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**Analysing global private equity transactions:
differences between first-time and second-time buyouts**

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PREFACE AND ACKNOWLEDGEMENTS

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ABSTRACT

This paper analyses the influence of Leveraged Buyouts (LBOs) and Secondary Buyouts (SBOs) on operating performance of private equity portfolio companies. Comparing with first holders, second ones create almost no effect on their targets. However, they increase significantly absolute values of operating indicators. It is assumed, that second Private Equity (PE) investors apply Buy-and-Build (B&B) strategies in SBOs and get their returns via business scaling, since SBO targets were found as the active acquirers.

Keywords:

Private equity, Primary Buyout, Secondary Buyout

JEL Classification:

G24, G32, G34

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CHAPTER 1 Introduction

Private Equity (PE) funds are one of the most active investors. The PE fund is involved in the operational functioning of portfolio companies with the goal of increasing their value via operational improvements and different instruments such as high leverage, performance pay and monitoring (Jensen, 1989). The differences between the influence of first-time buyouts and second-time buyouts (SBO) are slightly covered by existing literature, however the growing number of SBO deals last years assumes the more research need to be done in this field.

The increased competition in the PE market and the growing maturity of the PE market have resulted in decreased persistency in returns for PE fund managers (Braun, Jenkinson, and Stoff, 2015). One result of this change is the trend towards secondary buyouts (SBOs). In the most general way, a SBO is a buyout in which one PE firm sells its portfolio company to another PE firm. If the seller in a PE deal is not a PE firm, e.g. government or other stakeholders, the deal is called primary buyout (PBO). SBOs have received a great deal of attention in recent years, since it is the most rapidly growing segment in the industry of PE (Arcot, Fluck, Gaspar, and Hege, 2015) and already accounts for over 60% of all buyout activity (Bonini, 2015).

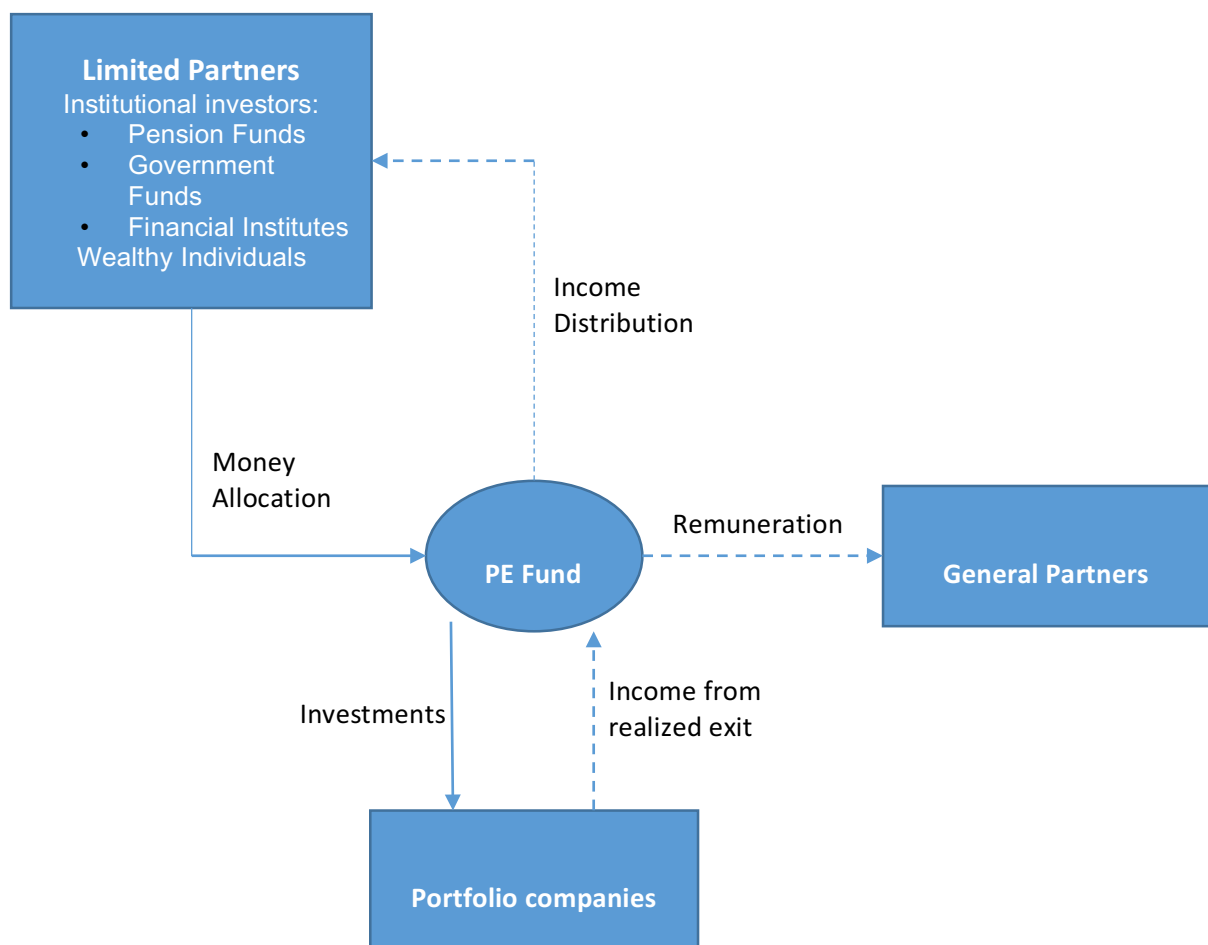
An increasing number of LBO deals over the last decades has created a unique market of secondary buyouts. A secondary buyout (SBO) is a leveraged buyout where the private equity sponsor, who had previously taken control of a target through an LBO, sells the target firm to another private equity firm or to a financial sponsor, instead of selling it back to the public market (Yingdi Wang, 2012). Historically, SBOs were observed as distressed deals, as successful transactions would be realized through a trade sale to strategic investor or Initial Public Offering (IPO). However, there should be a clear explanation for the positive trend on the SBO market. According to the report of PwC, the SBO market increased by 45% in value and 5% in volume in 2015. It accounts for 285 deals with the total value of 56,7bn Euros.

The main concern for secondary buyouts is that such deals don't create value and private equity investors don't improve operational performance of SBO targets. Given that PE market is extremely large and has a great influence on modern economy, it is highly important to find an empirical explanation for the growing share of SBO activity and check arisen concerns about PE influence on portfolio companies in secondary buyouts on the data of recent years.

Before moving to the ongoing debates in the literature, it is necessary to understand how private equity firms interact with portfolio companies and influence on their performance. As

mentioned in numerous reports, PE firms usually focus on private companies, which have sufficient reserves for the future value growth and rich opportunities for potential exits. General partners (GPs) are responsible for invested money, which comes from Limited partners (LPs), where LPs are usually represented by institutional investors, funds of funds and wealthy individuals. Remuneration of GPs is highly dependent on its performance. This form of interaction gives strong restrictions for agency conflicts and motivates fund managers to increase quality and returns of the managed portfolio. The scheme of PE firm operational functioning is presented below:

Figure 1. Operational model of PE fund



The investment cycle usually consists of 4 stages:

1. Company selection
2. Share purchase
3. Managing the company
4. Exit

This research is focused on stage 3 and 4. Managing the company doesn't assume daily interactions with the portfolio firm (Klein, Chapman & Mondelli, 2013). Hoskisson et al. (2013) connect the participation in the portfolio company's life with three activities. First, it is the developing of a strong strategy. Second, private equity investors aimed to increase the bargaining power by established connections and experience in a particular industry. And third, they include PE firm's representatives to the board of directors of the portfolio company. Overall, private equity firms have a limited set of tools for influencing the target's operational performance and value creation. The last could be divided into three levels: Financial-, governance-, and operational- engineering with all of the three sources providing an effect on the performance of the portfolio company (Freelink & Volosovych, 2012).

A large number of researches have examined and proved the value creation effects of first-time buyouts, which were supported by improvements in operational performance and efficiency of portfolio companies held by PE firms (Kaplan, 1989a; Smith, 1990; Guo et al., 2011). However, it is not clear what is going on with arising effects in secondary buyouts. As mentioned before, currently we observe a paradox – a high frequency of SBOs has been accompanied with enormous criticism. Researchers defend their position by explanation of limited potential for value creation in secondary buyouts as the first-time buyers (Private Equity firms) have realized the basic improvements and received major available benefits and leave only difficult and less valuable solutions for secondary holders (Achleitner and Figge, 2012). As mentioned by Freelink and Volosovych (2012), another possible problem is an excessive risk, which arises while exploiting highly levered strategy. And finally, future returns for secondary holders can be harmed by non-direct costs, such as timing and negotiating (Achleitner and Figge, 2012). To finalize the criticism point, the quote from one of the articles provided below:

“(...) After all, since a goal of private equity firms is to trim costs from their companies before selling them, how much more fat can a second private equity owner cut? Secondary buyouts feed the criticism that private equity firms are more focused on fees and financial engineering than operational improvements” (Flaherty and Davies, 2007).

With the goal of analyzing the differences between the influence of first-time buyouts and second-time buyouts, this paper contributes to the current literature in several ways. First, it will add new research to a topic that has been rarely analyzed, and if it is proven with significance that secondary buyouts are in fact less successful, it may induce greater thinking

in private equity exit strategies, such as private equity portfolio firms considering management buyouts as a more efficient exit strategy for both current and future shareholders. Secondly, I try to capture changes in PE firms' holding strategy in LBO and SBO deals – according to the report of Credit Suisse, last years, private equity firms tend to focus on receiving returns from operational improvements rather than reaping financial tax advantages from high leverage. To check whether it is true or not, I analyze changes in operating indicators before and after buyouts.

Comparing with US companies, European firms have relatively stringent disclosure requirements (Bonini, 2012). Accordingly, for this research I collect data on first-time buyouts and SBOs in the European market from the Zephyr database which is published by Bureau van Dijk. This sample contains of 289 first-time buyouts and 289 SBO transactions, which were made in the period 2006-2016.

The objective of this paper is to investigate the differences between the influence of first-time and second-time buyouts and understand whether secondary buyout transactions are as successful in increasing operational efficiency as significantly as a first-time buyout or not.

Using several statistical approaches, I find that second private equity holders do not improve operational efficiency of their targets and moreover they slightly destroy Asset Turnover ratio. However, SBOs significantly increase absolute values of operating cash flow indicators, such as Revenue, EBITDA and EBIT. To understand the logic of SBO, I try to find an answer in application of B&B strategies in secondary buyouts. Analysis of 70 companies show, that SBO targets are actively used as platforms for subsequent acquisitions. Probably it is a way of getting the required returns in SBO transactions by the private equity investors, since a number of empirical studies provide an evidence of receiving similar return on investment (ROI) in SBO transactions as in PBOs.

The paper organized as follows. The second chapter is based on the review of literature and discusses agency approach and the role of Private Equity firms, their influence on portfolio companies and ends by describing motivations for SBOs. Chapter 3 presents the data and introduces research hypotheses and methodology for checking these assumptions. Chapter 4 examines results of this research, and chapter 5 concludes.

CHAPTER 2 Literature review

The literature review in this paper could be roughly divided into two parts. First, these are research papers with the theoretical focus on the value creation by PE firms or how they are able to create value via improvements in operational efficiency of their portfolio companies and second, empirical studies with attempts of finding differences in operational improvements between PBOs and SBOs. Finally, it has the following structure:

1. Agency approach and role of Private Equity firms
2. Entrepreneurial and resource based approach
3. Hypotheses of long run and short run effects
4. Motivation for leveraged buyouts
5. Motivation for secondary buyouts
6. Influence on operating performance

2.1 Agency approach and role of Private Equity firms

It is widely assumed that PE involvement allows to cut agency costs (Cumming, Siegal and Wright, 2007). In contrast to founders, fund managers are able to cope better with the task of increasing operational efficiency and decreasing opportunistic behavior in portfolio companies. Hoskisson et al. (2013) define 3 government mechanisms for solving these tasks:

1. Clear motivation plans for managers such as stock options or income connected remuneration. It allows to decrease CEOs' opportunistic behavior and motivate them to increase operational performance (Jensen, 1986).
2. High leverage. In such scenarios managers are responsible for debt service and therefore they are not able to waste money on private benefits.
3. Direct control of target managers in long-term period (Nikoskelainen & Wright, 2007). It assumes the coordination of strategic decisions within a period of holding the portfolio company by PE firm.

Agency-theoretic researches mainly have a focus on short-term influence on operating performance. However, empirical papers study the whole holding periods or even plus several years after the PE exit. In some papers it was mentioned that private equity funds influence performance negatively over long-term periods because of the "short-term thinking", which results in strategic inflexibility and inability to compete in the future (Bacon, Wright & Meuleman, 2013). Being under the pressure of debt within the PE firm, CEOs of portfolio companies are faced with necessity of increasing short-term financial efficiency at the expense

of future opportunities to compete (Klein et al., 2013). However, in a paper of Wright et al. (1995) it was found that PE involvement does not have a negative effect in the long-term and the results of ex-portfolio companies are significantly better than results of their peers. Moreover, recent research of Wilson, Wright, Siegel and Scholes (2012) has confirmed that operational efficiency of PE portfolio companies is higher even in recession periods.

2.2 Entrepreneurial and resource based approach

As it was mentioned before, researchers give a lot of attention to agency theories in PE deals. However, there is a number of papers with an opposite view, which criticize the agency approach. Focus on agency theory and opportunistic behavior gives a pessimistic view and rejects growth potentials, inherent to PE transactions (Meuleman et al., 2009; Wright, Hoskisson and Busenitz, 2001). As an example, Wright, Robbie and Albrighton (2000) consider the share purchase by PE funds as a source of strategic growth and entrepreneurial refreshment. This idea was proved in the empirical research of Meuleman (2009), which was based on LBO transactions.

It is possible to make a connection between entrepreneurial activity and R&D spending. If we assume, that portfolio companies should gradually grow on competitive markets, then it is almost necessary for them to increase their costs on research and development, especially in pharma or IT industries. Thus, R&D costs and PE involvement should have a strong correlation. Ughetto (2010) found a positive trend in R&D costs for PE portfolio companies – comparing with peers, their portfolio companies tend to spend more on R&D and create significantly more patents. Thus, scholars give an empirical support to the idea, which explains a growing level of entrepreneurial activity and innovational development by PE involvement.

The resource-based view was introduced by Barney (2001) and Peteraf and Barney (2003). According to this approach, company's operational performance and ability to build competitive advantage depends on financial resources (Mahoney, 2001). Therefore, even if we will find an extremely well-debugged and effective company in terms of corporate governance, it is not necessary that this company will increase its operational results in case of the lack of strategic resources. Indeed, small companies or parts of large conglomerates are faced with the lack of resources, required for growth and improvements (Dawson, 2011). In such cases, well established firms like Philips have created their own inside PE firm to incentivize entrepreneurial spirit.

The financial support from private equity firms covers the financial gap, which is so necessary for potential targets. This support significantly differs from bank debt or public offering, since PE firms provide their portfolio companies not only with money, but also with strategic knowledge, reputation and professional connections.

2.3 Hypotheses of long-term and short-term effects

There exist a lot of doubts about the long-term effect on portfolio companies after the PE exit. According to the hypothesis of long-term added value, the positive effect from private equity holding retains even after the fund's exit (Levis, 2011). On the one hand, as it was discussed in entrepreneurial and resource based approach part, support of private equity firms creates competitive advantages and form a sustainable market position for portfolio companies. They become more efficient and professionally organized (Hellman & Puri, 2002) and it has a long-term influence on their future life-cycles.

On the other hand, hypothesis of short-term value-added effect assumes that private equity investors intend to maximize only their own utility function within a holding period and therefore they create a negative effect for target's future performance. From the theoretical point of view, both hypotheses are correct. Trying to understand this dilemma, researchers such as Wang et al. (2003) and Coakley et al. (2007) have received mixed results.

To figure out the correct answer, Belghitar and Dixon (2012) divide empirical papers on two methodologies. First, it is an analysis of short-term (underpricing) and long-term (cumulative abnormal returns and buy and hold returns) indicators of portfolio companies, which were realized through the IPO. The second approach is focused on indicators of operational efficiency, such as ROA, ROE, ROI and EBITDA. This paper is based on the second approach and I describe the methodology of such analysis in the next part.

Also, results depend on the geography of the research. As an example, the European market, or Italian particularly, functions differently from Anglo-Saxon model. Viviani et al. (2008) study IPO results of ex-portfolio companies and show that Italian companies demonstrate lower market efficiency comparing with their peers. However, IPO exit scenario is a rare case and it is difficult to apply these results to the whole sample of PE deals.

2.4 Motivation for secondary buyouts

Overall, Kaplan & Stromberg (2007) construct three main explanations of levered transactions: value transferring, mispricing and value creation. However, SBO deals have their own specific explanation and Wang (2012) describes three other main motivations for SBOs: efficiency

gains, liquidity-based market timing and collusion.

- Efficiency gains

In papers of Jensen (1989), Kaplan (1989) and Acharya et al. (2010), efficiency gains are defined as the creation of value via to operational improvements, adjusted governance and effect of the high leverage. Despite the idea that first buyers realize most of the possible value creation opportunities, there is no reason to say that first holders leave no room for further improvements for second buyers. Simply speaking, PE firms have different value creation strategies. Some of them focus on cost optimization or product modernization, while others work with market expansion.

- Market timing

It is important to understand that the equity market can be “cold” and “hot”. Alti (2006) classifies markets as “hot”, “cold” and “neutral” depending on the number of IPOs during the month. Opposite to “cold”, in “hot” markets firms issue more equity. An exit from the portfolio company is more problematic for the PE firm during the cold market, since the exit opportunities are significantly limited. Thereby, it makes an exit through the SBO more probable in times of the “cold” market (Cao, 2011).

- Collusion

The last motivation for secondary buyouts is connected with the collusion motive, which implies that the SBO deal is the result of collusion between the private equity firms.

It is easy to understand that private equity investors exploit arbitrage opportunities and get returns using their access to cheap debt financing, which transfers in high debt ratios of portfolio companies. The main challenge for the PE firm is to enter the target company at the low price and exit at the high. It demonstrates how PE investors make returns on invested capital. From the private equity perspective, it is the true measure of fund’s performance. The PE industry mainly rely on the indicator of “internal rate of return” (IRR), however it is widely criticized to do so. Appelbaum and Batt (2016) offer to use a “Public Market Equivalent” (PME) as the metric for measuring PE performance:

“(…). This measure compares returns from investing in private equity with returns from comparable, and comparably timed, investments in the stock market, as measured by the S&P 500 or other stock market indexes”. (Appelbaum and Batt, 2016)

According to Bain & Company's Global Private Equity Report (2016), European buyout funds underperform the MSCI Europe index over one-year period, however surpass it over the horizon of 3 and more years. Entering at the low price, PE firms demonstrate a clear mispricing. It occurs when they exploit the informational asymmetry between target's management and first-time investors, what results in discounts to fair value. In secondary buyouts this task is almost impossible as first-time PE buyers should be unlikely to sell the portfolio company with the large discount to fair price. Market-timing opportunities also miss here because of the first PE investors' exit optimization, except situations, when they are under the pressure of fund's life-time and responsible to pay out limited partners.

Thus, the first PE investors leave a very limited number of opportunities for secondary financial intermediaries. However, ex-portfolio companies have a worthy track record as they already know how to work with a high leverage, how to communicate with private equity investors and finally, their monitoring and governance systems have already been established.

2.5 Influence on operating performance. Differences between first-time and second-time buyouts

To understand, whether PE firms have an influence on portfolio companies in secondary buyouts and whether this influence differs from the first-time buyouts, this paper provides an analysis of several indicators, which are described in this part.

It is easy to understand the influence of PE firm on their portfolio companies, however there are some troubles in capturing such effects. In other words, I define several indicators which allow to measure the differences in operating performance. Based on existing literature, it is possible to use the following indicators:

- Stock prices

Key papers in studying the relation between stock prices and involvements of PE firms were published by DeAngelo (1984) and Kaplan (1989). Results show that stock prices of a particular company increase after penetration of news about buying its shares by a PE firm. It is probably a signal for investors, which start to expect improvements in operational efficiency. Particularly good example here is the fake news about the acquisition of "Avon" by PTG Capital Partners in 2015. As a result, stock prices soared by 20%. In case of "Public to Private" deal, when the target company is listed on the stock exchange, investors' confidence in efficiency of PE funds creates problems, related to market manipulations via generation of fake news by interested parties.

- Accounting indicators

Kaplan (1989) and Desbrierers & Schatt (2002) based their results regarding operational performance focusing on following indicators: relation of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) to Sales, Net Cash Flow (NCF) to Sales, Return on Equity (ROE) and Return on Investment (ROI). They found that normalized numbers of EBITDA and NCF for portfolio companies are higher than averages in industry. Moreover, return analysis showed that portfolio companies are more effective than their market competitors.

- Productivity factors

The main instruments in this approach are Total Factor Productivity (TFP) methodology and Data Envelopment Analysis (DEA) methodology. Using this approach, authors of several papers found the confirmation of the hypothesis about improvements in operational efficiency after the LBO deals (Lichtenberg, 1990; Harris, 2005; Amess, 2003; Wilson, 2012; Alperovych, 2013).

A small number of papers has been dedicated to research regarding the differences between the effects of first-time buyouts and SBOs on the target firm's operating performance. Moreover, results of these studies show mixed outcomes – some of them find an empirical evidence of value creation and operational improvement of portfolio companies in SBOs, others find that second holders do not improve operational efficiency of their targets or even worsen it in some scenarios.

Kitzmann and Schiereck (2009) argue that SBOs have a potential for value creation and operational optimization, which comes from the agency costs cutting or the functions of financial sponsors. The paper of Achleitner and Figge (2014) support their findings. They analyse 2456 buyouts and do not find an evidence of the value destruction or an absence of operational improvement potentials in secondary buyouts. To check the hypotheses, they analyze three ways of value creation: leverage, operating performance and pricing. Evers and Hege (2012) assume that the value creation potential cannot be realized fully in PBO and it leaves a room for further improvements to secondary holders. They separate the roles of first and second investors – in PBOs they are more focused on sales grow, while in SBOs investors improve operational margins.

Wang (2012) in his paper found mixed results. An analysis of operating cash flow indicators signals that SBOs generate higher EBITDA or EBITDA/fixed assets levels than first-time LBOs,

however the profitability ratios show insignificant differences between them. Freelink and Volosovych (2012) find that second private equity holders get significant returns in SBO transactions, however they don't improve the operational performance of their targets and in some case even worsen it. Authors also find that SBO deals have a higher post-buyout leverage (73%) and shorter holding period. Bonini (2015) compares the performance of SBO targets with their peers and finds no evidence of abnormal performance. However, the comparison of SBOs with LBOs shows that first buyers have a significant and larger influence on operating performance of portfolio companies.

Overall, it is possible to summarize the characteristics of companies and private equity deals, which were employed for the analysis in observed papers:

Table 1. Characteristics of companies and PE deals

Deal Characteristic (Conceptual)	Measurement	Who Uses
<i>Size measures</i>		
	Fixed assets	Wang (2012); Bonini (2015)
	Sales	
<i>Operating performance measures</i>		
Operating cash flow	EBITDA	Wang (2012);
	EBITDA/Sales	Kaplan (1989);
	EBITDA/Fixed Assets	Wang (2012);
	EBIT/Sales	Bonini (2015)
Profitability ratios	Earnings/Sales	Kaplan (1989); Desbrierers (2002); Bonini (2015); Freelink & Volosovych (2012)
	NCF/Sales	
	ROA	
	ROI	
	ROE	
	ROS	
	Sales/Economic Assets	
	Stock prices	Moskowitz & Vissing-Jorgensen (2002) Phalippou & Zollo (2005)
<i>Leverage Measures</i>		
	Debt/EBITDA	Axelson, Jenkinson, Stromberg and Weisbach (2013)
	Debt/EV	

2.6 Buy-and-Build strategies

The results of exciting papers rise a concern regarding the logic of SBO transactions. If second holders do not improve the performance of their targets, how do they generate substantial ROI? It opens another cluster of literature, which is dedicated to B&B strategies in SBO transactions.

To increase the portfolio company's value and realize a faster exit, PE investors interested in acquisitions of small companies in the same sector (Porter, 2010). Fabozzi (2002) defines buy-and-build (B&B) strategy as a primary company purchase, which is assumed to be a platform for the following subsequent acquisitions. Borell & Heger (2013) find that PE firms use B&B strategy to allocate resources more efficiently via transferring them from firms with excess capacity to firm with extremely low capacity, which have a higher utilization, measured as Asset Turnover (ATO). However, these results can be proved only in the "large data-window" research with control variable on acquisitions. Fremlink and Volosovych (2012) compute the returns to financial sponsors in SBO transactions and find the significant median return of 44%. The highest return was achieved by the tertiary PE sale. It is the situation, when the company, which was acquired in SBO gets sold to the third PE firm. In such deals private equity buyer usually holds a portfolio of companies within the one sector. It gives evidence for a value creating B&B strategy, which assumes the creation of significant synergies via the merge of these firms into the one group (Fremlink and Volosovych, 2012).

Thus, B&B strategy is an instrument for the fast value creation and a channel for getting the required returns on PE investments.

Based on this literature review we receive the general understanding of private equity mechanisms, how such investors create value and influence on portfolio companies. Focusing on above described indicators, I move on to the next part of this paper, which is dedicated to the methodology of the research and proposed hypotheses.

CHAPTER 3 Hypotheses and methodology

3.1 Sample selection and description

As it was mentioned in the beginning of this paper, European companies follow stricter requirements for disclosure deal data than their peers in the United States and moreover, there is a lack of research of PE deals on Western and Eastern European markets. Thus, in this paper I focus on the analysis of private equity buyouts in these regions. Accordingly, I collect data on European transactions from the Zephyr database (Bureau van Dijk), which were completed within a period of 10 years, from 2006 to 2016. It includes both, crisis and post-crisis periods.

The first search step gives us 7521 of primary and 2039 of secondary buyouts. I focus on the deals, which have disclosed information at least for one of the following financial parameters: Deal value, target operating revenue/turnover, target EBITDA, target EBIT, target total assets and target shareholders' funds. For the detailed analysis of operating performance, I focus on the companies which participated in a LBO and within a certain period of time they were involved in a SBO. It was highly important, that both, buyer and seller was a PE firm in the secondary buyout. I exclude tertiary buyouts or buyouts which were done several times after the secondary buyout. To analyze such deals, we have to include extra control variables and to investigate for the reasons of such transactions manually. To match the companies which have participated in LBO and SBO, I use a Target BvD ID and deal number, which allows to sort and choose only relevant companies.

To analyze the influence on operating performance, the 2-year window is used. For each of the operational indicators which were described above, I look at the figures of one year before the transaction and one year after, because of the lack of relevant data. Data availability restrictions are explained by the fact that private parties do not have to report information. However, according to Kaplan and Stromberg (2009), significant changes in operating performance appear within a two-year period, with the main change within a first year. Therefore, it makes it justified to compare the differences between the first-time buyout and secondary buyout using a two-year frame.

As a result, the final sample consists of 578 transactions on 289 European companies in Eastern and Western Europe, which were acquired by a private equity investor in the first-time buyout and then exited, after which the company was acquired by another private equity investor via secondary buyout over the period 2006 to 2016. Compared with the paper of Bonini

(2012), where the author received significant results, the dataset of this research contains almost two times as much transactions.

3.2 Summary Statistics

Results of general data summarizing on 7521 of first-time and 2039 second-time buyout deals of private equity firms give poor results. Almost all average numbers are skewed because of the lack of qualitative data. Therefore, it is better to focus on specified and cleaned data, which contains only those companies, which were involved in a LBO and a subsequent SBO.

Tables 2 and 3 report summary statistics for the sample of 578 transactions with private equity involvement tracked by Bureau van Dijk, Zephyr database. The most valuable part here is that this data related to the same companies which have participated in both scenarios – in first-time and second-time buyout. It makes the following comparison clear and relevant. EBITDA, Sales and shareholders' funds are the figures of the last available year before the transactions'. Deal value and target shareholders' funds are the disclosed values in millions of euros.

Table 2. Sample summary statistics, LBOs

	LBO			
	Mean	St. Deviation	Median	Observations
Number of deals				289
Deal value, € mn.	202,97	(427,31)	141,50	
EBITDA multiple	0,01	(1,02)	0,12	
Target shareholders' funds, € mn.	31,95	(82,65)	9,58	

Table 3. Sample summary statistics, SBOs

	SBO			
	Mean	St. Deviation	Median	Observations
Number of deals				289
Deal value, € mn.	354,41	(366,70)	201,75	
EBITDA multiple	0,03	(0,98)	0,14	
Target shareholders' funds, € mn.	45,31	(122,12)	10,97	

The EBITDA multiple, that is the relation of EBITDA to Enterprise Value (EV), is commonly used in private equity transactions. However, in this paper I modify it to the EBITDA to sales multiple. It allows to mitigate the effect of undisclosed EV figures on overall sample.

There is a clear picture of the deal size increase in secondary buyouts. Both, mean and median values in second-time buyouts are higher by 75% and 43% respectively, than in first-time buyouts. Low mean values of the EBITDA multiple could be explained by the presence of negative figures in the overall sample. However, for median values it is possible to observe almost the equal results of around 12-14%. Two things take place – first, EBITDA margins after first-time PE holding slightly increased and second, when PE firms enter the LBO or SBO transaction, they are more or less focused on business with the same operating profitability, which is defined as the relation of EBITDA to Total Revenue. It allows to receive a clear view on companies' performance, since it excludes interests, depreciation and amortization. Values of target shareholders' funds for SBO deals increased in mean and median by 42% and 15% respectively.

3.3 Hypotheses

This paper is focused on the analysis of differences in influence between primary and secondary buyouts. It is widely supposed in current literature that SBOs do not create value and respectively should not affect significantly on operating performance of their portfolio companies. Using several econometric techniques, I try to check this idea on the real data and build the following hypotheses:

- **H₁**: There are significant differences in influence between the LBO and SBO transactions
- **H₂**: The influence of SBO on operating performance of portfolio companies is weaker than the influence of LBO

The idea of these hypotheses is to get an understanding of relative changes between the buyouts. Even if we say, that SBO has a value destruction or value creation feature, it is always useful to know the strength of this influence compared with similar events. As an investor, you always have to build expectations about the power of change. On the data of the same companies, which have gone through the both types of deals (LBO and SBO), we could compare the influence of LBO and SBO deals on operating performance of PE targets. The methodology of such analysis is presented in the next part.

3.4 Methodology

To estimate changes and differences between the influence of primary and secondary buyouts, it is necessary to determine a set of operating performance measures. I define these measures using the Table 1 from literature review part. However, the lack of data does not allow to analyse all these indicators, therefore I match them with the available data. The list of measures used in this research presented in Table 4.

Table 4. Characteristics of target companies

Deal Characteristic	Measurement
<i>Size measures</i>	
	Total assets
	Sales
<i>Operating performance measures</i>	
Operating cash flow and Ratios of operating margins	EBITDA
	EBIT
	EBITDA/Sales
	EBIT/Sales
Profitability ratios	ROA=EBIT/Total Assets
	ROTA=EBIT/Total Assets
	ROE=EBIT/Shareholders' Funds

These indicators allow to measure the influence of buyouts on different fields of portfolio company's operating performance. To check the main hypotheses of this study, several instruments are employed:

- Levene's test

This approach is used to test the equality of variances. Levene's test can be employed for two or more samples. This test is a precondition for parametric tests (t-test and ANOVA). General t-test assumes that the variances of our two groups are equal. In the opposite scenario it can be the cause of Type I error rate. Therefore, I run the Levene's test for all indicators.

- One-Sample t-tests

One-sample t-test is used to check the presence of LBO/SBO influence on operating indicator. It tests the null hypothesis that sample mean (delta of changes in operating indicator) equals to the specified value of 0%.

- Two-sample t-tests for a difference in mean

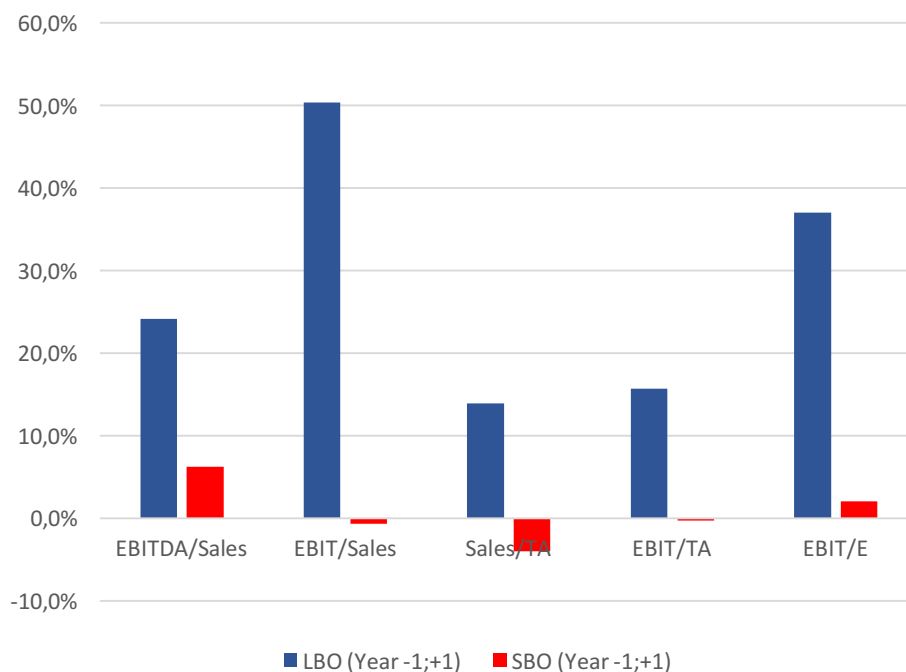
The influence of the deal is defined as a delta of changes in operating indicator. It gives two datasets – delta changes in LBO transactions and – delta changes in SBO transactions. Therefore, two-sample t-test for the differences in mean is employed for the disclosing whether these two datasets are significantly different from each other. One-sample t-test is used to check the presence of LBO/SBO influence on operating indicator. It tests the null hypothesis that sample mean (delta of changes in operating indicator) equals to the specified value of 0%.

CHAPTER 4 Results

After the data cleaning and matching relevant numerators with denominators, I calculate the abnormal performance change. Abnormal change here is a percentage difference between the ratio value of one year before the deal and one after. It is calculated as $(\text{Average ratio (Year +1)} - \text{Average Ratio (Year -1)}) / \text{Average Ratio (Year -1)}$.

Figure 2 shows an abnormal change of 5 operating performance ratios. For each ratio the blue (or the first) bar illustrates an abnormal change under the first-time buyer holding, while the red one (or the second) shows the change under the second-time buyer.

Figure 2. Abnormal operating performance change



Under the ratios of operating performance, I use a relation of EBITDA and EBIT to Sales. Asset turnover ratio (ATO) is defined as the relation of Sales to Total Assets. This relation can be used as an efficiency indicator, which shows how effectively the company employs its assets to generate sales. To calculate the Return on Assets (ROA), I employ a slightly modified formula – EBIT/Total Assets. This measure is not affected by management's debt solutions. Some modifications also touch the interpretation of Return on Equity – it is calculated as EBIT to Shareholders' Funds.

Thus, figure 2 shows a startling superior performance of first-time buyouts under all described indicators. LBOs have a strong influence on EBITDA and EBIT margins - 24% and 50% respectively. Second investors have almost no influence on these margins, what means that

they continue to run business with the same marginality model as first-time buyer. The same conclusions are applicable to ATO, ROA and ROE. In the next parts of this chapter I analyze each of these indicators separately.

4.1 Analysis of Operating Margins

Table 5 presents results of one- sample t-test and two-sample t-tests for the difference in mean in operating margins. The first two columns show the results of the one-sample t-test, where I observe the influence of LBO/SBO transaction on operating margin and compare it with zero. In other words, I look at delta of operating margins between Year -1 and Year +1. In contrast to secondary buyouts, first-time buyouts have a significant and positive influence on operating margins. EBITDA and EBIT margins increase by 5% and 12% within a first year of holding period. It means that first buyers use a strong cost optimization strategies and optimize D&A values of target companies. On average, second private equity holders do not significantly improve operating performance.

Table 5. Influence of LBOs and SBOs on operating margins

Performance change, %	Δ EBITDA/Sales		Δ EBIT/Sales		Δ EBITDA/Sales diff	Δ EBIT/Sales diff
	LBO (-1;+1)	SBO (-1;+1)	LBO (-1;+1)	SBO (-1;+1)		
N	142	132	194	140	274	245
Y (mean) diff	5%	0%	58%	2%	6%	12%
t	3.26***	-0.39	13.94***	0.99	2.70***	3.86***

Note: Significance at the 1%, 5% and 10% level is marked as ***, ** and * respectively.

Before running the two-sample t-test, I do the Levene's test on homogeneity of variances. Table 6 presents the results of this test. The significance level is greater than 0.05, thereby it is possible to conclude that group variances are equal and it is allowed to run a two-sample t-test without any restrictions.

Table 6. Test of Homogeneity of Variances, operating margins

EBITDA to SALES			
Levene Statistic	df1	df2	Sig.
2,759	1	267	0,098
EBIT to SALES			
Levene Statistic	df1	df2	Sig.
1,553	1	265	0,214

Results of the two-sample t-test, these are the two last columns of Table 5, confirm the expected differences in influence between LBOs and SBOs. They are significant for both indicators of operating performance at 1% significance level. Thus, compared with secondary buyouts, LBOs demonstrate an extreme influence on operating margins. It is possible to conclude, that first buyers make a target company operationally more efficient, while second buyers just continue running a business without real improvements in performance and use only the business scaling and B&B strategies for getting the required returns.

4.2 Analysis of Turnover Ratio

Despite the expected significant increase in efficiency of exploiting assets by first time investors as was described by Bonini (2012), results of my analysis of turnover ratios does not demonstrate any significance. Table 7 shows these results. Probably, positive and significant results can be captured with the longer data window.

Table 7. Influence of LBOs and SBOs on Asset Turnover ratio

Performance change, %	Δ ATO		ATO diff
	LBO (-1;+1)	SBO (-1;+1)	
N	158	151	309
Y (mean) diff	1%	-4%	5%
t	0.16	-0.77	0.68

*Note: Significance at the 1%, 5% and 10% level is marked as ***, ** and * respectively.*

4.3 Analysis of ROA and ROE

As it was mentioned before, I use the modified formulas of ROA and ROE:

$$ROA = \frac{EBIT}{Total\ Assets}$$

$$ROE = \frac{EBIT}{Shareholders' Funds}$$

Table 9 shows the changes in ROA and ROE which were done within a first year of holding by first and second buyer. Influence of SBOs on ROA and ROE is insignificant with 1-2% change on average. However, first-time buyouts have a strong and significant positive effect on both, ROA and ROE at 1% and 10% significance level respectively. First private equity buyers increase ROE by 4% on average. The increase in ROE is brilliant – it rises by 18% on average. Results of Levene test presented in Table 8. The significance level for ROA is greater than

0.05 and variances between LBO and SBO group are equal. However, for ROE it shows the opposite results. Therefore, I employ an “unequal variances” parameter for the ROE mean-comparison test.

Table 8. Test of Homogeneity of Variances, ROA and ROE

ROA				
Levene Statistic	df1	df2	Sig.	
0,925	1	345	0,337	
ROE				
Levene Statistic	df1	df2	Sig.	
5,341	1	292	0,022	

Last two columns of Table 9 present results of differences between the influence of LBO/SBO on ROA/ROE. These differences are significant and positive.

Table 9. Influence of LBOs and SBOs on ROA and ROE

Performance change, %	Δ ROA		Δ ROE		Δ ROA diff	Δ ROE diff
	LBO (-1;+1)	SBO (-1;+1)	LBO (-1;+1)	SBO (-1;+1)		
N	198	155	157	141	353	298
Y (mean) diff	4%	1%	18%	2%	3%	18%
t	2.99***	0.88	1.66*	0.57	1.87*	1.48**

*Note: Significance at the 1%, 5% and 10% level is marked as ***, ** and * respectively.*

Overall, it is possible to observe a significant and positive influence of first-time buyouts on operating performance of portfolio companies. It is proved by the analysis of operating performance ratios, such as EBITDA to Sales, EBIT to Sales, Asset Turnover ratio, ROA and ROE. Secondary buyouts in its turn have almost no influence on operating performance of their targets. During the period of second holding, the marginality of the business on average remains the same as it was established by first-time investors or even decreases in extreme scenarios. However, then we are able to rise concerns about the logic of SBOs. How private equity investors can get returns in SBOs, if they don't make significant improvements in operating performance of their targets? Probably the answer should be related to Buy-and-Build strategies and changes in absolute values.

4.4 Analysis of absolute values change

Primary analysis of the influence of LBOs and SBOs on Revenue, EBITDA and EBIT gives expected results. Table 8 presents statistical analysis of changes of these indicators. It seems that LBOs have a stronger influence on absolute change of performance metrics than SBOs, but nevertheless, the effect of SBOs is significant and positive.

Table 10 presents the results of a one-sample t-test with the null hypotheses of zero influence of LBO and SBO. The null hypothesis is rejected, what means that both types of deals significantly and positively influence on Revenue, EBITDA and EBIT. Within a first year, second holders increase portfolio company's revenue, EBITDA and EBIT by 10%, 8% and 5% respectively. However, the influence of LBOs on these metrics is stronger.

Table 10. Influence of LBOs and SBOs on operating indicators, One-sample t-test

Performance change, %	Δ Revenue		Δ EBITDA		Δ EBIT	
	LBO (-1;+1)	SBO (-1;+1)	LBO (-1;+1)	SBO (-1;+1)	LBO (-1;+1)	SBO (-1;+1)
N	157	153	142	121	156	132
Y (mean)	29%	10%	33%	8%	26%	5%
t	3.14***	2.51***	1.84**	1.72*	2.12**	1.76*

*Note: Significance at the 1%, 5% and 10% level is marked as ***, ** and * respectively.*

Similarly to described procedures in previous parts, I run a Levene test for deltas of absolute values of Revenue, EBITDA and EBIT. P-value for Revenue and EBITDA suits the required criteria of being more than 0.05. But for EBIT it is less than 0.05 and the assumption of homogeneity of variances is violated. Therefore, I adjust a general t-test to the parameter of "unequal variances".

Table 11. Test of Homogeneity of Variances, Revenue, EBITDA and EBIT

Revenue			
Levene Statistic	df1	df2	Sig.
1,642	1	265	0,231
EBITDA			
Levene Statistic	df1	df2	Sig.
1,755	1	263	0,257
EBIT			
Levene Statistic	df1	df2	Sig.
5,252	1	302	0,023

To confirm the evident differences between the influence of LBO and SBO, Table 12 provides results of two-sample t-test. The null hypothesis here is that LBOs and SBOs have the same effect on Revenue, EBITDA and EBIT. These results show the significant differences in influence between LBOs and SBOs on Revenue and EBITDA. Significance at the 1%, 5% and 10% level is marked as ***, ** and * respectively.

Table 12. Influence of LBOs and SBOs on operating indicators, Two-Sample t-test

Performance change, %	Δ Revenue LBO (-1;+1) vs SBO (-1;+1)	Δ EBITDA LBO (-1;+1) vs SBO (-1;+1)	Δ EBIT LBO (-1;+1) vs SBO (-1;+1)
N	310	265	293
diff	0.19	0.34	0.30
t	1.89**	1.60**	1.34*

*Note: Significance at the 1%, 5% and 10% level is marked as ***, ** and * respectively.*

Probably, here is the answer on the question of how PE investors get returns from SBOs and what is the logic under these transactions. Increasing absolute operating values, PE investors increase exit metrics, which are related to sales or EBITDA multiples. Thus, private equity investors simply increase their Cash-On-Cash (CoC) returns. Unfortunately, the lack of data does not allow to analyse longer performance window and reveal the increase in revenue, EBITDA and EBIT during the subsequent holding years. However, these increases should be supported by application of B&B strategies by PE investors. In the final part of this paper, I analyse subsequent acquisitions of SBO targets and confirm the presence of B&B strategies.

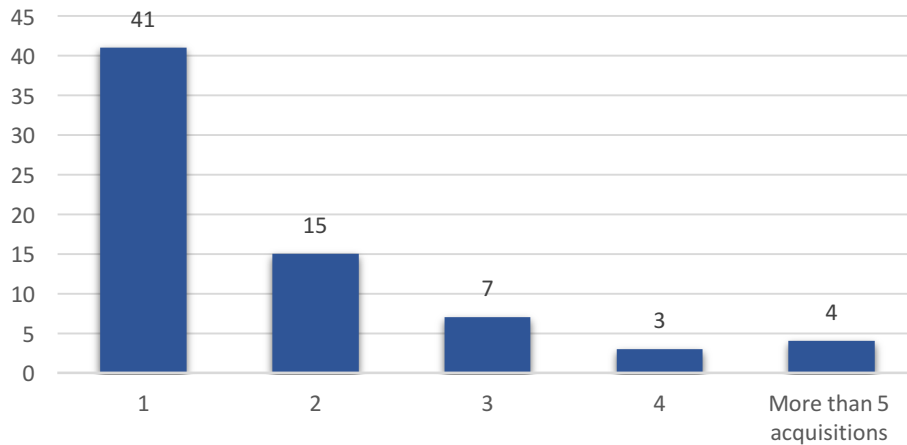
4.4 Buy-and-Build strategies of SBO targets.

B&B strategy assumes that the target company was used by PE investor as a platform for future acquisitions. According to the literature review, application of B&B strategies allows private equity investors to receive required returns in SBO transactions. To check whether the second holders employ B&B strategies for their target companies or not, I control for their subsequent acquisitions, which were done after the SBO completion date. Thereby, I analyse the behaviour of 70 such companies. Figure 3 shows the results of this analysis.

According to the data of Zephyr database, 41 portfolio companies have participated in one subsequent acquisition. 15 and 7 other SBO targets realized two and three subsequent acquisition respectively. These companies mainly participated in horizontal acquisitions. It shows that second holders are the active acquirers and use their portfolio companies as

platforms for getting synergies. Moreover, 7 companies demonstrate an excellent confirmation of the presence of B&B strategies in SBO transactions – they participated in 4 or more further takeovers.

Figure 3. Number of companies participated in subsequent acquisitions



Thus, we could finally conclude, that B&B strategies take a very important role in secondary buyouts. Private equity holders tend to scale the business and improve absolute operational values of their portfolio companies via subsequent acquisitions. Because of the lack of available data regarding the exit values realized by second holders, it is impossible to estimate ROIs for PE firms. This lack can be explained by the recency of observed transactions, since the majority of second buyers still hold their targets in portfolio. It opens the analysis horizons for the future research.

CHAPTER 5 Conclusion

The market of SBOs significantly increased last years and according to the paper of Bonini (2015), it accounts for 60% of all buyouts. However, it is still not clear what motivates private equity investors to participate in SBO transactions. On the one hand, we know that PBOs create significant improvements in operating performance and make portfolio companies more efficient, what explains the private equity nature. But on the other hand, according to the academic papers of Freelink and Volosovych (2012), Wang (2012), Bonini (2015) and others, these PE features do not work in SBO transactions and secondary investors do not significantly improve their target companies.

This paper is aimed to study the influence of SBOs on operating performance of private equity portfolio companies and compare this effect with PBO transactions. Overall, I apply Levene tests and run 24 one- and two-sample t-tests to check my hypotheses about the influence of secondary buyouts. I test these hypotheses on the data of 578 transactions tracked by Bureau van Dijk, Zephyr database. These transactions contain financial data of 289 companies which participated in both, in primary and secondary buyouts. Overall, I analyze several operating performance indicators such as EBITDA to Sales and EBIT to Sales ratios, Asset turnover ratio, return on equity, return on investments and absolute values of Sales, EBITDA and EBIT.

In this research I faced with the two types of limitations – impact limitation and data limitation. Impact limitation is related to the geography of the study. I analyse transactions, which were done only in Europe. Despite the excellent statistics, received results could not be applicable for Asian or US companies because of their own features in PE industry. Also, I was forced to eliminate a lot of the deals from my data sample, since the PE transactions are mainly private and the data on them is frequently undisclosed. Moreover, it was impossible to calculate ROIs for second holders, since the majority of them still hold the SBO targets in their portfolio.

Final results are strong and stand along with the proposed hypotheses. Comparing with the resemble studies, my results are similar to the results of Wang (2012) and take the middle place. On the one hand, I find the evidence of significant influence of LBOs on operating performance of target companies, while SBOs have almost no influence on them. These results are similar to the findings of Freelink and Volosovych (2012) and Bonini (2015). On the other hand, secondary buyouts still show the improvements in operational indicators – SBOs significantly increase absolute values of Revenue, EBITDA and EBIT.

Thereby, I assume that these increases are connected with the goal of PE investors of getting returns via business scaling. It is expected, that secondary holders actively apply Buy-and-Build strategies in their investments and use their targets as platforms for future subsequent acquisitions. I find that SBO targets are active acquirers, however it is necessary to conduct extra studies with larger research window to catch the value-creation effect and sufficient ROI for second holders, what opens a horizon for the future studies.

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