

**THE ENTRY MODE CHOICE OF EU LEADING COMPANIES
(1987-1997)**

Giampaolo Vitali

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Abstract

The aim of the paper is to provide empirical evidence on the relationship between industrial structure and M&A process. We focus on the determining factors fostering a firm to choose controlling acquisitions or non-controlling ones. We use the Acquisitions and Divestments Database (ADD), a data-base collecting equity operations made by top-90 EU leaders in the period 1987-1997. A logit analysis shows some variables that increase the probability that the firm's entry mode choice is a non-controlling-acquisition: firm's size, firm's diversification strategy, industry concentration, oligopolistic competition. On the contrary, the R&D differentiated industries and the role of the stock exchange market enforce the probability that the firm's entry mode is a controlling acquisition.

KEY WORDS: Industrial structure; European industry, M&As; acquisitions; joint-ventures

JEL classifications: L10, L20, F23

Address: Giampaolo Vitali; g.vitali@ceris.cnr.it
Ceris-Cnr (Institute of Research on Firm and Development
of Italian National Research Council)

1. Introduction

EU multinational enterprises (MNEs) are facing a wide process of reorganization concerning products, markets and manufacturing sites, mainly because of the new opportunities offered by Single Market Programm and the expectations about European Monetary Union.

Within that reorganizing process, EU leading companies use different instruments to growth. The firm's choice to enter a market seems very differentiated: when a firm decides to enter a market, it can choose a mode of entry, i.e. to select a codified mode for organizing its business, such as contractual agreement, licence, non-controlling acquisition, joint-venture, controlling acquisition, greenfield plant.

In this paper, we focus on the different entry mode choice that a EU company can use within its external growth. The aims of the paper is to provide empirical evidence on the variables that at firm- industry- and country-level affect the choice between controlling acquisition and non-controlling acquisition as far as the company growth is concerned.

The analysis is based on Acquisitions and Divestments Database (ADD), a data-base of the Italian National Resource Council, that collects equity operations implemented by top-90 EU leaders in the period 1987-1997.

The structure of the paper is as follows. The next section deals with some theoretical aspects concerning the firm's entry mode. Some descriptive results of the empirical analysis carried out on the ADD database are presented in section 3. In section 4, the results of an econometric model are discussed. The aim of this exercise is to verify the existence of observable links between the choice of controlling vs non-controlling acquisition one hand, and some related variables at firm, industry and country level on the other hand. The concluding section summarizes the main results. The description of the ADD database is presented in annex.

2. The theoretical background

Main question this paper is trying to answer is: "Which characteristics of the industrial system induce a firm to grow by take over rather than to grow by non-controlling acquisition?" Some answers are related to the theoretical references dealing with the role of M&As within the firm growth process. In particular, there are several studies which identify some firm, industry and country characteristics affecting the choice of entry strategy.

2.1 *The internalisation paradigm*

The first group of theories is concerned with the market imperfections. The company's choice is among hierarchical growth (including external growth by acquisitions or internal growth by investments), market transactions and partnerships (including non-equity agreements, and equity agreements such as joint ventures and non-controlling acquisitions). The main references are the transaction cost theory by Coase (1937) and Williamson (1991).

According to Coase, the firm takes the place of the market when the internal costs of coordination are lower than the costs of the market itself. In the original framework there are only two possible organizational solutions: on the one hand, the hierarchical form (i.e. accumulation of internal resources or acquisition¹ of an existing firm), and on the other, the market (i.e. simple "spot" transactions). Agreements and joint ventures are defined as an intermediate form between market and hierarchy, and are not optimal with respect to hierarchy (first best).

Within the transaction cost theory (Williamson, 1991) firms choose the best way of growth according to three attributes of transactions: the frequency of the deal, its degree of uncertainty, the amount of the idiosyncratic investments necessary to implement the transaction. The latter is the main factor: when assets specificity is high, firm is likely to control the operation using controlling acquisition or internal investments. In other

¹ M&A represents a tool to achieve hierarchical forms in a quickly way, in comparison with the traditional internal growth.

cases, even non-controlling acquisitions can be a first best solution, as hierarchical growth or market transactions.

2.2 The complementary asset theory

According to the complementary asset theory (Teece, 1986), within the global competition the firms need a lot of financial, managerial, technological, manufacturing and commercial resources in order to manufacture a wide range of products, to commerce them on a wide range of countries, to develop a wide range of innovations. As high transaction costs do not allow firms to have the direct control of such a huge amount of resources, they try to have indirect control of them through agreements and joint ventures, especially at an international level². Furthermore, the hierarchical organization can be quickly improved by M&As, which means that the missing assets can be directly acquired instead of pursuing the internal growth at a slower pace. The company size plays a specific role within this pattern of growth: because of their financial constraints, SMEs prefer to acquire the missing complementary assets using non-controlling acquisitions, rather than to finance a controlling operation. In addition, non-controlling operations can reduce the cost of organization and bureaucracy of very large companies (Williamson, 1991), especially within oligopolistic markets (Mutinelli and Piscitello, 1998).

According to the complexity of the business, i.e. the difficulty to have and manage within the company all the complementary assets, company will choose controlling or non-controlling operations: the latter when business is complex, with regards to the original company resources³.

² Teece emphasises that very often the firm introducing innovation doesn't take advantage of it, in comparison with its competitors; very often, the innovation advantages are gained by the firm which owns all the resources required to exploit them (Teece, 1986).

³ Complementary assets are "complex" when they derive from the "ownership advantages" of other firms, such as R&D, learning-by-doing process, advertisement, rent positions.

2.3 *The entry mode choice at international level*

Theories dealing with Foreign Direct Investments (FDIs) can be useful to focus on the choice between acquisitions and joint ventures at international level⁴.

The main reference is the eclectic approach by Dunning (1993), where FDIs and cross-border M&As have strong links with:

- Ownership advantages, related to full control of specific resources - such as technology, economies of scale, labour skills, brand name - ensuring the firm a competitive advantage at an international level.
- Locational advantages, related to some characteristics of the destination country, such as cost of production factors, trade barriers (even natural, such as transport costs), innovation systems, market size, market growth, fiscal regime, and so on.
- Internalization advantages, related to market imperfections, such as uncertainty and cost of market transactions (Buckley and Casson, 1985).

Within the OLI approach, the choice between controlling and non-controlling acquisitions depends on the comparison between internalisation advantages and ownership advantages: when internalisation advantages are less important than ownership ones, company should prefer non-controlling growth. Within the first step of the decision process, localization advantages are important to define where to invest (i.e. national vs international investment): when localization advantages are high, the FDI becomes profitable, and the decision of the entry mode will be made according to the characteristics of the destination country too.

The latter are important as far as the asymmetric information that firm must manage abroad are concerned.

High differences between the national cultural characteristics of the home and that one of the host countries make it difficult for MNEs to manage themselves the foreign business: in this case non-controlling operations reduce the asymmetric information

⁴ It is worthily to say that FDIs are mainly composed of acquisitions, whereas greenfield investments amount to slightly 10% of total FDIs (Dunning, 1997; Unctad, 1995). The choice between greenfield investments and acquisitions is reviewed in Gorg (1998).

concerning economic, financial, institutional and cultural aspects. In addition, there are some aspects of the home country that affect the subsidiary ownership policies of MNEs (Hennart, 1998). This national character theory is based on four dimensions of national culture (Hofstede, 1980) that seem to affect the entry mode choice of their MNEs, in the sense that cultural distance encourages deployment of shared-control modes (Kogut and Singh, 1988).

2.4 The evolutionary approach

According to the evolutionary approach, the experience in the past growth strategy affects the present moves. The experience is important in order to overcome the organizational difficulties coming from the external growth.

There is a hierarchical scale among the different entry mode choice, where controlling acquisition is more difficult to carry out than non-controlling one, and the latter is more difficult than non-equity agreement. In order to minimize the uncertainty of the growth, the firm's entry mode preference can slowly move from non-controlling to controlling acquisition, accordingly the accumulation of managerial resources due to the learning process (Baden Fuller, 1993). This linear view represents the evolution of the organizational skills of the company, where the learning process allow firms to search and acquire the missing resources and assets. The more the previous company's number of controlling acquisitions, the more the learning process reduce uncertainty of the controlling growth strategy. Viceversa, the past non-controlling growth experience reduce the uncertainty of the present non-controlling strategy.

Experience plays a main role at international level and at industrial level, too.

Within the first point, the learning process of going abroad can reduce growth uncertainty according to the previous number of acquisitions made in that country. Kogut and Singh (1988) predicts that the cumulative evolutionary learning process in "going abroad" increases the probability of choosing a wholly-owned subsidiary, instead of a non-controlling one.

Within the second point, the learning process of business diversification can reduce growth uncertainty according to the previous number of acquisitions made in non-core sectors.

On the basis of the Dunning's theory, all the learning experiences represents an ownership advantage, specifically related to the firm, that encourages the external growth at national or international level.

2.5 The industrial organization approach

The structure of the industry affects the company's choice about the entry mode.

Within the high concentrated industries, non-controlling acquisitions can be useful to exploit economies of scale without affecting the oligopolistic equilibria of such a sector (Linda, 1988). In addition, local antitrust authorities seem more tolerant of non-controlling operations than controlling ones, especially if the partner is coming from abroad or from a different sector (Kay et al., 1987).

Within the high-tech industries, non-controlling acquisitions allow company to produce and commerce the innovative product during the "imitation lag" before it is copied, or it becomes obsolete (Teece, 1986). This view is quite different from the traditional one, that focus on the market failure in the technology market: because of information asymmetry concerning technological transfer, firms prefer to have a complete control of the acquired firm, and not to share it with a potential free-rider partner (Arrow, 1972; Caves, 1982). During the Eighties, due to the high importance of the technological competitive factors, the non-controlling acquisition played a new strategic role, in order to create inter-firm networks basically focused on managing new technology.

Within industries where trade barriers are low, it is possible to find a lesser degree of market imperfection, and so a lesser degree of transaction costs: this could reduce the internalisation advantages and fostering the non-controlling growth strategy.

Some company variables are important too. For example, company's size limits the amount of financial, managerial and economic resources that a firm can invest. Because

of this, the higher the size of the company, the higher the potential amount of controlling acquisitions (see section 2.2). However, the partner size is important too. According to Kogut and Singh (1988), the post-merger management costs are related to the size of the business acquired: in order to avoid them, firms can choose to share the relationships, instead of to pursue a wholly-owned operation. In addition, as large investments are more risky than small ones, company could share that risk with a partner (Kogut and Singh, 1989).

Sharing risk is a typical goal of the diversification strategy, that can be easily supported by non-controlling operations. In addition, even the company's degree of diversification is important: very diversified companies at product or geographical level can maybe suffer of managerial and financial constraints related to the growth outside the core markets. The neo-institutionalist approach (Williamson, 1985) argues that this kind of company has a bureaucratic and complex hierarchy that produce high costs of organization (and of growth internalization), that can be avoid using non-controlling growth.

3.The empirical analysis: descriptive framework

3.1 General findings

According to ADD data-base, top-90 leading EU companies made 2921 M&A operations over the period 1987-1997⁵.

Table 1 shows M&A operations classified by type: the amount of controlling acquisitions (70%) is dramatically higher than the amount of non-controlling ones (30%). Controlling acquisitions are composed of majority acquisitions, i.e. more than 50% of total firm's shares, and asset deals, i.e. the deals concerning business units or plants.

⁵ The ADD data-base considers the acquisitions and the divestments that top-102 EU industrial leaders made in manufacturing and non-manufacturing sectors. In this paper we do not consider the companies having a leading position within the EU market that are from US (11 companies) and Canada (1). In addition, we do not consider the divestment operations made by EU leaders. Because of this limitation, we used 2826 out of 4276 observations provided by ADD data-base.

Within the latter, minority interests (17%) prevail on the parity interests (9%), i.e. 50-50 shares, and on the strengthening operations (4%), i.e. increase of a previous minority interest⁶.

Table 1: 1987-1997 M&As by transacted share

	%
Controlling operations	57
Minority operations	17
Parity operations	9
Strengthening* operations	4
Assets	13
Total	100
Number	2826

Source: Ceris-Cnr

* strengthening operations increase a previous minority, not exceeding 50%.

Table 2 shows at what extent EU leaders use M&As to pursue multinational growth. Only 26% of total operations are domestic ones. The cross-border M&As are mainly made within the European boundaries (44%), whereas 22% of the total M&As represents the relationship with other industrialized countries (US and Canada). EU leaders are not strongly involved within non-industrialized countries, such as East Europe, South East, Latin America ones. Maybe the pattern of company's growth within LDCs uses non-equity tools, such as contractual agreements⁷ or greenfield investments.

In our analysis, the amount of cross-border M&As (74% of total) is higher with respect to EC Commission data about 1000 largest EU firms (35-40%) (EC Commission, several years; EC Commission 1998). As our sample is composed of the top-90 leading EU firms, the difference could be justified by the firm size variable, that affects positively the multinational growth.

⁶ The final interest level shall not exceed 50%.

⁷ For example, the clothing companies usually delocate production capacity towards LDC using the Outward Processing Trade (Opt) tool.

Other empirical analyses confirm the role of European firms (Gerosky and Vlassopoulos, 1990; Sachwald, 1994) and that one of OECD countries within M&A process (Unctad, 1995; Bleeke et al., 1990; EC, 1998).

As far as the entry mode choice is concerned, non-controlling acquisitions emerge as a characteristic of the domestic and of the LDC acquisitions, whereas controlling operations are mainly made within the other OECD countries.

Table 2 – M&A operations by geographical area (country of destination)

	<i>Controlling acquisitions</i>	<i>Non-controlling acquisitions</i>	<i>Total</i>
	%	%	%
Domestic	25	31	26
Europe	43	45	44
Other OECD	25	12	22
LDC	8	12	9
Total	100	100	100
Number	2047	779	2826

Source: Ceris-Cnr

As far as EU (12) companies are concerned, it is possible to compare the weight of the company production at a national (or international) level, on the one hand, and the weight of company M&As at a national (or international) level, on the other hand: on average, 80% of the company production derives from national plants, whereas only 29% of their M&As are made in the domestic market. This is a rough indicator of one of the M&A aims: the geographical diversification of production capacity and distribution channels.

3.2 Findings at a company level

As far as the M&As made by each EU leader are concerned, some companies seem extremely interested in the external growth: Unilever, IRI, Ferruzzi, Philips, Grand Metropolitan, ABB have performed more than one hundred of operations over the 1987-1997 period. On the contrary, ZF, Dassault, Jachob Suchard, Michelin and Klockner

Humboldt made less than ten operations each. In addition, we find some EU leaders that were acquired by another companies - such as Mbb and Salzgitter - counting for one divestment operation only.

As far as the internationalization process is concerned, the study shows a very different company's behaviour. On the one hand, some companies acted mainly in the domestic market: the percentage of domestic M&As out of total M&As is more than 70% for British Aerospace, Krupp, Unigate, IRI; on the other hand, several companies show a high interest in the cross-border M&As: the percentage of cross-border M&As out of total M&As is more than 80% for ZF, Shell, Solvay, Gec Alsthalm, Hoescht, Michelin, Unilever.

Some companies engaged an external growth mainly based on non-controlling acquisitions: in the case of BRT, 98% of the acquisitions made in the period 1987-1997 are controlling ones; other companies where controlling acquisition are important are Unilever (93%), Grand Metropolitan (85%), Hoeschst (70%). On the contrary, some companies prefer the non-controlling growth: IRI (53%), Usinor (53%), Fiat (51%), Daimler (48%).

3.3 Findings at a country level

As far as country distribution of M&As is concerned, table 3 shows the different interest of EU companies for each EU (12) country. We can consider operations according to the country of destination (target firm) or the country of origin (acquirer firm).

As far as M&As by country of destination are concerned, Great Britain is the leading country, as it represents 27% of the total EU operations, and it is followed by Germany (20%), France (18%) and Italy (17%). It is difficult to compare our findings with other empirical analyses. For example, in the EC Commission (1998) data about 1991-1993 the country position is slightly different: Great Britain (29%), France (18%), Germany (14%), Italy (6%)⁸.

⁸ Data are difficult to compare as the EC Commission statistics are counted in M&A value and our statistics are counted in number of M&As.

Table 3 – M&A operations within EU (12) countries (country of destination)

	<i>Number of M&A operations according to the country of destination (%)</i>	<i>Number of M&A operations according to the country of origin (%)</i>	<i>Mln Ecu 90 leader production (%)</i>	<i>Number of leaders according to the country of origin (%)</i>
Benelux, Denmark, Ireland	7	14	8	12
Spain, Portugal, Greece	10	1	4	1
Great Britain	27	27	15	29
France	18	21	21	18
Germany	20	25	39	32
Italy	17	12	13	8
Total	100	100	100	100

Source: Ceris-Cnr

As far as M&As by country of origin are concerned, we find similar results. English leaders made a lot of M&As: 27% of the total M&As, the same percentage that Great Britain showed within the distribution according to country of destination, whereas Germany and France have a lower percentage (25% and 21% respectively).

The comparison between the second and the fourth column suggests a lower amount of M&A per-capita for the English and the German companies, whereas the M&As made by Italian and France leaders are more numerous than the sample average⁹.

In addition, we can compare M&A distribution with the importance of each country as far as total 90-company production is concerned.

If we compare the fifth and the third column, in Great Britain there is a positive difference between its M&A weight (27%) and its production weight (15%), viceversa in Germany, where the M&A weight (20%) is lower than the importance of the country as a production site (39%). The first case could be justified by the efficiency of English financial market (Franks and Mayer, 1990), that attracts a lot of investors¹⁰; the second one by the institutional characteristics of the German capitalism, where the strong links

⁹ The Italian case could be partly due to the better information that ADD has about Italian industrial system.

¹⁰ High transparency of UK financial market maybe biased the ADD data collection, with an overestimation of UK data.

among companies, banks and public institutions make German companies not so easy to take over ¹¹. Italy shows a M&A weight (17%) higher than the production weight (13%), maybe due to the deep restructuring process of its companies, even at cross-border level.

The distribution of acquisitions according to the entry mode choice reveals a different pattern of growth concerning acquisitions made in Great Britain (table 4): within that country English and European leaders prefer to use controlling operations (the 78% of the total number), instead of non controlling ones (22%). Also in Germany that percentage is significantly high (69%).

On the contrary, within some Southern countries, such as Italy, France or Spain-Portugal-Greece, prevail the non-controlling growth.

**Table 4 - – M&A operations within EU (12) countries (country of destination):
the controlling vs. non-controlling choice (%)**

	<i>controlling acquisitions</i>	<i>non-controlling acquisitions</i>	<i>Total</i>
Benelux, Denmark, Ireland	65.0	35.0	100
Spain, Portugal, Greece	57.0	43.0	100
Great Britain	78.5	21.5	100
France	57.4	42.6	100
Germany	69.4	30.6	100
Italy	60.4	39.6	100
Total %	66.5	33.5	100
Total (number)	1301	655	1956

Source: Ceris-Cnr

¹¹ In Italy we remember how Pirelli failed in the 1990 taking over of Continental.

3.4 Findings at an industry level

As far as the industry distribution of M&As is concerned, some links could be noticed between the company behaviour and the industry-specific factors (Davies and Lyons, 1988).

Among the industry-specific factors the role of sunk costs is relevant: R&D and advertisement investments represent an important determinant of product and geographical diversification (Davies et al., 1995). For this reason we expect these variables could affect the M&A process too.

The distribution of M&As according to the type of product differentiation of the primary sector of the 90 EU companies¹² do not show any relations with the type of transacted shares: the distribution of controlling and non-controlling acquisition is more or less the same (table 5).

Table 5 – Type of M&As by industry (industry of origin)
(%)

	<i>Controlling acquisitions</i>	<i>Non- controlling acquisitions</i>	<i>Total</i>
Homogeneous products	72	28	100
Differentiated products by R&D	73	27	100
Differentiated products by advertisement	78	22	100
Differentiated products by R&D and advertisement	73	26	100
Total	74	26	100

Source: Ceris-Cnr

Only if we disaggregate the non-controlling operation in minority acquisitions and parity acquisitions we can find the relevance of parity acquisitions within the industries based on R&D-and-advertisement product differentiation. This is consistent with the

¹² The list of industries according to their product differentiation tool is presented in appendix of the Davies and Lyons volume (1996).

importance of sharing technology in obtaining the company's competitive advantage (Neven and Siotis, 1996) and with the role of licensing for worldwide brand-names.

As far as the geographic area involved within the M&A process, industries based on R&D-and-advertisement product differentiation have the higher share of cross-border M&As. This could be explained by the role of intangible investments on multinationalization (Markusen (1995). The advantages that multinational firms can exploit in producing in foreign countries are mainly based on intangible assets, resulting by their R&D and advertising expenditures (Sutton, 1991; De Woot, 1990; Teece, 1986).

4. The econometric exercise

This section is going to complement the descriptive analysis developed so far with some preliminary econometric results. The econometric exercise concerns a basic model on the choice between controlling and non-controlling acquisitions carried out by 90 EU leaders over the period 1987-1997¹³.

Because of the nature of the dependent variable, a binomial logistic model was estimated, where the dependent variable is the likelihood of a firm making a specific type of acquisition. The unit of observation is the acquisition. The regression coefficients estimate the impact of the independent variables on the probability that the entry mode will be a controlling operation. A positive sign for the coefficient means that the variable increases the probability of a controlling acquisition.

Most of the theoretical references examined in section 2 will help in defining the framework for the empirical analysis.

¹³ The econometric exercise deals with 2201 out of 2826 cases, as it does not consider the operations where the industry classification according to the product differentiation tool is not available.

4.1 Hypotheses and variables

This econometric exercise has the purpose to answer the following question: "Which are the firm-specific, industry-specific and country-specific variables affecting the choice between controlling and non-controlling acquisitions performed by the leading EU companies?"

Let $L[\text{CNT}(\text{ACQ})]$ be the probability that the acquisition carried out by EU leading companies over the period 1987-1997 is a controlling acquisition (rather than a non-controlling one). The specification of the basic model is as follows:

$$L[\text{CNT}(\text{ACQ})] = F [X(\text{F}), Y(\text{I}), Z(\text{C})]$$

Where:

Dependent variable is $\text{CNT}(\text{ACQ})$, a dummy variable which is equal to 1 for all the cases where a given firm makes a controlling acquisition. If firm makes a non-controlling acquisition, $\text{CNT}=0$.

$X(\text{F})$ = vector of firm characteristics, including SIZE , DIV and OLIGOP variables

$Y(\text{I})$ = vector of industry characteristics, including TECH , INTOPEN and CONC variables

$Z(\text{C})$ = vector of country characteristics, including MANAGER and AREA variables.

Independent variables for our samples are the following:

SIZE = the log of the acquiring firm turnover (1987 in millions of ECU). On the one hand, we expect that large companies deal mainly with controlling acquisitions: the more financial, organisation and technological resources are available to the company, the greater the opportunity of getting the control of other companies. On the other hand, large companies cannot afford to increase their internalisation costs of organization, and therefore they use non-controlling acquisition to a greater extent (Colombo, 1995). SIZE source is table A2.2 of the book by Davies e Lyons (1996). To prevent distortion due to the dimension, the variable was converted into the logarithmic formula.

DIV= dummy for the diversification strategy. DIV=1 if the target firm business represents a diversification strategy of the acquirer (at 3-digit level)¹⁴. In case of diversification, company can prefer the non-controlling entry mode, in order to reduce the post-merger management costs (Kogut and Singh, 1988), or to reduce the difficulties in assessing the value of the target firm (Balakrishnan and Koza (1993). On the contrary, we could say that within very new sector, company doesn't have any asset to share with the partner, and so it will look for an entire firm to acquire.

OLIGOP= dummy for the relationships within the EU oligopolistic arena. OLIGOP=1 if target and acquirer firms belong to the oligopolistic arena of the top-90 EU leading companies. We expect that between leading companies should prevail the non-controlling acquisition, accordingly to the higher difficulty to disentangle the desired assets from the company (Kay et al., 1987) and to modify the market power relationships within oligopolistic markets (Jacquemin et al., 1989).

TECH= dummy for the main competitive factor of the company's growth. If the acquirer's industry is a R&D-differentiated industries, TECH=1. TECH is equal to 0 when the acquirer is mainly located in a non-differentiated industries or in a differentiated industry by advertisement. The source for this variable is the Davies and Lyons database (1996). According to the complementary asset theory (Teece, 1992), we expect that in the R&D-differentiated industries will prevail non-controlling acquisition. On the contrary, following the traditional view of market-failures within the technological markets (Arrow, 1972), we should expect a positive sign of the coefficient¹⁵.

INTOPEN= ratio of EU export plus import from extra-EU countries to EU production of the firm's origin industry. This is a proxy of the international open of the industry. The industry more exposed to the international competition is also likely an industry with a low degree of trade barriers: according to the OLI approach this means a low degree of internalisation advantages too. Where internalisation advantages are low, non-

¹⁴ In comparison with other studies about the relationship between acquisitions and diversification strategy (Goudie and Meeks, 1982), in our study we compare all the sectors at 3-digit level where acquirer and the acquired firms produce, and not only their primary industry.

¹⁵ Controlling acquisitions reduce the transaction costs of the technological transfer.

controlling acquisitions are more likely than controlling ones. The source for this variable is the Davies and Lyons database (1996).

CONC= Herfindal concentration ratio of the industry entered at EU level (3-digit). According to Kay et al. (1987) we expect that in high concentrated industries company should prefer non-controlling acquisitions in order to reduce the opposition of the antitrust authority. The source for this variable is the Davies and Lyons database (1996).

MANAGER= the ratio of stock exchange market value to GDP at 1987 of the home country. We expect that companies acting in a country characterised by a high importance of stock exchange market will have more opportunities to finance their growth using controlling acquisitions. The source for this variable is again the Davies and Lyons database (1996).

AREA= dummy for the destination country. AREA should reflect the cultural distance between EU countries and the non-EU ones. Because of this, AREA=1 if the target firm is located within Europe, AREA=0 if target firm is located outside UE countries. We expect that the difference within European companies and non-European ones will affect the kind of acquisitions: the higher the cultural distance between them and the partner, the higher will be the preference for non-controlling acquisition (Kay et al., 1996). By non-controlling acquisitions mode and by the support of a local partner, companies can minimise the negative asymmetric information concerning local markets.

4.2 The results

The matrix of correlations of the independent variables (table 6) suggests little collinearity. Almost all correlations are low, the two highest correlation coefficients being the ones between SIZE and MANAGER (-0.45) and between SIZE and TECH (0.39).

Table 6 - Correlation matrix

	TECH	MANAGER	AREA	SIZE	INTOPEN	DIV	OLIGOP	CONC
Minimum	0	2.694	0	6.833	0.025	0	0	0.001
Maximum	1	4.627	1	10.183	2.583	1	1	0.203
Mean	0.659	3.687	0.673	8.713	0.605	0.198	0.168	0.038
Standard dev.	0.473	0.643	0.4691	0.8094	0.4147	0.399	0.374	0.034
Cases	2201	2201	2201	2201	2201	2201	2201	2201
TECH	1							
MANAGER	-0.1672	1						
AREA	-0.079	-0.1053	1					
SIZE	0.3933	-0.4468	-0.0467	1				
INTOPEN	-0.0106	-0.2969	0.0656	0.1364	1			
DIV	-0.0583	0.0392	-0.0054	-0.0875	-0.0098	1		
OLIGOP	0.1057	-0.083	0.2127	0.0847	0.0525	0.001	1	
CONC	0.2954	-0.1171	-0.0047	0.2374	0.0587	0.0666	0.0357	1

The results of the binomial logistic regression model are presented in table 7. A positive coefficient for an independent variable means that it tends to increase the probability that a EU leading company entered through a controlling acquisition.

The model has a good overall explanatory power, with chi-squared of 113 ($p=0.00000$) and it correctly classifies 76% of the observations.

The variables that increase the probability that the entry mode is a controlling acquisition are the R&D product differentiation strategy, that confirms the importance of transaction costs within the technological markets, and the role of the stock exchange market, that shows how the financial resources are important.

The variables that increase the probability that the entry mode is a non-controlling acquisition are:

- company size, in the sense that large firms can negotiate good conditions in joint-ventures, thanks to their managerial resources and oligopolistic power (Mutinelli and Piscitello, 1998).

- the transaction between two oligopolistic competitors, confirming the hypothesis of Kay et al.(1996).
- the concentration ratio of the acquirer's industry, following the prediction on the market power relationships (Jacquemin, 1989).
- the diversification strategy, according to the transaction costs approach.

As far as the international open of the acquirer's industry and the cultural distance between home and host countries, the coefficients have the expected sign, but a low significance.

Table 7 -Logit regression model

MAXIMUM LIKELIHOOD ESTIMATES
 Dependent variable: CONTROLLING MODE
 Probability of controlling / non-controlling M&A

<i>Variable</i>	<i>Coefficient</i>	<i>t-statistics</i>	<i>Significance</i>
Constant	2.6293	3.072	0.0021
SIZE	-0.2791	-3.696	0.0002
TECH	0.3852	3.186	0.0014
MANAGER	0.3568	3.832	0.0001
INTOPEN	-0.1307	-0.986	0.3242
AREA	-0.2487	-2.137	0.0325
DIV	-0.3107	-2.518	0.0118
OLIGOP	-0.4547	-3.499	0.0005
CONC	-5.5013	-3.735	0.0002
Number of Observations			2201
Log Likelihood			-1177.82
Restricted Log Likelihood			-1234.11
Chi Squared			112.581
degree of Freedom			8

Percentage of predicted outcomes = 76%

5. Final Remarks

By means of the ADD data-base we can study the M&A process within the EU industrial system as a whole.

The descriptive analysis and the econometric exercise provide a preliminary answer to the following question: which are the main variables at firm, industry and country level that affect the pattern of company growth based on M&As? Our attention was mainly focused on the entry mode choice that EU leaders use in their external growth.

First of all, the study shows a very different usage of the M&As as far as the entry mode choice is concerned. Even if the entire sample of top-90 EU leaders prefer wholly-owned operations, that represents the 70% of total number of operations, we can find several companies show a high interest in the non-controlling acquisitions.

The two groups apparently refer to the same industries or the same countries, but thanks to the econometric exercise we were able to better define some differences within the two type of external growth strategy. The probability that an acquisition made by EU companies is a controlling or a non-controlling M&A is related to some firm, industry and country-specific variables.

Some variables increase the probability that the entry mode choice is a non-controlling-acquisition: firm's size, firm's diversification, industrial concentration, oligopolistic competition. On the contrary, the R&D product differentiation strategy (at industry level) and the role of the stock exchange market (at country level) enforce the probability that the entry mode is a wholly-owned acquisition.

Annex: The Ceris ADD database

The ADD database (Acquisition and Divestment Database) was built up at Ceris-Cnr in order to investigate the external growth of large EU firms. The ADD database includes the first 102 companies by turnover of the EU “Market Share Matrix” (MSM) a database generated on the EU leading companies, i.e. the first 5 producers in Europe in at least one of one hundred 3-digit industries. The MSM database derives from a project coordinated by Steve Davies and Bruce Lyons (1996) on the structure of European manufacturing industry. The consistency between the two databases makes it possible for us to use information on both diversification and internationalisation of EU firms (MSM) and on their external growth (ADD).

The ADD database collects data from financial newspapers and magazines, company reports, directories of the major stock markets world-wide, M&A data supplied by IDD (a Us data-provider) and KPMG Peat Marwick.

The ADD database is structured as follows:

- a set of variables describing the “target” of the deal, i.e. the company, or the portion of it, that has been acquired or established in the case of a new joint venture: name of the company, controlling group, country, turnover, employment, primary and secondary industries (according to the 1981 Nace-Clio 3-digit classification).
- a set of variables referring to the acquiring firm: name of the company, controlling group, country, turnover, employment, primary and secondary industries.
- a set of variables referring to the characteristics of the deal itself: date of the operation, value, the type of deal (majority, minority, joint-venture, assets).

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CERIS-CNR

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Tel. +39 011 6824.914; Fax +39 011 6824.966; m.zittino@ceris.cnr.it; <http://www.ceris.cnr.it>

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