The impact of Private Equity investments on firms′ supply chain: evidence from 6 Italian cases

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Abstract

Private equity (PE) funds have started looking beyond their original short-term horizon. They have expanded their investment time-frame and gradually moved their focus from exploiting leverage and market timing of the deals to generating structural value in their portfolio companies. The impact of their takeovers has been largely studied in terms of operating and financial performance, but not in the set of action programs implemented in the supply chain (SC). This case-based research provides a first investigation of the SC areas where PE intervene, based on the in-depth analysis of the activities and impacts of six Italian PE funds.

Keywords: supply chain management, private equity, operational impacts, supply chain finance.

Introduction

Over the last decades, private equity (PE) has gained a primary role among the possible ways of business financing. PE firms typically acquire a controlling position in a company and then look to maximize the value by capitalizing the investment over a 3 to 7-year period. The appearance of the first PE deals dates back to the late Seventies in the United States, but the first large wave of PE investments took place in the Eighties. Traditionally, their dominant strategy has been to take over companies and quickly resell them to realize profit from a financial re-engineering process (Davis et al., 2013). In recent years, however, the observed trend is a gradual shift from financial practices (in particular the exploitation of the financial leverage) to other ways of value generation (Cumming et al., 2007). This paradigmatic shift, in conjunction with the growing importance of the PE industry, has attracted more research interest in understanding the value-added activities and firm-level consequences of PE investments. Despite several studies have been conducted on the performance of target companies after PE takeovers (Kaplan, 1989; Guo et al., 2011; Cohn et al., 2014), a systematic analysis of the specific impacts on companies' SC is still missing.

For this reason, the research questions addressed in this study are the following: *which are the initiatives implemented by private equity funds on the supply chain of the acquired companies? Which are their effects?*

This paper uses a case-based approach by taking the PE firms' perspective, focusing on what is typically referred to as expansion capital i.e., investment in firms with good potential rather than firms in financial distress.

The manuscript is organized as follows: a comprehensive examination of the past literature is provided; after that, we explain the methodology and how the interviews have been structured; subsequently the results are presented thanks to a cross-case analysis and the discussion section is carried out. Finally, conclusive reflections and limitations are addressed.

Literature

The PE industry has grown considerably over the last decade. After its fast growth in the Eighties, the recession of the early Nineties caused many of the deals to default. About ten years later, leveraged buyout deals started to rise again, throwing new light on the question of how these deals would generate value (Guo et al., 2011). Accordingly, researchers tend to separate the evolution of PE financing in different waves, characterized by a boom and bust cycle, typical of the current capitalist economies.

During the first wave of PE deals in the Eighties, the focus was on exploiting financial leverage in a limited time horizon, with limited attention put on the company's operations. This is what is referred to as the "financial engineering" approach (Kaplan & Stromberg, 2009). This financial-based approach was perfectly in line with the core competences of the PE firms (Lowenstein, 1985) and used to pay-back very well: significant levels of leverage put pressure on managers to increase efficiency and liquidity (Kaplan & Stromberg, 2009). Furthermore, high levels of debt increase the interest fee payments which are usually tax-deductible, giving the possibility to create a tax shield against the income taxation and lowering the cost of capital of utilizing debt financing (Kaplan, 1989).

However, in recent years, the evolution of the financial environment affected the way PE funds operate. As the access to credit became easier and cheaper at the beginning of the twenty-first century, more players in the market were able to apply the principles of financial engineering and consequently the competition of the market increased (Kaplan & Strömberg, 2009). Although financial engineering remained an important way to realize profit for PE funds, the "buy low, sell high" approach saw its strategic importance decreased in favor of a broader approach. This included in the scope of the PE intervention not only the actions taken in order to align the objectives of shareholders and managers ("governance engineering"), but also the actions that could affect the supply chain and the operations ("operational engineering") (Alvarez & Jenkins, 2007).

Despite this strategic change, most of the research has been mainly conducted only on the analysis of the economical performances brought by the PE firms to the target companies. Early papers investigated the effects on value creation by analyzing performances on individual cases (Baker and Wruck, 1989). Kaplan (1989) and Opler (1992) found positive impacts of the intervention of a PE firm during the first wave of deals. Recent studies of the second wave of PE transactions have been more cautious about the post-buyout performances of PE-backed deals. Guo et al. (2011) found no significant gain in high-level operational performance compared to other companies of the same sector. Cohn et al. (2013) found little evidence of operating improvements subsequent to a leveraged buyout. Other researchers studied how the different characteristics of the PE funds impacted the performances of the controlled firms (Acharya et al., 2013). More recent studies are still cautious about performance of treated companies following the intervention of PE funds (Hung et al., 2017; Braun et al., 2017; Cornelli et al., 2016).

Conversely, only few studies have focused their attention on the operational performance and improvement programs that PE firms undertake in managing the firms they have invested in. For example, PE partners may bring inside the company a new set of knowledge or business attitude that the previous owners were not able to provide. This may boost the SC performance of target companies redefining key determinants such as target markets, portfolio products, pricing strategy, product quality, customer service, and distribution channels (Berg & Gottschalg, 2004). These interventions may have even more radical effects on target companies' SC, regarding the possibility of divesting, selling or outsourcing segments of the operations that are not profitable or not aligned with the improvement plans set up by the PE fund (Seth & Easterwood, 1993). Recently, a quantitative research analyzed in a comprehensive way the actions that PE managers say they take of both financial and operative practices but without an analysis of the SC areas of intervention (Gompers et al. 2016). Very few researches explicitly cite operational guidelines with which to intervene on target companies (Brigl et al., 2012; Mullin and Panas, 2014).

Still, a systematic analysis of the actions of PE and operational improvement programs is missing. Additionally, the literature in operations and supply chain management has recently broadened its interest towards finance, e.g. in supply chain finance research (Pfohl & Gomm, 2009). This stream of research has so far considered the optimal ways to finance the SC, but has neglected the impact that PE can have on it.

Methodology

As explained above, PE funds aim to create value in their portfolio company thanks to financial, governance and operational practices; our aim is to obtain specific findings about the third type of intervention. Since the PE industry embraces different types of investment (e.g., early stage financing, expansion capital, replacement capital, turnaround financing), in this paper we focus our analysis on PE funds investing in established manufacturing companies, and precisely on what is typically referred to as *expansion capital*. We did not take into consideration alternative forms of private equity focusing on early-stage investments, such as venture capitalists.

By using a case-study methodology, we have analyzed six PE funds based in Italy, mainly through interviews with key managerial roles (CEOs, senior partners, junior partners, associates). The considered funds are all Italian investment firms, but, in some cases, they are part of a wider international network. Although we wanted to ensure heterogeneity in our sample, all the funds included in our research needed to satisfy some specific characteristics in order to make a comparison possible between the different cases. The interviewed PE funds are identified as generalist funds, since they are not focused on any specific industrial sector. Furthermore, the initial sample of 8 PE firms was reduced to 6 firms because two of them performed only minority position investments in the target companies (i.e., they do not take full control of the company).

The main characteristics of the interviewed PE funds are reported in Table 1.

Table 1: PE funds' characteristics

	Fund 1	Fund 2	Fund 3	Fund 4	Fund 5	Fund 6
Nationality	ITA/CH	ITA	ITA	ITA	ITA/CHN	ITA
Total managed capital	250 M€	250 M€	70 M€	50 M€	200 M€	500 M€
Average Investment Size	5-20 M€	10-25 M€	10-30 M€	3-8 M€	20-50 M€	10-50 M€
Average Time Horizon of the Investment	3-5 years (up to 7 in case of build-up)	3-7 years	5-7 years	3-5 years	3-5 years	3-5 years
Annual Turnover range of Target Companies	20-250 M€	50-300 M€	25-150 M€	15-50 M€	40-300 M€	60-100 M€

A within-case analysis and a cross-case analysis have been performed. All the interviews were based on an interview protocol previously prepared where specific attention has been devoted to sourcing, manufacturing, administration & finance and distribution. In order to try to reduce the possible social desirability bias, we specified them that no personal details would be collected by the interviewers, and that the results would be shared in an aggregate form with an anonymous indication.

All the information collected were gathered with face-to-face interviews that generally lasted between 60 and 90 minutes. We met different figures within each fund: senior analysts, investment managers, partners and senior partners. We explicitly asked the respondent to register the conversation, despite we supplemented it by an exhaustive note-taking. Passages or questions that remained unclear after the interviews were subsequently clarified by a further telephone interview or by an e-mail discussion. In addition, we supported the interviews with additional sources for triangulation purposes (Jick, 1979) such as: a] websites of the PE firms, b] other publicly available statistics about the PE firms and c] additional material given directly by the respondents (brochures, reports, press releases, etc.)

Findings

We analyze the most relevant elements in terms of similarities and differences across the six highlighted cases. The objective of our cross-case comparison is to provide an aggregated outline of the information gathered that helps the development of further reliable findings. The first set of questions, in anticipation to the main body of analysis, was related to the pre-investment analysis. PE funds were asked to indicate which financial indicators were the most considered when deciding to invest in a company; results show the EBITDA grow prospect, the cash flow generation ability and the turnover growth to be the most considered drivers. It was noted how financial indicators have an absolutely higher importance compared to non-financial indicators, at least in a due diligence phase.

Next, the focus is on which are the areas of the SC that are analyzed and modified, and which are the specific operational changes over the SC implemented by the funds. Respondents were asked to give a score to the degree of intervention that PE firms perform in each business area, ranging the magnitude of intervention from 1, minimum, to 5, maximum (Figure 1).

SC areas	1	2	3	4	5
	Five star rating				
Inventory / Working capital management	★	★	★	★	⯪
Financial structure	★	★	★	★	⯪
Sales & Marketing	★	★	★	★	☆
Information Technology (IT)	★	★	★	⯪	☆
Human Resources (HR)	★	★	★	☆	☆
Procurement	★	★	★	☆	☆
Manufacturing Processes	★	★	☆	☆	☆

Figure 1: Magnitude of intervention on each Business Area

The first important consideration is that the working capital management and the financial structure are the two areas where PE funds focus more their intervention. The ability to control the working capital management is “a fundamental aspect to have a greater profitability on the invested capital” and its importance has been highlighted by all the interviewed funds; the strong intervention over the financial structure is a logical implication of the use of financial leverage and other financial practices. On the other hand, the lowest importance was assigned to changes in the manufacturing area.

Different operational factors emerged during the interviews. In the following, we focus on the specific aspects connected with the operations of the target firms, analyzing the interventions that PE funds perform in their improvement programs. For each area some key determinants or key decisions related to SC management are investigated.

- Inventory. Three determinants were analyzed: the level of inventory, the service level provided and the placing of the Customer Order Decoupling Point (CODP). The majority of respondents underlined the fact that they try to reduce the level of inventory to increase the efficiency of the production process, but this does not happen in the very first period after the buyout (see the “Working capital timeline” later). In addition, regarding the changes produced on the service level, the answers from PE firms were divergent: in some cases, the exponential increase in the complexity and the costs for a higher service level or previous agreements with the customers leave to the PE investors less freedom of possible intervention over this determinant. Finally, all PE firms reported how the CODP is rarely modified during the investment period, since a modification of the CODP involves a complete restructuring of the production process. Interestingly, two interviewed PE firms directly reported that they discard investment opportunities if the target firm involved is working with an Engineer-to-order approach because of the lack of standardization and scalability of the business hampering quick growth prospects.
- Sales & Marketing. Most of the PE firms interviewed reported that their intention is to attract new customers, investing resources in marketing and commercial initiatives, in order to sustain the growth process with an increase in the sales level. Almost the totality of the PE firms stated that the expansion in foreign markets is an interesting prospect for the growth program of target companies. For sure, the benefits derived from an international expansion can regard the increasing in the level of sales, generated by the landing in new markets. Moreover, this expansion can also have less tangible effects, such

as the better appeal that the target firm can have in the exit phase, being it transformed from a national to an international company. This trend is more clear within PE funds investing in larger companies, probably due to the fact that for small companies a significant growth in the national market is already enough for their investment requirements.

- Information technology (IT). The importance of IT comes most of all from the analysis of PE funds which deal with SMEs. Especially in small enterprises (usually family firms managed with a non-managerial style) the PE intervention strongly stimulates the implementation of an ERP information systems that allows to improve the standardization of the operations with benefits in the planning, control and cost reduction. Instead, intervention in IT operations within larger and more structured companies is less significant.
- Human resources. Most of the funds introduce a Supply Chain Manager, who usually oversees procurement and manufacturing activities and collaborates with the Sales department, following the principles of the Sales and Operations Planning (S&OP) approach even if, often, there is no formal S&OP process.
- Procurement. Significant changes involve the sourcing process; the analysis highlights in particular two common trends, namely a shift towards a global sourcing and to portfolio-oriented approaches. The internationalization aspect is considerably important in the PE firm perspective; especially in the case of international funds, thanks to well-established network, the PE firm can foster the internationalization process of target firms finding foreign suppliers, but also facilitate the landing of the company in foreign markets. Regarding the choice between single and multiple sourcing, all the interviewees agreed on the fact that the best strategy for the firm is to implement a multiple sourcing approach, especially if the previous management used to work with single supplier and no alternatives in case of SC disruptions. These two trends testify how the approach of PE funds is to push towards a model that can be scalable even in a secondary buyout (and so more likely to have a higher sale valuation).
- Manufacturing Department. The lowest score from the interviews was assigned to the manufacturing process area. This has been explained by the interaction of multiple factors. First, the manufacturing department is considered the department which implies highest costs if restructured; apart from that, deeply intervening on the production lines means to radically alter the nature of the company itself. Second, PE partners usually don't have the technical competences and expertise to affect the day-by-day operations. Third, all the respondents agreed on the fact that in the majority of the companies the adoption of practices of lean production had already been implemented, since it is a necessary condition for the success of a company. Instead, a discrete interest on the manufacturing department is given when principles of Industry 4.0 can be implemented; in these situations, the interventions imply a modernization of the company, in accordance with the principle of a potential higher evaluation of it on the secondary market.
- Other determinants. Other two interesting determinants that have cross-sectional relationships with a plurality of SC areas are: the eventual variations in the number of facilities and the managerial perspective.

Concerning the number of facilities in the company portfolio, the answer varies among the different PE firms according to the specific situations that they had to face. The number of factories can increase to sustain the growth of the target firm, in particular, if an acquisition is implemented. Again, various respondents answered that, unlike what usually happens in restructuring or turnaround investments, it's rare that the number of plants decrease in a perspective of rationalization, since target firms are usually established and healthy companies. As a consequence, decisions about the localization and the geographical re-distribution of manufacturing plants are rarely implemented and/or interest only the sales offices' localization, in order for them to be closer to hypothetical new target markets.

For what regards the managerial perspective, it is important to discuss the interaction between the PE managers and the management team of the target firms, which is usually in charge of the operations and supply chain management. As a matter of fact, PE firms lack of a specialized knowledge of the manufacturing activities.

Hence, PE firms usually delegate operational decisions to the managers, even if PE managers may change partially or entirely the management team in charge of the operations for a number reasons, such as the lack of managerial expertise in the previous management team. In this scenario, the result of the PE intervention is to increase the skills and knowledge in the Operations of the company.

However, in several instances, the management team of the company is not changed at all, especially at the Operational level (i.e., only the CEO and CFO are substituted). This is because the target companies have solid bases in manufacturing (e.g., very high quality of their products), but they lack the scale. In this case, the result of the PE intervention is to enable the company to fully exploit its potential.

Timeline of investments

The interviews revealed the presence of a precise investment timeline regarding the interventions on the working capital management within the three to seven-year period in which the funds keep a firm in their portfolio (Figure 2). Almost the totality of the funds reported that there is a crucial attention towards this aspect, since it directly affects the ability of the target companies to generate cash flow, key determinant in all the leveraged buyouts operations.

We were able to identify three different phases regarding the working capital management in the lifecycle of the investment by a PE fund. In the first phase (right after the takeover) the working capital of the acquired company is usually quite low; this can happen for different reasons, for instance it can be a consequence of temporary vicissitudes inside the company, or it may result from a specific decision of the previous owner, that voluntarily slowed down the operations in anticipation of the change of ownership (e.g., reducing the level of inventories). This situation is not appropriate for the investment strategy of the private equity funds, usually focused on value creation and on a growth strategy. Accordingly, the PE fund introduces resources into the company in order to re-boost its operations. This intervention brings back the working capital to the regular level or even to a higher level compared to its standard. Despite this decision seems to bring the company towards an inefficient management, it is due to the fact that in the first period after the acquisition, the focus is on increasing the amount of sales, which is the essential precondition to have an organic growth. Finally, the last phase of this working capital cycle takes place in the second half of the investment period; in this phase, after that the sales expansion has reached an exhaustive level, the strategy of the fund focuses on the efficiency of internal operations, aiming to reduce production costs, so as to increase the marginality of sales. As a consequence, the working capital amount will decrease again reaching an optimal level.

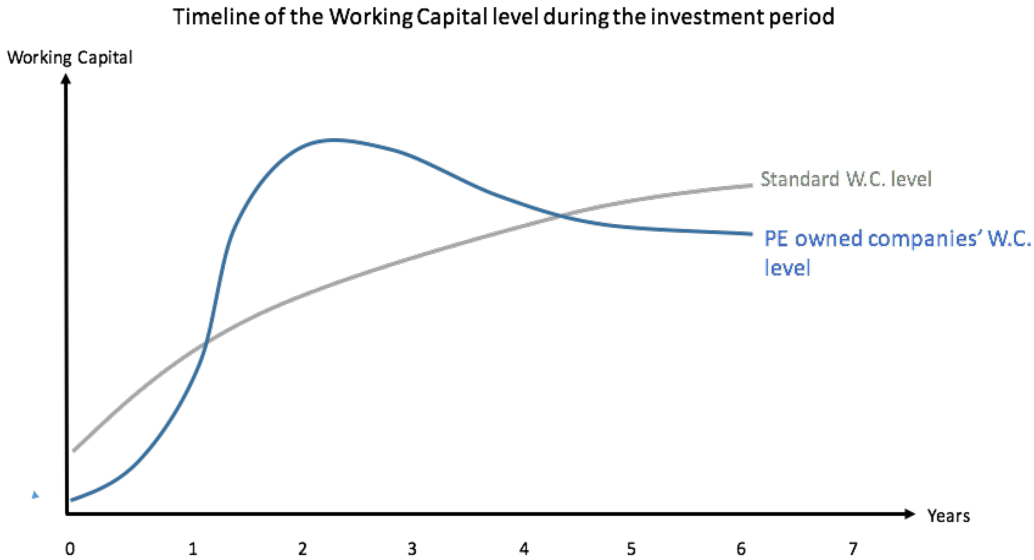

Figure 2: Timeline of the working capital level

Contribution

Our study examines the intervention that PE firms perform over the SC chain of target companies by focusing on the internal perspective of PE firms themselves. We strengthen the connection between the financial and the operational practices, in line with the growing interest that the literature in operations and supply chain management has recently dedicated to financial aspects (e.g., supply chain finance research). Our results provide evidence of the significance of the operational engineering approach, by highlighting the growing importance that interventions in the SC have in the value-creation process. Specifically, the study identifies the areas in which PE managers intervene more frequently, analyzing in detail each SC area, and describes the specific decisions they take.

This preliminary analysis shows some important results. First, over the first two years after the takeover, there is a strong enlargement in the scope of the operations of acquired companies, by entering into new markets or expanding in the existing ones. This has important implications for the whole SC, from purchasing to sales and distribution, and it is usually sustained by introducing a SC manager that oversees the full extent of the operations. Second, the focus is usually on the organization and coordination. The production technologies usually remain the same to avoid excessive investments, except in few cases in which PE funds introduced automation in line with the Industry 4.0 paradigm. Third, further significant changes involve the sourcing process: the analysis highlights a shift towards a global sourcing and portfolio-oriented approaches. Lastly, and contrarily to what expected, the evolution of the working capital level in the target firms does not present a regular trend, but follows a more articulated path: after the first two years, the focus shifts into making the SC more efficient by gradually reducing the working capital to make the company ready to be sold, typically to other institutional investors or to larger industrial groups.

Limitations and further research

The boundaries of our research naturally imply several limitations. First, the analysis is performed by taking into consideration only the PE firm's perspective. Second, we focus our analysis exclusively on the Italian context, including in the sample Italian PE funds or international funds operating in Italy. A third limitation regards the broad variance of the company size in the portfolio of the selected PE funds (the annual turnover of the target companies from 15-20 M€ to 300-400 M€); this has been a voluntary choice that allowed us to manage a more heterogeneous sample, according to the exploratory approach used.

Aware of these limitations, our analysis is intended as the groundwork for future studies. Possible future expansions might regard the study of the operational procedures implemented by the PE funds from the company's perspective. Quantitative research might be performed as well to test our findings.

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