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# Horizontal, vertical and conglomerate investments in the Italian logistics industry: drivers and strategies

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## Abstract

The internationalisation of the logistics industry has massively increased in the last three decades. If we focus on inward FDI (greenfield and M&A) and look at the investment industry, we can distinguish three investment strategies: horizontal, vertical and conglomerate integrations. In case of horizontal integration, the investment is carried out in the same industry of the parent multinational enterprise (MNE) (i.e. a MNE operating in the maritime transport undertakes an investment in maritime transport). When vertical integration takes place, the MNE invests in different stages of the same industry. Finally, a conglomerate integration occurs when the investment in a logistics activity is carried out by a non-logistics MNE (i.e. a manufacturing MNE).

The integration strategies are a relatively unexplored area in logistics research. The present paper extends the existing literature on the integration strategies undertaken by foreign MNE investing in the Italian market, by exploring the drivers behind. Descriptive statistics are carried out and further research questions are outlined. The data used come from the LogINT database, developed by the Laboratory of Economics, Logistics and Territory of DiAP-Politecnico di Milano, and covers the period 2000 – 2008.

*Keywords:* logistics industry, integration strategies, FDI, MNE, M&A.

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## 1. Introduction

The internationalisation of the logistics industry has massively increased in the last three decades. Given this rapid growth, fully understanding the determinants and implications of this phenomenon has been high on the agenda for both policy makers as well as academics (Hijzen et al., 2008). There seems to be a rationale in expanding the portfolio of logistics services or widening the geographical presence of the firm through inward foreign direct investments (FDI) that take the form of greenfield (new plant) and brownfield (merger and acquisition – M&A) or through the so called strategic alliances (Ojala, 1993).

In the last years, the growth rate of FDI in the utilities (energy, gas and water), logistics and communications has more than tripled (UNCTAD, 2006) and outward FDI in the logistics industry equals to 26% of the service total (Maggi and Mariotti, 2009). Merger and acquisition activity in logistics services has originated in the U.S. in the early 1980s and has interested Europe a few years later. Besides, a similar process began in the Far East in the middle of the 1980s, led by Japanese logistics firms (Ojala, 1993). Quite recently, the European transport market has attracted investors from the

Asian Newly Industrialised countries, a phenomenon called “the Mega-carrier Race” (Cooper et al., 1991).

Recent examples of these investments are: DHL Express acquired 49% of the American airline company Polar Air Cargo Worldwide; DHL Exel acquired the Chinese Sinotrans Air Transport; the Japanese shipping group NYK invested in the new airline company Jett Airlines Cargo from Singapore (for a detailed overview see Federtrasporto-Nomisma, 2008). Besides, large foreign logistics suppliers dominate the Italian market, i.e. Eurokai, TPG-TNT, Deutsche Post and A.P. Moller-Maersk.

If we focus on inward FDI (greenfield and M&A) and look at the investment industry, we can distinguish three investment strategies: horizontal, vertical and conglomerate integrations. In case of horizontal integration, the investment is carried out in the same industry of the parent multinational enterprise (MNE) (i.e. a MNE operating in the maritime transport undertakes an investment in maritime transport). When vertical integration takes place, the MNE invests in different stages of the same industry. Finally, a conglomerate integration occurs when the investment in a logistics activity is carried out by a non-logistics MNE (i.e. a manufacturing MNE).

The three strategies are promoted by specific drivers, going from “increasing market power” to “reducing transaction costs” (for a review, see, among the others Hakkinen et al., 2004; Cruijssen et al., 2007).

As concerns Italy, that is the country of interest of the present paper, in the last decade the logistics industry has been increasingly interested by inward FDI, which are concentrated in the supply of integrated and intermodal services or other higher value added services than the pure goods and passengers transport. In this paper we use a wide definition of logistics industry as the ensemble of the firms which offer all the services useful for the movements of goods along the supply chain and passengers from an origin to a final destination. More precisely, it comprises both Logistics Services Providers (LSP), offering single services, on a stand-alone basis (transportation, warehousing, handling, etc.) and Third-Party Logistics (3PLs) or Fourth Party Logistics (4PLs) Providers or Integrated Logistics Providers, supplying different services in a integrated way. To do so, we refer to all the codes included in 2002 NACE industry “I” “Transport, storage and communication”, with the exception of 64.11 (national post activities) and 64.2 (telecommunications)<sup>1</sup>.

The integration strategies are a relatively unexplored area in logistics research. The present paper extends the existing literature on the integration strategies undertaken by MNE investing in foreign markets, by exploring the drivers and focusing on the logistics service industry in Italy. The data used come from the LogINT database, developed by the Laboratory of Economics, Logistics and Territory of DiAP-Politecnico di Milano, and covers the period 2000 – 2008. Additional qualitative data about the drivers of the integrations strategies, undertaken by the foreign logistics MNE, have been collected in the logistics magazines and the companies’ web sites.

The paper is structured into five sections. The introduction is followed by a literature review on the entry modes, the integration strategies, and the drivers. Besides, the research hypotheses to be empirically tested are presented. A description of inward logistics FDI in Italy (number, sub-industry, origin and destination areas) is presented in section three. Section four focuses on the integration strategies concerning the Italian logistics industry, analysing them by sub-industry and area of origin and destination and

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<sup>1</sup> We refer to the NACE 2002 classification instead of the more recent 2007 because of lack of data.

identifying the feasible drivers. Conclusions and further research questions conclude the paper.

## **2. Literature review**

### *2.1 Entry modes and integration strategies*

The choice of entry mode is an important part of a firm's foreign investment strategy (Agarwal and Ramaswami, 1992). Firms are not only concerned about which foreign markets to enter, and which activities to perform in those markets, but how to enter: whether by export, licensing and FDI (Chang and Rosenzweig, 2001).

There are two main strands of literature analysing firms' entry modes (for a detailed overview see Wei et al., 2004): the first discusses the choice between broad international market entry modes such as trade, licensing and FDI (Buckley and Casson, 1976; Dunning, 1988; Agarwal and Ramaswami, 1992; Kim and Hwang, 1992); the second focuses on the choice of undertaking a FDI and specifically choosing between greenfield and brownfield investments (e.g. Chang and Rosenzweig, 2001; Girma, 2002).

The interest of the present paper is limited to the FDI entry mode, defined as investment involving ownership, and confers effective management control. Other internationalisation forms, i.e. exporting, licensing and non-equity alliances, do not constitute FDI and, therefore, are beyond the scope of this study. Specifically, we focus on two entry modes: greenfield investments and brownfield investments (M&A). Greenfield investment concerns full ownership and consists of opening up of a new plant, while brownfield investment, that is M&A, denotes the purchase of a controlling interest in a local firm. In particular, a merger consists in a mutual agreement of the management of two or more companies to form a new joint legal entity through the exchange of shares or other funds. An acquisition takes place when the management of one company makes a direct offer to the shareholders of another company to acquire controlling interest of this firm (Wall and Bronwen, 2001).

Three strands of literature focus on the typologies of FDI according to the investment industry: the business and administration economic literature<sup>2</sup> (see among the others Ojala, 1993; Chang and Rosenzwei, 2001; Hakkinen et al., 2004), the international economic literature (see among the others, Buckley and Casson, 1976; Dunning, 1988; Agarwal and Ramaswami, 1992; Barba Navaretti and Venables, 2004; Hjizen et al., 2006) and the transportation economic literature (see Carbone and Stone, 2005; Dörrenbächer, 2003; Federtrasporto-Nomisma, 2006, 2007, 2008, 2009; Shepperd and Seidman, 2001; Fan et al., 2001; Oum et al., 2002; Cruijssen et al., 2007; Van de Voorde and Vanelslander, 2009). These studies mainly refer to the M&A operations classifying them into: (i) horizontal M&A; (ii) non-horizontal M&A, which comprises vertical M&A and conglomerate M&A.

In horizontal M&A, both companies operate in the same industry and on the same industry level. Vertical M&A involve firms that operate in different stages of the same industry. Instead, firms in conglomerate M&A do not operate in the same business

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<sup>2</sup> The studies belonging to the strategic management literature focus on the acquisition "relatedness", which refers to the degree of correspondence between an acquirer and its target (see, among the others, Haleblan and Finkelstein, 1999).

industry at all (Table 1). According to a narrower definition, proposed by Hijzen *et al.* (2008), horizontal M&A concerns the activity taking place within the same 4-digit US SIC industry. It is thereby assumed that 4-digit industries represent homogenous groupings of firms. As the authors stress, however, this classification may in some cases be too restrictive; specifically, some transactions across 4 digit industries may still involve horizontal mergers, in particular when multi-product firms are prevalent. This could only be addressed adequately if data were available on all products produced by a firm.

The literature on integration strategies in logistics is still in its infancy and mainly refers to horizontal M&A (see Shepperd and Seidman, 2001; Van de Voorde and Vanelander, 2009 for maritime shipping; Fan *et al.*, 2001 and Oum *et al.*, 2002 for the airline industry; Cruijssen *et al.*, 2007 for 3PLs).

**Table 1:** Integration strategies.

Typology	Description
Horizontal	Both companies operate in the same industry
Vertical	The firms operate in different stages of the same industry
Conglomerate	The firms operate in different industries

## 2.2 Drivers

The literature extensively studies the motives behind the choice to undertake a foreign direct investment, while less attention has been placed on the determinants for horizontal, vertical and conglomerate integrations.

The literature stresses that acquisitions offer the fastest means of building a sizable presence in a foreign market, yet they are fraught with risks of overpayment, inability to fully assess the value of acquired assets, and post-acquisition challenges including cross-cultural integration. Greenfield investments offer the greatest control over the local affiliate, yet often require the longest time to establish, and the greatest contribution of know-how (Chang and Rosenzweig, 2001).

From the knowledge-based perspective, greenfield investment may be the most efficient entry mode when a firm transfers knowledge from home country to foreign affiliate (Chang and Rosenzweig, 2001). Acquisition may be preferred when the firm enters a foreign country in order to tap local skills and resources.

Referring to the business and administration economic literature, the international economic literature and the transportation economic literature, we can summarised the main drivers of horizontal, vertical and conglomerate integrations, as follows (see among the others, Ojala, 1993; Veugelers, 2002; Hakkinen *et al.*, 2004; Barba Navaretti and Venables, 2004; Hijzen *et al.*, 2006; Cruijssen *et al.*, 2007):

### Competitive considerations

- 1a) Increasing market or political power
- 1b) Defending market share

### Efficiency considerations

- 2a) Scale economies

- 2b) Scope economies
- 2c) Elimination of transaction costs
- Other considerations
- 3a) Regulation
- 3b) Access to technologies.

As concerns competitive considerations, firms can undertake greenfield or M&A to increase their market or political power or to acquire new markets (1a). Especially in horizontal integrations, the desire to achieve or strengthen monopoly power seems to have played a prominent role (Table 2). New market access is mostly achieved through M&A, which, in comparison to greenfield investments, allow the firm to gain a quicker access.

Similarly the horizontal integrations can be motivated by a defensive strategy (1b) which may consists in: (i) preventing being taken-over; (ii) preventing the target from being taken over by others; (iii) avoiding other merged entities in the industry from becoming too strong (Gorton *et al.*, 1998). Referring to the logistics sector, that is the goal of the present paper, we can state that the competitive considerations play a crucial role within the horizontal strategies and a relevant role in the vertical ones (Table 2).

Next to competitive considerations, firms opt for FDI in search of efficiency gains, i.e.:

(2a) Economies of scale: firms can enjoy lower average costs when operating at a combined size that is larger than when operating separately. These cost economies arise typically from sharing common inputs and spreading fixed costs over a larger output. Economies of scale in production are the most obvious motivation and are more likely to be achieved following horizontal integrations (Table 2). In a logistics context, horizontal integration increases the company's productivity for core activities (e.g. optimise vehicle capacity utilization, reduce empty mileage, better usage of storage facilities, etc.); it reduces the costs of non-core activities (e.g. organizing safety trainings, joint fuel facilities, etc.); and it cuts purchasing, marketing and R&D costs (e.g. vehicles, onboard computers, fuel, etc.) (Cruijssen *et al.*, 2007; Van de Voorde and Vanelander, 2009).

(2b) Economies of scope: the combination of complementary skills can result in a more efficient way of producing. Economies of scope arise whenever the total cost of producing two different goods or services jointly is lower than producing each of the goods separately (vertical integrations). Within a logistics context, investing MNE can specialize while at the same time broadening their services through vertical integrations (Table 2); they can offer better quality of service at lower costs (e.g. in terms of speed, frequency of deliveries, geographical coverage, reliability of delivery times etc.) (Carbone and Stone, 2005; Cruijssen *et al.*, 2007).

(2c) Elimination of transaction costs<sup>3</sup>: an investment that involves vertical integration may reduce costs by replacing market transactions between firms, by planning and coordination among firms (Goldman and Gorton, 2000 - Table 2). In case of M&A, the merged firm will have access to better information at lower costs, since it is easier to monitor activity within a firm than to obtain information about the activities of a separate firm. The transaction costs' reduction results from small number bargaining, enhancing the competitive position or market power of the partners, and meeting the

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<sup>3</sup> There is an extensive literature on transaction costs' reduction due to FDI (see, among the others, Hennart, 1982; Anderson and Gatignon, 1986).

partner's request for organizational knowledge and learning (Kogut, 1988). In the logistics case, it can also be relevant within the conglomerate integration, when the investment is made by a manufacturing firm in order to cut the transaction costs with its logistics suppliers.

Firms decide to undertake FDI for other considerations, too, such as regulation (3a) and access to technologies (3b).

(3a) Because of regulatory reasons, firms may have an incentive to merge even if there is no fundamental economic efficiency involved. A change in the regulatory rules of an industry in a country, such as the liberalisation of a market previously regulated by a public monopoly, can attract MNE from other countries. Tax savings could result when a loss-making firm merges with a profitable one. Furthermore, the regulated firms might want to diversify into an unregulated market in order to shift profits from the regulated market into the unregulated one (Veugelers, 2002). We expect regulation to be relevant in the horizontal and vertical integration strategies, undertaken in those sub-industries, which have experienced in the last decade a liberalisation process (Table 2).

(3b) As concerns access to technologies, a firm looking to increase its scope of operations into new markets, characterised by advanced technologies, considers internal growth versus external growth through M&A. In this perspective, M&A in comparison to internal growth offers the advantage to the firm of providing a quick access to new technologies using proven know-how, rather than to set up 'ex-novo' new activities (greenfield) or do own R&D. As concerns the logistics industry, it is well known that the vast majority of logistics firms are small and medium sized enterprises (SME), which, by definition, tend to lag behind in implementation of information and communication technology (ICT) systems (Gunasekaran and Ngai, 2004). The study carried out by Cruijsen *et al.* (2007) shows that ICT is mainly an issue for horizontal integrations of a medium intensity. Low intensity initiatives often do not require specific ICT investments and high intensity initiatives generate sufficient revenue to pay back the required ICT investments. Therefore, we can state that access to technologies is one of the main motives driving horizontal logistics integrations, but it can be also relevant in the other two strategies (Table 2).

The concise description of the motives behind the integration strategies has showed that each integration often combines multiple motives. By focusing on the logistics sector, we can draw the following hypotheses concerning the relationship between integration strategies and motives (Table 2).

**Table 2:** Hypotheses to be tested

Driver	Integration strategies		
	Horizontal	Vertical	Conglomerate
<i>Competitive considerations</i>			
1a) Increasing market or political power	***	**	*
1b) Defending market share	***	**	*
<i>Efficiency considerations</i>			
2a) Economies of scale	***	*	*
2b) Economies of scope	*	***	*
2c) Elimination of transaction costs	*	***	**

<i>Other considerations</i>			
3a) Regulation	**	**	*
3b) Access to technologies	***	**	**

Note: \* not relevant; \*\* relevant; \*\*\* extremely relevant.

### 3. Inward logistics FDI in Italy

The structural patterns of the Italian logistics industry and, specifically, the significant pulverization of the firms, have attracted international global players, which mainly supply integrated and high value added services. In Italy, SME predominate the scenario and this structural pattern does not foster the development of know how, human and financing resources. Besides, SME do not develop the specific necessary innovations to offer a multifaceted range of services, able to satisfy the customers' demand. Moreover, the large foreign investing firms, characterised by a logistics network diffused on the territory, are able to supply the increasing demand of the Italian manufacturing firms, which operate in the global market. Foreign MNE, therefore, through an increasing number of M&A and greenfield investments, own significant market shares.

In 2008, the LogINT database<sup>4</sup> accounts 442 inward logistics FDI, which have been undertaken by 274 foreign MNE (Boscacci *et al.*, 2009; Maggi and Mariotti, 2009). The 62% of investments concerns the opening up of a new branch (greenfield investments), while the remaining 38% consists in mergers and acquisitions.

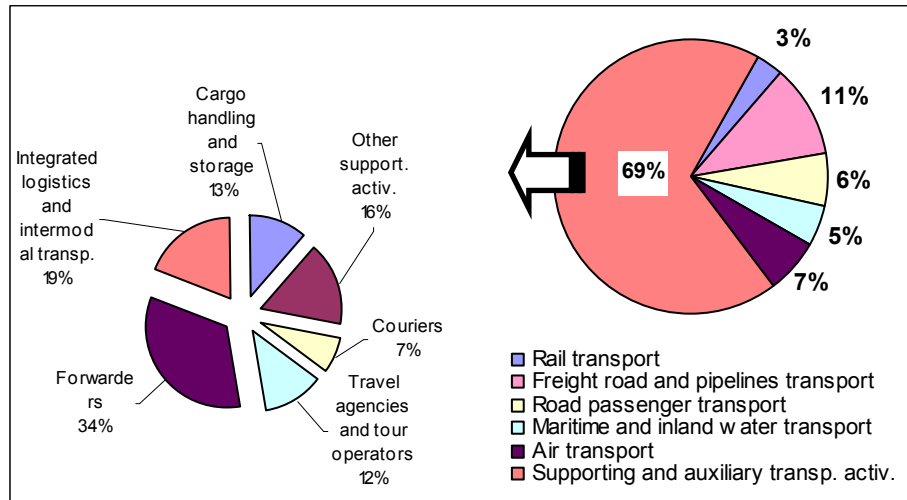
About 70% of the investments belong to the 63 NACE sub-industry ("supporting and auxiliary transport activities of travel agencies") and 64.12 NACE sector (couriers); of those, 34% concerns forwarding activities (NACE 63.40.1 code), 19% regards integrated logistics and intermodal transport (NACE 63.40.2 code<sup>5</sup>), 16% other supporting activities (NACE 63.2 code), where all the firms managing transport infrastructure (e.g. maritime terminals, intermodal centres, airports, etc.) are part of, 13% cargo handling and storage (NACE 63.1 code), 12% travel agencies and tour operators (NACE 63.3 code) and, finally, 7% couriers (Fig. 1). Instead, the investments in transportation gain the remaining 31%: land transport predominates (17%), air transport (6.5%), sea transport (4.5%) and rail transport (3%) follow.

<sup>4</sup> The LogINT database, developed by the Laboratory of Economics, Logistics and Territory of DiAP-Politecnico di Milano, with the collaboration of the University of Molise, is updated every year and collects data on inward and outward FDI in the logistics industry since 2000. The sources of the database are numerous: Reprint databank of the Italian FDI (developed by the Department of Management and Engineering of the Politecnico di Milano and sponsored by the Italian Trade Institute – ICE), newspaper and magazines on the logistics industry, direct interviews to logistics MNE, etc.

<sup>5</sup> Actually, the NACE 63.40.2 code is called "other supporting and auxiliary transport services", but it comprises a large number of firms offering integrated services and intermodal transport which doesn't find alternative location in other specific voices of the NACE classification.



**Fig. 1: Inward Logistics FDI in Italy, by investment sub-industry**



Source: our elaborations on LogINT database, LabELT, 2009

As concerns origin and destination areas, the patterns of inward logistics FDI confirm those of the manufacturing industry (Maggi and Mariotti, 2009). Italy attracts FDI mainly from western Europe (71%), North America (11.8%), Asia (8.8%) and Middle East (2.3%). The MNE investing in Italy mainly belong to industrialised countries like Germany (19%), France (12%), UK (10%), USA (10%) and the Netherlands (7%).

Foreign FDI are mainly located in the north west (56.1%), “core” of the Italian logistics; follow the centre (19%) and the north east (17.4%). South and Islands register the 7.5% of the total. In particular, Lombardy region, in the north west, attracts 40% of the investments and is followed by Lazio (12%), Liguria (10%), Veneto (7%), Emilia Romagna (7%) and Piedmont (6%). Among the southern regions, we find Campania (3%) and Calabria (1%). This trend confirms that the logistics industry is strongly demand driven, i.e. it is settled where the manufacturing customers are located.

#### 4. Integration strategies of inward logistics FDI in Italy

##### 4.1 Integration strategies by investment industries

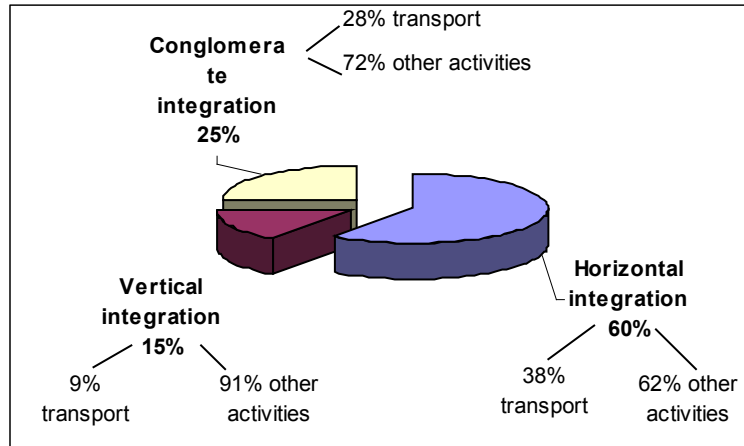
Referring to the literature review, the Italian FDI undertaken by the 274 logistics MNE have been classified into the three categories above described (Table 1): (i) horizontal strategy, when the investment has been made in the same logistics sub-industry of the parent company; (ii) vertical strategy, when the investment concerns a different logistics sub-industry; (iii) conglomerate strategy, when the MNE comes from an industry totally different than the logistics one. The industrial classification refers to the 2002 NACE codes<sup>6</sup> and to the information on the supplied services, provided by the

<sup>6</sup> The vertical investments have been distinguished by the horizontal ones, using the 6-digit 2002 NACE classification of the economic activities. According to Hijzen *et al.* (2008), the investments which take place within the 4-digit industry have been classified as horizontal FDI, while the investments across 4-digit industries have been classified as vertical. Nevertheless, the investments of the bigger 3PLs or 4PLs providers have been considered as horizontal, because these firms are multiproduct, i.e. they offer a large number of different services both in their country of origin and in the countries of FDI destination.

web-sites of the foreign MNE and their Italian affiliates, or by the specialised logistics newspapers and magazines.

Reflecting a global trend (Federtrasporto-Nomisma, 2008), the FDI are mainly of horizontal type (60%), while conglomerate and vertical strategies move respectively the 25% and the 15% of the investments (Fig. 2). This means, as Carbone and Stone (2005) argue, that the increasing global competition has forced the logistics operators to concentrate in their core business, consolidating their market position.

**Fig. 2:** Distribution of the different integration typologies in logistics industry



Source: our elaborations on LogINT database, LabELT, 2009

The horizontal integration is the most favourite strategy by the transport sub-industry (102 investments, i.e. 73% of the total FDI in transport activities), particularly by the road passenger transport firms (100% of the total FDI per sub-industry) and by the sea and air transport firms (respectively, 84% and 83% of the total FDI per sub-industry). Also the 95% of the total FDI made by couriers is horizontal (Fig. 3).

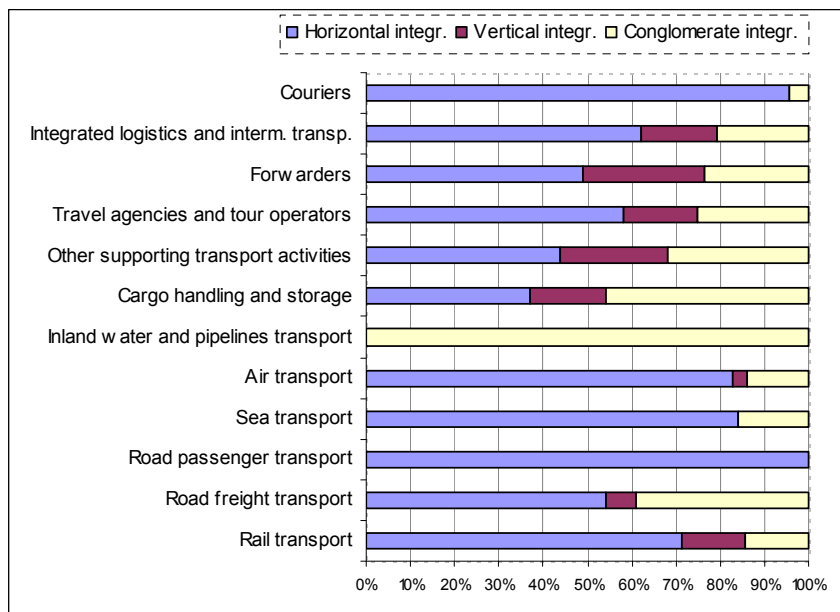
The integration strategies are driven by several drivers, as described in section 2.2. As concerns the road passenger transport, the liberalisation process of the Italian industry and the consequent international calls for tender of urban or inter-urban transport services' supply, published by different Italian municipalities, have attracted some European foreign MNE. In particular, the English big operator Arriva International PLC has undertaken different acquisitions of Italian firms, mainly located in the North (especially, Lombardy, Piedmont and Friuli-Venezia Giulia). Arriva is the first multinational company in terms of number of FDI on the total inward investments in the Italian logistics industry (5% on the total Italian FDI and 22% of the Italian investments made by the first ten global players<sup>7</sup> - Maggi and Mariotti, 2009). In this sector, the main motivation driving integrations is the aim to reinforce the market power in the European Countries, taking advantage from the change of the regulation in specific country such as Italy. The efficiency considerations do not hold for this industry, because the production of the services is local based (i.e., it is impossible to use the same buses or infrastructure both in the London public transport and in the Milan urban area).

<sup>7</sup> The first ten global players are: Arriva International, Apollo Global Management, Eurokai, TNT, 3I Group, Deutsche Bahn, Deutsche Post, Interprogramme Holding, A.P. Moller – Maersk, Kuwait Petroleum (for a review, see Maggi and Mariotti, 2009).

Similarly, within the boundaries set by the antitrust legislation, the liberalisation of the postal activities has caused an increasing concentration process of the couriers in a small number of operators, pushed by competitive and efficiency considerations: the two bigger ones in Europe – the Dutch TNT Post Group (TPG) and the German Deutsche Post – have penetrated the Italian market, realising respectively the 14% and the 6% of the first ten global players' total inward FDI. The European Post Offices have undertaken the most aggressive diversification strategies, in order to increase their geographic coverage, develop efficient IT systems and achieve high brand awareness (Carbone and Stone, 2005) and to defend their market share from the American couriers such as UPS and Federal Express.

As concerns the horizontal investments in the maritime<sup>8</sup> and airline industries, they also reflect the growing concentration process, which in the last decades has characterised the global market, allowing the participating firms to reap benefits of scale, competitive advantages (Shepperd and Seidman, 2001; Fan et al., 2001; Oum et al., 2002) and a sufficient size to cope with the high investments in physical and ICT infrastructure to operate efficiently (Carbone and Stone, 2005). In fact, in these sub-industries the rate of fixed costs over the total is particularly high.

**Fig. 3:** Type of integrations in the different logistics sub-industries (% over total sub-industry FDI)



Source: our elaborations on LogINT database, LabELT, 2009

Moreover, in the transport and couriers sub-industries, it is possible to identify another key driver of horizontal integration: the creation of efficient transport chains able to control the main traffic flows and guarantee a wider geographic coverage (Carbone and Stone, 2005; Van de Voorde and Vanelander, 2009).

The analysis referring to the horizontal integration allows to partially confirm the hypotheses described in section 2.2: the competitive considerations and the research of

<sup>8</sup> According to LogINT, the two bigger maritime companies, in terms of number of inward FDI over the total, are the German Eurokai KG and the Danish A.P. Moller – Maersk.

scale economies are extremely relevant drivers for all the sub-industries (three stars in Table 4), with one exception: the “efficiency considerations”, which do not hold for companies investing in the urban public transport (one star in Table 4). Regulation seems to be also extremely relevant in different sectors, such as road passenger transport and postal office. Besides, no information permit to test the “access to technologies” motivation.

As concerns vertical integrations, almost all investments (91%) refer to the 63 NACE sub-industry (“supporting and auxiliary transport activities of travel agencies”) (Fig. 2), particularly the forwarders (41% - Fig. 3); they have been undertaken mainly by maritime MNE (44%) and railways investors (13%).

The vertical integration allows the investing firms to diversify their product, extending the number of supplied services through three different ways: (a) by completing the transport chain, in order to offer door-to-door links to the clients; (b) by integrating different logistics services along the supply chain; (c) by supplying auxiliary and complementary activities with respect to the core service.

Only few cases of integration refer to the first type (a), i.e. within two firms of different transport sub-industries. A significant example is given by the investments of Eurokai in Sogemar and Hannibal<sup>9</sup>, two companies offering intermodal (rail-road) transport. The main motivation can be found, from one hand, in cutting transaction cost as well as controlling the level of service along the entire transport chain (i.e. in terms of reliability and speed), from the other hand, in satisfying the growing customers’ need to have a complete transport service from origin to destination. In this way, the transport providers reinforce or perhaps defend their market share and try to control the main traffic flows, reaching economies of scale and scope.

A vertical integration of the second type (b) takes place within firms of the 63 NACE sub-industry, for example offering storage activities, and firms of the transport sub-industry. This integration type aims at supplying a complete range of logistics activities and providing new value-added services in an integrated package, along the supply chain (Notteboom, 2007). This is typically the strategy adopted by the MNE which aim at becoming integrated logistics service providers (3PLs or 4PLs), by acquiring specialist capabilities. The investments of this type are concentrated mainly in the cargo handling and storage sub-industry (NACE 63.1) or in the forwarding activities (NACE 63.40.1). Many operators, such as the forwarder Kuehne & Nagel or the courier Deutsche Post have evolved, by M&A, in integrated logistics providers. An increasing level of functional integration permit to cut many transaction costs and to response to manufacturing demand looking for global logistics package rather than single function (transport or storage) services, thus increasing market share.

The majority of the FDI belonging to vertical integrations has been made at the end of Nineties and the beginning of 2000; in 2002 a downturn has began (Carbone and Stone, 2005). This is the reason why in the period of analysis of the present paper (2000-2008) the vertical investments only account for the 15% over the total.

The third category of the vertical integration (c) is more diversified. It includes: (c1) investments in the handling activities realised by airline or shipping companies or by terminal operators; (c2) FDI of the shipping companies in terminals; (c3) investments of single transport mode operators in specialised agencies (e.g., in sea or air transport). The first two investments typologies (c1, c2) are mainly motivated by the search of

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<sup>9</sup> Specifically, Eurokai has the control of the Italian Group Contship Spa, Sogemar and Hannibal companies belong to.

economies of scale and scope, but also by the transaction costs' reduction in the backward relations along the logistics supply chain. For example, due to the shortage of working capital, in the maritime chain several shipping companies have invested their capital in terminals (Van de Voorde and Vanelslander, 2009), dedicated to their own activity (e.g. Cosco Pacific) or to different operators' activities (multi-user terminals) in order to improve the utilisation rate (e.g. the above cited A.P. Moller – Maersk). Instead, the investments of the transport operators in agencies (c3) aim mainly at eliminating transaction costs, in the services' distribution (forward integration along the supply chain).

The analysis of the vertical integration strategies allow to test the majority of the hypotheses with the exception of “regulation” and “access to technologies” (Table 4). In particular, the three vertical integration's categories (a, b, c) are driven by the need to satisfy the customers' needs and so reinforce or defend the market share; therefore, we can assign three stars instead two to the competitive considerations. The diversification also allows to achieve economies of scope and remove transaction costs (the three stars in Table 2 are confirmed), but even scale economies can be reaped by controlling traffic flows along the logistics chain (they are indicated as relevant in Table 4).

The third integration strategy (conglomerate integration) in the last years is spreading both in Italy and in the global scenario. According to Federtrasporto-Nomisma (2008), the FDI undertaken by financial investors or firms belonging to other industries have grown 12.6% in 2005, 20.6% in 2006 and 23% in 2007. As table 3 clearly shows, the conglomerate investments are made firstly by financial and real estate intermediaries (43%), followed by the manufacturing industry (24%, i.e. 10% food and agriculture, 5.5% metal, machinery and electric goods, 4.5% transport equipment, 3% chemical products and 1% publishing), the extraction, production and distribution of petroleum, gas and other forms of energy (17%), wholesale and retail trade (7%), building industry (3%) and finally business services (6%). The investors of other industries concentrate their FDI (72%) in activities different from the pure transport, which offer higher value added services (e.g. forwarding activities – 22% -, cargo handling and storage – 15% -, other supporting transport activities – 15% - and integrated logistics and intermodal transport – 11%). Within the transport activities, freight road transport is preferred (17%).

The large investments carried out by the financial and real estate intermediaries indicate that logistics is considered as a profitable industry in terms of capital return; thus, the analysis suggests to add a third specific motivation within the category “other considerations” (last row in Table 4).

Several financial intermediate operators directly control big logistics groups; as a consequence, many of their investments should be considered vertical or horizontal. For example, the financial American Apollo Global Management has acquired the logistics branch of TNT, calling it Ceva Logistics. Ceva Logistics in 2007 has invested its capital in the international forwarder EGL and in 2008 has acquired Spedimacc, a technical courier, specialised in fragile and valuable goods' transport and handling, and Transitalia, operating in the publishing distribution. These two acquisitions have been undertaken to strengthen CEVA's presence in the country and, as concerns publishing distribution, to reach the 20% of the Italian market (Federtrasporto-Nomisma, 2009). If we refer these three investments to the parent company itself (Apollo Global Management), they might be classified as conglomerate, but if we refer them to the

secondary group (Ceva Logistics), they are vertical. In the present paper, we follow the standard classification adopted in the literature, therefore, we consider the two investments as conglomerate integrations.

Two other important global financial players, operating in the Italian logistics market, are: the English 3I Group PLC, which controls the Italian forwarder Saima Avandero and the Italian divisions of the Belgium ABX Logistics; and Interprogramme Holding of Luxembourg, which has acquired different air companies (e.g. Meridiana and Eurofly) and has a minority participation in the Florence Airport.

**Table 3:** Conglomerate integration by different sub-industries.

Logistics sub-industries	Financ. & real estate interm.	Extrac., produc., distrib. energy	Food & agric. Prod.	Other manuf. prod.	Wholesale, retail & construct.	Business services	Total CI	% on total CI
Rail transport	1			1			2	2%
Road freight transport	8	5	2		3		18	17%
Sea transport	0	1	1			1	3	3%
Air transport	3			1			4	4%
Inland water and pipelines transport	1	2	1				4	4%
<i>Total transport activ.</i>	<i>13</i>	<i>8</i>	<i>4</i>	<i>2</i>	<i>3</i>	<i>1</i>	<i>31</i>	<i>28%</i>
Cargo handling and storage	3	6	2	2	1	2	16	15%
Other supporting transport activities	6	2	2	2	2	2	16	15%
Travel agencies and tour operators	4			1	3	1	9	8%
Forwarders	15		1	6	1	1	24	22%
Integrated logistics, intermodal transport	5	2	2	2	1		12	11%
Couriers	1						1	1%
<i>Total other activ.</i>	<i>34</i>	<i>10</i>	<i>7</i>	<i>13</i>	<i>8</i>	<i>6</i>	<i>78</i>	<i>72%</i>
<b>Total logistics industry</b>	<b>47</b>	<b>18</b>	<b>11</b>	<b>15</b>	<b>11</b>	<b>7</b>	<b>109</b>	<b>100%</b>
<i>% on total industry</i>	<i>43%</i>	<i>17%</i>	<i>10%</i>	<i>14%</i>	<i>10%</i>	<i>6%</i>	<i>100%</i>	

Source: our elaborations on LogINT database, LabELT, 2009.

As concerns the energy extraction, production and distribution industry, the bigger MNE operating in the Italian logistics industry is Kuwait Petroleum, which has invested in different freight road transport and cargo handling and storage firms, probably in order to better control the management of its products' flows, to reach scale benefits and to reduce transaction costs.

The investments in transport or other activities, undertaken by the manufacturing firms, are often the result of a spin-off of their internal logistics division, which is generally motivated by the search of scale economies, while maintaining, at the same time, the control on the logistics function. For example, the French PSA-Peugeot Citroen has created the operator GEFCO (Les Groupages Express de Franche Comté), specialised in the logistics activities for the automobile industry. The Swedish Electrolux controls Electrolux Logistics Italy SpA and other firms, which offer forwarding and handling and storage activities; within the food industry two German MNE (Dr. August Oetker Kg and Theobald Mueller Ag) and the Switzerland Nestlé

have made several investments mainly in the NACE 63 industry but also in maritime and freight road transport.

The analysis on the conglomerate integrations shows that the majority of the hypotheses are tested with the exception of “defensive strategy”, “regulation” and “access to technologies” (Table 4). According to the analysis, however, when a manufacturing or energy firm undertakes an investment in the logistics industry the efficiency considerations, in terms of scale economies and transaction costs’ reduction, play a relevant role (two stars instead of one in Table 4).

**Table 4:** Results of the empirical analysis

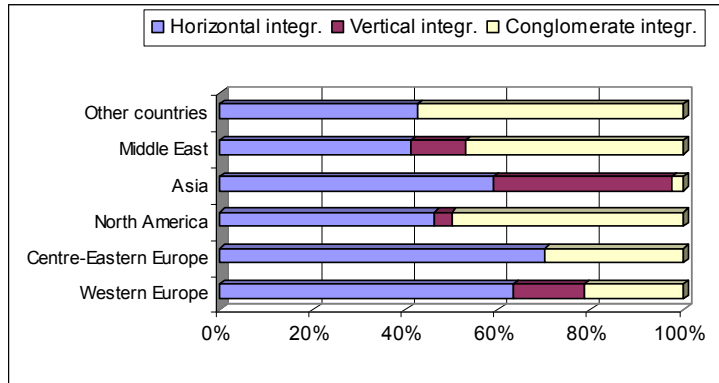
Driver	Integration strategies					
	<i>Horizontal</i>		<i>Vertical</i>		<i>Conglomerate</i>	
	Hypothesis	Results	Hypothesis	Results	Hypothesis	Results
<i>Competitive considerations</i>						
1a) Increasing market or political power	***	***	**	***	*	*
1b) Defending market share	***	***	**	***	*	n.t.
<i>Efficiency considerations</i>						
2a) Economies of scale	***	*** / *(1)	*	**	*	**
2b) Economies of scope	*	*	***	***	*	*
2c) Elimination of transaction costs	*	*	***	***	*	**
<i>Other considerations</i>						
3a) Regulation	**	***	**	n.t.	*	n.t.
3b) Access to technologies	***	n.t.	**	n.t.	**	n.t.
3c) High capital return		*		*		***

Note: \* not relevant; \*\* relevant; \*\*\* extremely relevant; n.t.: not tested; (1) not relevant for urban public transport

#### 4.2 Integration strategies by investment area of origin and destination

The analysis of origin and destination areas underlines that the horizontal strategy is the first choice of all the European and Asian MNE, while the conglomerate integration is preferred by the MNE located in North America, Middle East and other countries; finally, the vertical integration is the second choice of the Asian FDI (38%; Fig. 4). Specifically, European MNE invest in Italy through horizontal integrations to consolidate and defend their market power and reach scale economies, trying to become European Champions, i.e. “big European companies that have successfully understood the advantages (scale and free-flow of production factors) of operating in the Single Market environment” within the European Union (Mosconi, 2008). Asian investors undertake FDI to penetrate into the European market, firstly for selling their core product through horizontal integration and secondly for extending their supply through vertical integration. Besides, the Italian logistics market is seen a profitable investment area for MNE coming from USA, Middle East and other countries.

**Fig. 4:** Type of integration by area of origin of the FDI

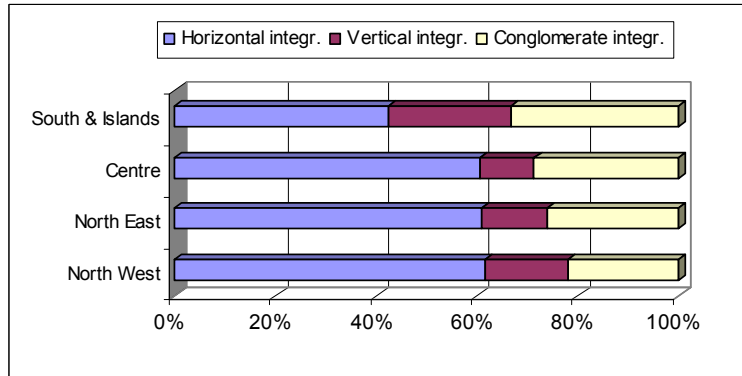


Source: our elaborations on LogINT database, LabELT, 2009

As concerns Italy as destination, about the 60% of FDI, located in the North West, North East and Centre, is horizontal, while the share of conglomerate and vertical strategies is higher in South and Islands with respect to the other areas (Fig. 5).

In the Centre-North, where the logistics firms tend to concentrate their activity, the FDI are mainly motivated by competitive and economies of scale considerations. Instead, in the remaining part of Italy the main feasible determinants of the vertical investments are the economies of scope and the transaction costs' reduction, while production diversification in case of conglomerate integration.

**Fig. 5:** Type of integration by area of destination of the FDI



Source: our elaborations on LogINT database, LabELT, 2009

## 5. Conclusions and further research questions

The global economy is the driver of the growing internationalisation process, which interests the Italian logistics market. The significant fragmentation of the national logistics service supply in a high number of SME, characterised by a lack of human and financial resources and mainly offering low value-added and not integrated activities, has promoted the entry of foreign MNE.

The present paper focuses on the integration strategies (horizontal, vertical and conglomerate), associated with inward FDI (greenfield and brownfield investments) and aims at understanding their drivers. In doing so, the paper extends the existing literature,



which mainly focuses on the manufacturing sector and, as far as logistics is concerned, mainly investigates horizontal M&A.

Reflecting a global trend, inward FDI are concentrated in the same parent MNE's logistics sub-industry (horizontal integration) and specifically in those sectors that, in the last decade, have been involved in regulation rules' changes (liberalisation of the road passenger transport, courier and postal activities) and which present a high rate of fixed costs (e.g. maritime and air transport). The main drivers of horizontal strategies are found in: increasing and defending market, reaching economies of scale and regulation.

Different determinants can lead vertical integrations but, behind all, the extension of the number of supplied services allow to reach competitive advantages, economies of scale and scope and to cut transaction costs.

As concerns the conglomerate integration, the financial and real estate investors consider logistics, and mainly the higher value-added services, a profitable industry for the capital return; nevertheless, the logistics industry also attracts several manufacturing and energy firms, which aim at improving the efficiency of their products' handling, while maintaining the control over logistics operations. The determinants of conglomerate investments can be found in: reaching economies of scale and transaction costs' decreasing, especially when the integrations are the result of the outsourcing of logistics activities previously carried out within the firm (i.e. manufacturing firms).

The empirical analysis has, nevertheless, showed that the drivers of the investments choices are often multiple and they differ according to the specificity of the analysed sub-industry. In fact, some drivers, which are extremely relevant in some sub-sectors can be not relevant in other sub-sectors. Thus, there is a need for a more detailed investigation with the aid of direct interviews to the investing firms, which might be used to carry out a quantitative analysis (econometric model).

Specifically, further research efforts can be very useful in order to understand whether the following factors drive the integrations strategies: (i) firm specific factors (i.e. size – in terms of number of employees, turnover and value added – and industry of the Italian logistics FDI and their foreign mother IMN); (ii) economic and social characteristics of the Italian NUTS 3 provinces at the year of investment (i.e.; export and import performance – manufacturing goods exported and imported in each NUTS 3 province –; economic performance - value added of the total manufacturing industry in each NUTS 3 province; density – inhabitants per square kilometres at the NUTS 3 province level –); (iii) transport infrastructure quality of the provinces at the year of investment (– i.e. length of railway and motorway networks; intermodal centres capacity; freight volumes moved by the nodal infrastructures (e.g., airports, ports) of each provinces, etc.); (iv) cultural distance between Italy and the foreign investment countries; etc.

To do so, an econometric analysis, by means of a multinomial logit model, might be developed, where the dependent variable takes 0 value in case of horizontal integration, 1 for vertical integration, 2 for conglomerate integration.

This additional analysis might help in drawing some considerations on the impact of inwards FDI on the Italian logistics industry, which might be useful to frame appropriate policies.

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