.319
Standard deviation	0.483	1.679	0.442	0.405	2.951	2.992	0.022	0.139	0.45	0.242	0.294	0.989	0.808	24.712
MODE	1													
AGE	0.107	1												
EARLYOP	0.087	0.415	1											
CLUSTER	0.117	0.399	0.846	1										
SIZE	0.092	0.856	0.387	0.377	1									
INDIGEST	−0.211	−0.627	−0.359	−0.338	−0.699	1								
R&D	−0.082	0.213	0.059	0.026	0.245	−0.111	1							
SKILL	−0.034	0.017	0.047	0.025	0.075	0.001	−0.005	1						
RESOURCE	0.011	−0.009	−0.001	0.012	−0.072	0.034	−0.292	−0.002	1					
DIV	−0.144	0.022	0.082	0.031	−0.035	0.062	−0.012	−0.062	−0.016	1				
GDP	0.181	0.022	−0.007	−0.037	0.041	−0.056	0.148	0.048	−0.051	0.039	1			
CULTDIST	−0.241	−0.129	−0.013	−0.005	−0.198	0.229	−0.107	−0.059	0.065	0.039	−0.438	1		
BARRIER	−0.201	−0.019	−0.001	−0.024	−0.056	0.129	−0.037	−0.006	−0.027	−0.014	−0.292	0.321	1	
RISK	0.272	−0.117	0.016	0.004	−0.169	0.205	−0.126	−0.051	0.072	−0.006	−0.511	0.666	0.694	1

Table 4
Estimates for binomial logit model: wholly owned subsidiary vs. joint venture (full sample and sub-samples)

	Full model Model (1)	Western Europe Model (2)	North America Model (3)
Constant	−4.529∗∗∗	−4.928∗∗∗	0.703
	(−4.73)	(−3.09)	(0.62)
AGE	0.155∗	0.292∗∗	0.393
	(1.78)	(2.07)	(1.54)
EARLYOP		1.043∗∗∗	1.230
		(3.16)	(1.23)
CLUSTER	0.620∗∗∗		
	(3.00)		
SIZE	0.819∗∗∗	1.513∗∗∗	−1.978∗
	(4.18)	(3.95)	(−1.97)
$SIZE^2$	−0.061∗∗∗	−0.100∗∗∗	
	(−5.23)	(−4.63)	
INDIGEST	−0.202∗∗∗	−0.441	−0.142∗
	(−5.04)	(−1.45)	(−1.27)
R&D	−8.517∗∗	−6.160	−0.248∗∗
	(−2.02)	(−1.01)	(−2.46)
SKILL	−0.964∗	−1.975∗∗	−0.038∗∗
	(−1.78)	(−2.30)	(−2.17)
RESOURCE	0.292∗	0.097	0.398
	(1.67)	(0.33)	(0.72)
DIV	−2.015∗∗∗	−2.286∗∗∗	−0.349
	(−4.34)	(−2.83)	(−0.42)
GDP	0.959∗∗∗		
	(3.41)		
CULTDIST	−0.279∗∗∗		
	(−2.92)		
BARRIER	−0.302∗∗∗		
	(−2.81)		

Figures within parentheses are *T*-statistics (∗ $p < 0.10$; ∗∗ $p < 0.05$; ∗∗∗ $p < 0.01$).
Usable observations: 947; 361; 113.
Degrees of freedom: 934; 351; 104.
Cases correct (*N*): 681; 253; 78.
Cases correct (%): 71.9; 70.1; 69.0.
Log likelihood: −524.7; −215.3; −65.7.
Average likelihood: 0.576; 0.551; 0.559.

firm-specific factors related to uncertainty intrinsically involved in going abroad and to the cumulative learning in managing foreign operations.

Variables related to technological opportunities, non-codifiable skills and competencies confirm the hypothesis that the need to access to complementary resources, and the inability of firms to acquire or build them, influence the propensity of the firm to go abroad through joint venture rather than a wholly owned initiative. The coefficients of R&D and SKILL are negative as expected and significatively different from zero ($p < 0.05$ and $p < 0.01$, respectively). Conversely, the proxy of traditional resource-based industries (RESOURCE) has a positive impact on the dependent variable ($p < 0.10$) while the coefficient of DIV is negative ($p < 0.01$).

Results show that proxies of the different aspects of the firm's experience in managing foreign operations due to previous FDI undertaken in the same country or other countries which are culturally similar (AGE and CLUSTER) positively influence the propensity to wholly own the foreign subsidiary

($p < 0.10$ and $p < 0.01$, respectively). Likewise, SIZE has a positive impact on the dependent variable ($p < 0.01$) but the influence changes for very large firms ($SIZE^2$ has a negative sign with $p < 0.01$). [13]

The negative impact of INDIGEST ($p < 0.01$) is consistent with problems which could arise in case of full control acquisition when there are differences in the relative size of the target firm with respect to the parent company.

The coefficients of country-specific control variables support the results of previous empirical studies. The proxy of legislative and fiscal aspects forcing the MNE to undertake joint ventures (BARRIER) show the expected negative impact on the dependent variable ($p < 0.01$). Likewise, the expected negative sign of CULTDIST, indicating that great cultural distance between the home and target country decreases the probability of a wholly owned subsidiary (thus, increasing the probability of a joint venture), is confirmed ($p < 0.01$), while GDP has an unexpected positive sign, statistically significant with $p < 0.01$.

Models (2) and (3) emphasise the behaviour of Italian MNEs when entering most industrialised and advanced countries, namely Western Europe and North America (USA and Canada), respectively. [14] Following a method used by some other authors, we developed different models for each sub-sample regressing the dependent variable on the full set of exogenous variables in the model. [15]

Generally speaking, the coefficients of the explanatory variables maintain their sign. Nevertheless, some interesting aspects do emerge. INDIGEST and R&D lose their previous strong significance in Model (2), while it remains in Model (3) ($p < 0.10$ and $p < 0.05$, respectively). The significance of SKILL rises in both models to $p < 0.05$. In particular, it is worth noticing the negative relationship between SIZE and the dependent variable ($p < 0.10$) in Model (3). It probably depends on the small number of foreign investments undertaken by small-sized Italian firms in North America, on one hand, and on the catch-up strategies pursued in the US by some large Italian MNEs (e.g., Olivetti) through the acquisition of minority participations in small innovating firms or by pooling resources with major partners in new projects, on the other. These findings suggest that ceteris paribus joint ventures undertaken by Italian firms in North America over the 1986–1993 period were mainly aiming at gaining access to and developing technology- and skill-related intangible resources, while in Western Europe, they were more likely directed towards product diversification and the establishment of strategic alliances.

5. Concluding remarks

The purpose of this paper was to shed light on the role of some key factors that influence the entry mode choice of MNEs. The study has relied on an extensive field analysis focused on a representative sample of FDI undertaken by Italian firms in the period 1986–1993.

Our evidence supports the hypothesis that the resort to joint ventures rises if technological opportunities in the industrial environment, tacit skills and competencies constitute an important source of competitive advantage for the firm. The propensity to go abroad through a joint venture is also higher when firms lack means to reduce uncertainty related to foreign markets.

The main findings of the paper can be summarised as follows.

First, when technological opportunities and tacit, non-codifiable elements of skills, competencies, routines and operational practices assume a crucial role, and the competitive success of the firm depends on its capability to access to complementary and cospecialised resources, joint ventures represent the best solution. In sectors characterised by the increasing role of innovation in competition, that is basically

[13] The threshold is about 1,000 employees, when the other variables assume their mean value. Nevertheless, the propensity to choose a wholly owned subsidiary decreases slowly between 1,000 and 5,000 employees and sharply beyond 10,000 employees.

[14] The Western Europe sample does not include Portugal, Greece and Spain. It is worth saying that the very small number of Italian FDI in Japan (10 investments over the period 1986–1993) made it impossible to consider that country in the analysis.

[15] For example, Clegg (1987) analysed country-specific differences in the determinants of FDI comparing US, Japan, UK, Sweden and West Germany.

high-tech sectors, joint ventures have been used as a way of complementing internal R&D resources and as a way of exchanging knowledge interfirms. In particular, in the specific case of Italian FDI, the high propensity of firms which operate in high-tech industries to resort to joint ventures rather than wholly owned subsidiaries is likely to be motivated by specific weaknesses and missing resources rather than by pre-existent ownership advantages. In particular, this is at least partially influenced by the weakness of the national system of innovation which makes it difficult to access to and/or to develop technological capabilities and other intangible complementary assets at home.

Secondly, joint ventures are particularly important in the internationalisation strategy of small-sized firms because of their different attitude towards risk with respect to large firms and because of their lack of complementary assets and their financial and managerial constraints which leave them with few means of reducing uncertainty. They are then forced to resort to co-operative arrangements with local partners. Small-sized firms are constrained both in developing in-house and in acquiring specialised complementary assets, the lack of which renders joint ventures with other firms' second-best although viable governance structures for foreign operations.

Likewise, very large, widely diversified and highly internationalised firms show a propensity towards collaborative ventures. The availability of a great variety of specialised, non-reproducible assets which are complementary to the ones possessed by other firms, the bureaucratic inefficiencies, and the ability of large diversified multinational enterprises to deter opportunism credibly by threatening retaliation in response to defection by the other party, explain their inclination to joint ventures and agreements.

Joint ventures are also the favoured internationalisation device for less experienced firms which prefer to co-operate with local partners representing a precious accumulation point for information on the local economy and environment. The probability of undertaking a wholly owned subsidiary then increases while experience in dealing with international operations is accumulated through cumulative and incremental learning. It also rises when the parent company has already made other FDI in that country or in other countries culturally similar to that, so acquiring experience potentially valuable for the target country.

Finally, some comments relating to country-specific variables are in order. As a preliminary consideration, one must recognise that a more detailed analysis would be required in order to explain the influence exerted by the firm's national environment on the propensity to co-operate. However, the results of the econometric analysis show that ceteris paribus, co-operative arrangements undertaken by Italian firms in North America in the period considered were mainly aiming at gaining access to and developing technology- and skill-related intangible resources and complementary assets, while in Western Europe, they were more likely directed towards product diversification and the establishment of strategic alliances.

Those findings have some implications on the rationale for FDI. While most of the received literature on MNE tends to assume that firms engage in FDI only in order to exploit best, or organise more efficiently their existing competitive advantages, in the more recent period, MNE activity has been increasingly motivated by the desire to acquire new competitive advantages on one hand, and by the inability of building them internally, on the other.

The view that we put forth is compatible with an evolutionary perspective on the growth of the firm, and particularly of the multinational corporation. Firms compete on the basis of their abilities to develop new knowledge by experiential learning and their inability to build all the knowledge, and the competencies they need forces them to go abroad and to look for them outside their boundaries. Therefore, increasingly, cross-border intrafirm FDI and interfirm co-operative schemes are being perceived as part of a holistic multimodal strategy of the global players (Dunning and Narula, 1996). Strategic alliances and co-operative agreements constitute a convenient way to penetrate new markets, gain skills and technologies, perform economies through reorganisation and exploitation of complementarities, share risks, fixed costs and resources as well as to monitor and control competitive forces. It follows that many different kinds of collaborative schemes and interfirm relationships, which led to the term 'alliance capitalism' being coined (Gerlach, 1992), are at work. Future research should be then ad-

dressed to take into account diversities and peculiarities of different alternative entry modes and new forms of international ventures.

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