

Unwrapping the “Pass the Parcel” Deals

A Study of Value Creation in Secondary Buyouts

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Abstract:

This thesis examines the economic rationale of secondary buyouts and whether they provide scope for operational value creation. We formulate a series of four hypotheses to investigate two distinct categories of value sources: i) growth and ii) efficiency. The sample constructed to test our hypotheses encompasses 85 secondary buyouts and 237 primary buyouts in Sweden over the period 2000-2018. Our findings suggest that secondary buyouts outperform their primary counterparts in terms of growth measures. We also find support to conclude that secondary buyouts exhibit higher levels of efficiency improvements in terms of EBITDA. Overall, our analysis suggests that secondary buyouts are not in any way subordinate primary buyouts in operational value creation.

Tutor: Peter Alexander Aleksziew

Keywords: Private equity, leveraged buyout, secondary buyout, value creation, operational performance, propensity score matching

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1. Introduction

1.1 Background

New organizational forms that resolve the central weakness of public corporations - the struggle between owners and managers - are evolving, driven by takeovers, LBOs, and stock buybacks. These organizations, which are highly leveraged, are more efficient in capital allocation, offer dramatic gains in profit margins, and are less likely to go bankrupt. Then why, the author asks, is there so much resistance to them?

– Jensen (1989)

Already in the 1980s when leveraged buyouts started to emerge, Jensen (1989) foresaw a high potential in this new form of governance, predicting the concept of private equity ownership to become a powerful organisational form. In line with Jensen's prediction, the private equity industry has proved its strength and shown a remarkably growth, reaching historically high levels of fundraising and investments in recent years (Invest Europe, 2020).

The concept of leveraged buyouts, referring to a highly leveraged takeover undertaken by a private equity firm to get majority control in an investee company, started to gain traction already in the dawn of private equity's breakthrough. For a long time, an initial public offering (IPO) was considered the holy grail of buyout exits (Jenkinson and Sousa 2015), the second-best option being trade sales. However, over the last two decades practitioners and observers have seen a new market trend arise, buyouts between financial sponsors, accounting for 40% of all exits in 2018 (Cazalaa et al., 2019). The dramatic growth in this third route of exit called a secondary buyout (SBO) has caused controversy regarding its potential for value creation. Opponents postulate that SBOs offer limited possibilities for value creation, and thus rather constitute an exit of last resort.

The critique originates from what is called "*the conventional wisdom of secondary buyouts*", implying that a private equity sponsor will only divest a target firm once all potential for operational improvements have been realised. Thereby, secondary buyouts should offer limited opportunities to value creation and desired equity returns, as the easily realised value creation measures have already been used in the first round of restructuring (Achleitner and Figge, 2014; Bonini, 2015).

Another layer of critique directed towards secondary buyouts stems from what is known as the “LP overlap” – a situation that occurs when the same limited partners participate in both the buying and the selling side of the fund. This phenomenon was addressed by The Economist in January 2014: “*They are in essence buying firms from themselves, with hefty transaction costs*”. The journal criticised PE funds for using SBOs to solve financial needs between one another in times of poor equity markets, at the expense of LPs and buyout companies.

Previous literature presents several explanations to the growth in buyouts between sponsors, often focusing on sponsor characteristics and conditions in debt and equity markets as determinants of the exit route (see e.g., Jenkinson and Sousa, 2015; Arcot et al., 2015). However, most researchers have struggled to find any economic rationale behind the growing exit segment, meanwhile also highlighting the need for further research in this relatively new field. Altogether, SBOs prove to be a crucial yet contentious subject within the private equity domain, put forward as one of its most propitious research fields (Cumming and Walz, 2010). To contribute to further understanding of secondary buyouts and their operational impact, we analyse the value creation profile of SBOs using two different dimensions.

In accordance with (Bergström et al., 2007) we consider the true value creation to be only operational improvements. Therefore, we focus on two sources of value drivers: i) growth, ii) efficiency, studying the Swedish buyout market entered between 2000 and 2018. The bottom line of our findings suggests that SBOs are by no means second rate deals, but provide room for further value creation, both in terms of growth and efficiency improvements.

1.2 Purpose and research question

The purpose of this study is to explore the economic rationale behind secondary buyouts and determine whether they provide scope for true value creation from the more stringent view, only encompassing operational improvements. Based on a growth dimension and an efficiency dimension, four measures have been chosen to serve as the basis for comparison between secondary buyouts and their primary counterparts. The study aims to address the following research question:

Do secondary buyouts offer the same level of operational value creation as primary buyouts?

Our study differentiates itself through a unique dataset including Swedish transactions solely. This is a market where private equity plays a salient role to the economic scene, Sweden ranking 4th among European countries in private equity investments in relation to GDP (Statista, 2020). Extending the argument of the unique dataset, we have applied a Propensity Score Matching with the purpose of minimising any bias and estimates of treatment effects, a rare method in the context of operational value creation in SBOs. By testing secondary buyouts against primary buyouts using similar groups, we control for any fundamental differences in the company characteristics, making a fairer comparison of the buyouts' impact on operational performance. Previous researchers have attempted to solve this using panel data, but which risk selection bias or a PBO sample not reflecting the overall market, since one could assume that companies going through a second buyout might possess certain characteristics making them ideal subjects to a second round. Understanding the potential for value creation in SBOs and its sources is of great importance to PE funds and other stakeholders, not least because operational performance is tightly connected to the deal price through EBITDA.

1.3 Definitions and delimitations

1. *Private equity firm* (or *PE firm*) is an investment firm financed through a limited partnership fund structure (Strömberg & Kaplan, 2009). We also use the definitions *financial sponsor* or simply *sponsor* interchangeably throughout the study.
2. *Leveraged buyout* (LBO) is a highly leveraged takeover, done by PE firms to gain a majority stake in an investee company (Strömberg & Kaplan, 2009). *Primary buyout* (PBO) is a first round LBO, in which the sponsor buys from a non-sponsor.
3. *Secondary buyout* (SBO) is an LBO, in which both the buyer and seller are PE firms. Defining this phenomenon is far from unequivocal, but of utmost importance for the purpose of our study. As discussed in Bergström et al. (2007), there is a degree of caution in determining the type of buyout. We use the most inclusive definition in accordance with Achleitner & Figge (2014), including all deals between sponsors.

4. *Target company* is the company subject to a probable buyout. *Buyout company* and *portfolio company* is used interchangeably to refer to a company acquired by a PE firm through an LBO.
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The study covers the period 2000-2019, which upper limit is set on the basis of published accounting data. The period is also long enough to include different turns in the economic cycle, reflecting the long-term trend rather than periods of favorable or unfavorable equity and debt markets, which can largely impact the private equity industry (see e.g., Jenkinson and Sousa, 2015). The geographical scope is limited to Swedish buyout companies, but with no restriction on the PE firm's origin. This is an advantageous market when studying private companies as annual reports from Swedish limited companies are governed to be published through the Swedish Companies Registration Office, in accordance with Årsredovisningslag (1995:1554) and Bokföringslagen (1999:1078). The reports shall also be audited with exception for the very smallest companies. This provides a unique setting with comprehensive and high-quality accounting data, which serves as a key input to our study.

We limit ourselves to only investigate value creation through operational performance, excluding capital structure and governance improvements, as this has been explained to be the true or most crucial value driver (Berg and Gottschalg, 2005; Bergström et al., 2007; Achleitner et al., 2011). For this reason, we neither study equity returns or the pricing of buyouts, which data often is private information difficult to access. Our initial intention was to study the impact of industry specialisation, which previous studies have put forward as a determinant in value creation (see e.g., Cressy et al., 2007; Degeorge et al., 2016). Defining this easily becomes an arbitrary task, but we chose to look at the fraction of investments in a certain industry similar to Gompers et al. (2008), but with the difference that we created an indicator variable in line with Cressy et al. (2007), determining if a sponsor is specialised or not. The criteria for being specialised was set to >50% of the portfolio invested in the same industry, to assure a focused investment width. However, as only 5% of the deals in our final sample were specialised buyouts, we decided to exclude this variable in our model due to that our sample already was of the smaller size.

1.4 Outline

This paper is structured in nine main sections. The first section served to describe the background to the study and give a short introduction to the topic value creation in secondary buyouts. Section two outlines previous findings and the theoretical framework which we built our hypotheses from, laid out and concluded in section three. Section four reviews our methodological approach used to test our hypotheses. The empirical data is presented in section five, followed by the results in section six. A further analysis of our results is discussed in the seventh section, separated on the basis of each hypothesis. Conclusion and suggestions for future research are presented in section eight and nine respectively. The study finishes off with a list of references used as well as an appendix.

2. Background and theoretical framework

2.1 Introduction to Private Equity

What is today referred to as Private Equity traces back to the early 1980s when the market saw the first surge in fund financed investments (Strömberg and Kaplan, 2009), an initial booming trend that over the past three decades has grown to become a normality on the capital market. Private equity capital raised in 2019 amounted to nearly USD 530 billion (Gelfer et al., 2020), compared to USD 0.2 billion in committed capital back in 1980 (Strömberg and Kaplan 2009).

Private Equity firms generally derive their investment capital in two steps: equity when the fund is formed, followed by debt once the investment has been identified to be used as collateral (Axelson et al., 2009). PE firms have a fund structure organised as a limited partnership, in which the limited partner (LP) provides the predominant share of the equity. The PE firm takes on the active role as a general partner (GP) and keep a fixed percentage of the profit in carried interest, most often 20%. In addition, an annual management fee is charged, sometimes complemented by a deal and monitoring fee (Strömberg and Kaplan, 2009). This setup offers accredited and institutional investors an alternative investment opportunity to the public stock market, and LPs typically comprise pension funds, insurance companies, endowment funds and affluent individuals (Strömberg and Kaplan, 2009).

The fund's life is limited and most often run over ten years, whereof the first three to five years is the so-called investment period. During this time, the PE firm source and evaluate

potential targets in which to acquire majority control. This is gained through highly leveraged deals, using about 60 to 90 percent of debt, hence the term leveraged buyout. (Strömberg and Kaplan, 2009).

Besides the initial investment, the choice of exit is perhaps the second most crucial decision facing fund managers. Literature has historically portrayed an IPO as the ideal exit route (Jenkinson and Sousa, 2015). Secondary buyouts have instead been viewed as an ‘exit of last resort’ (Achleitner et al., 2012). Despite this traditional perception, the number of IPO exits has declined in favor of trade sales and secondary buyouts (SBOs). The former refers to when the portfolio company is sold to a strategic buyer, often a competitor. The latter, in which one PE firm sell to another PE firm, has been a powerful trend in recent years, accounting to 40% of all exits in 2018 (Cazalaa et al., 2019). Yet, the fundamental incentive behind the PE structure is to maximise the return on investment, preferably buying low and selling high. The nature of an SBO should thus make it a “one man’s loss, another man’s gain deal”. Yet, SBO is the fastest growing segment of PE transactions (Arcot et al., 2015).

2.2 Value creation in leveraged buyouts

Private equity firms acquire target companies with the purpose of performing value enhancing activities to maximise equity returns gained at exit (Achleitner et al., 2011). Although there exists numerous of ways in which the PE sponsors can create value in their portfolio companies, three main sets of tools should be highlighted: i) *financial*, ii) *operational* and iii) *governance* (Jensen, 1989).

2.2.1 Financial

The first set of skills capitalised by private equity firms is financial engineering, also termed “financial arbitrage” (Berg and Gottschalg, 2005). By using high leverage, the private equity firms strive to optimise the capital structure and minimise corporate taxes (Lowenstein 1985; Kaplan 1989a). According to the “free cash flow theory” presented by Jensen (1989), the use of high leverage also serves as an effective tool to discipline managers, as excess cash is effectively reduced when committing to service a large portion of debt (Hoskisson et al., 2013). On the contrary, significant debt levels and the inflexible nature of the required interest payments entail an increased vulnerability to financial distress (Kaplan and Strömberg, 2009).

Whether financial arbitrage should be considered as real value creation is a topic frequently discussed and several authors emphasize the need to differentiate between value levers in leveraged buyouts (Bergström et al, 2007; Nikoskelainen and Wright, 2007). Bergström et al. (2007) advocates a more stringent view on value creation, arguing that leverage does not constitute real value creation as it does not increase the returns attributed to the company's combined security holders, other than through lowered taxes. If adopting a societal perspective on value creation, it should rather be considered a practice of redistributing value.

2.2.2 Operational

Berg and Gottschalg (2005) have developed a three-dimensional framework, aiming to describe the value generation in leverage buyouts by making a distinction between value creation and value capturing. Value creation is defined as activities directly linked to the fundamental change in financial performance. Value capturing includes practices that positively impacts the valuation of the business, without altering the underlying firm performance. Operational improvements including sales growth, higher margins and enhanced efficiencies qualify as real value creation according to their definition.

This is in line with the perception of Bergström et al. (2007), who claim that operational improvements are the only source of real value creation. Several findings on the topic of operational improvements, for instance Acharya et al. (2013), suggest that superior performance in LBOs can be attributed to improvements in sales and operational efficiency. Anslinger and Copeland (1996) as well as Plagborg-Møller and Holm (2017) emphasize the role of operational improvements in LBOs as the most important source of value creation.

In addition to sales growth and margin expansions, operational improvements also comprise freeing up resources through reductions in the required or current assets (Berg and Gottschalg, 2005). Efficient management of working capital aims to shorten the cash conversion cycle, which ultimately leads to increased operating cash flows and profitability. Efforts to improve working capital management includes tightening inventory control, as well as efficient management of accounts payables and accounts receivables (Smith, 1990). Several studies, (e.g., Singh, 1990; Smith, 1990) find support that firms subject to private equity ownership experience improvements in working capital management during the holding period.

2.2.3 Governance

Incentive alignment

The change of governance structure that is typically implemented in conjunction with an LBO increases the possibilities to reduce agency conflicts. This is achieved through monitoring and controlling of the company management (Berg and Gottschalg, 2005), and by requiring the management to increase their equity ownership (Strömberg and Kaplan, 2009). The illiquid nature of the equity reduces their incentive to manipulate short-term performance, but rather supports alignment of incentives. This could for instance be expressed through improvements of asset utilisation and by redirecting resources towards high value uses (Muscarella and Vetsuypens, 1990).

Sponsor attributes and expertise

Berg and Gottschalg (2005) do not only distinguish between value creation and value capturing, but they also separate between primary and secondary levers in value creation. Primary levers refer to activities that directly affect financial performance, whereas secondary levers indirectly support value creation through their impact on primary levers. Primary levers in broad sense include both strategic and operational actions, as well as pure financial engineering. The authors list various sponsor characteristics that could have an indirect effect on the company performance, such as expertise, strategy, experience, and network.

Several other studies have focused on explaining operational improvements through differences in fund characteristics, a form of secondary lever. One explanatory factor is resources with regard to human capital. The fund managers professional experience before pursuing a career within private equity seem to affect the type of business strategy implemented in the portfolio companies. Investment managers with a consultancy background take on a more organic approach, while M&A activities are more common among finance educated partners (Acharya et al., 2013). Jenkinson and Sousa (2015) also show that firm experience might influence the choice of exit, SBOs being more likely when the buying PE firm is less experienced than the seller.

The importance of skilled sponsors as a secondary lever is also closely connected to the ‘advantages-to-specialisation hypothesis’, suggesting that a company backed by specialised PE firms has an advantage over its peers, solely due to the sponsor’s industry or stage expertise (Cressy et al., 2007). This stems from its profound knowledge in the specific

business setting and ability to identify targeted companies' advantages and drawbacks in relation to its competitors. Consequently, specialised PE firms are not only better at identifying fruitful deals, but also at supporting and monitoring their active portfolio holdings, ultimately generating higher profitability (Cressy et al., 2007).

Derived from the primary and secondary levers theory, is also the idea that geographic proximity might positively influence the value creation process within buyouts. This is still a rather unexplored area within private equity, but Degeorge et al. (2016) show that value creation is positively affected when a global fund buys from a regional sponsor. It has also been applied in studies on the public capital market. Here, local equity analysts seem to have an information advantage helping them outperform their distant counterparts (Malloy, 2005). Local PE firms can also be assumed to hold a more thorough network in the given market. One common approach to improve operations in LBOs is to replace underperforming managers and board members (Anders, 1992). The right connections will thus be useful in the search for replacements (Castellaneta and Gottschalg, 2016). Therefore, geographic proximity could be assumed to provide additional operational improvements in a buyout setting.

2.2.4 The conventional wisdom of secondary buyouts

The majority of studies on value creation in buyouts do not explicitly address the phenomenon of secondary buyouts. To our knowledge, only a limited number of studies have been conducted to explain the economic determinants of SBOs and whether these are truly subject to operational improvements. The findings, which are partially mixed, are presented in Table 2.1. The study by Achleitner and Figge (2014) tests the '*conventional wisdom*' of SBOs by comparing operational performance and equity returns in PBOs with its secondary counterparts. The rationale of the conventional wisdom is that a PE sponsor is said to divest a target firm *only once all potential for operational improvements have been realised*. Furthermore, the sponsor will take advantage of its intimate knowledge of capital market mechanisms and negotiation skills to achieve an advantageous valuation at the point of exit (Berg and Gottschalg, 2005).

Thereby, SBOs do not only constitute an imminent risk of overpayment, but also offer limited opportunities to value creation and desired equity returns – as the easily realised value creation measures, also known as the 'low-hanging fruit', have already been realised in the first round of restructuring (Achleitner and Figge, 2014; Bonini, 2015). The scepticism

against PE sponsors buying and selling the same target firm between each other has come to be known as ‘*passing the parcel*’ – implying that the value of the target firm, once sold to a party other than a private equity firm is highly uncertain (Jenkinson and Sousa, 2015).

2.2.5. Operational value creation in secondary buyouts

Although SBOs are frequently portrayed as second-rate deals, the findings presented by Achleitner and Figge (2014) contradict the conventional wisdom, as no robust evidence were found that SBOs generate lower equity returns or less potential for operational performance improvements compared to primary buyouts. Similarly, Bergström et al. (2007) found no significant evidence of SBOs offering lower levels of operating improvements than primary rounds. Thus, the studies by Achleitner, Figge and Bergström suggest that there exist opportunities to achieve operational improvements in a secondary deal. On the contrary, the results presented by Wang (2012) confirms the conventional wisdom, as no significant operational performance or efficiency gains were observed in SBOs, in contrast to primary buyouts. Similarly, the study by Bonini (2015) is consistent with the notion that SBOs demonstrate lower levels of operating performance. Albeit mixed results, a few motives prevail in academic research that could explain why the selling side keep seeing SBOs as an attractive exit route.

Economic rationale of SBOs

The ‘liquidity-based market hypothesis’ states that the activity of secondary buyouts tends to move in accordance with debt market conditions. Greater borrowing ability and favorable debt market conditions is expected to increase the number of SBOs (Wang, 2012). Under certain circumstances, PE firms will be constrained by factors such as liquidity needs, making it the optimal strategy to exit early (Achleitner and Figge 2014). Research by Wang (2012) support this hypothesis, showing that the holding period and need to raise new funds are both positively correlated with the probability of exiting through an SBO. The pressure to liquidate increases as the final date of the fund life approaches, making SBO especially appealing in mature funds (Arcot et al., 2015). Wang (2012) formulate that SBOs “*alleviate the financial needs of PE sponsors in times of unfavorable equity markets*”.

The track record and reputation of the PE sponsor is critical when raising new funds. Another motive for SBOs could be if the sponsor lacks a tangible track record, and therefore makes an early exit through a SBO with the purpose to facilitate future fundraising (Wang,

2012). The reputational aspect could also motivate the buying side to participate in an SBO. From the buyer's perspective, the role of dry powder, i.e. uninvested capital and pressure to deploy capital plays a salient role. London bankers often refer to this phenomenon as 'Desperate Housewives' – pressured GP's who become more prone to engage in pricy deals, including buyouts from another sponsor. SBOs become especially attractive in conjunction with new fundraising due to the quick reduction in non-invested capital, enhancing the firm's track record (Arcot et al., 2015). Additionally, a PE sponsor could exit a deal early with the purpose of attaining a stable cash flow profile (Achleitner and Figge, 2014).

The last motive relates to the skill sets of the PE sponsors. Degeorge et al. (2016) show that complementary skills between the deal's counterparties make SBOs superior to primary buyouts. As firms develop through their lifecycle, they will have different needs in terms of support and resources. This idea is illustrated in the setting of SBOs in the case study by Strömberg (2013). As PE firms possess different skills and resources, they can support the target firms with different types of value enhancing activities depending on the stage in their lifecycle. Once the first PE firm has extracted all possible value from the target firm, a change of ownership could be necessary to move the company towards the next strategic phase.

Table 2.1 – *Overview of previous findings on value creation in secondary buyouts*

Authors	Geography	Sample size	Findings
Achleitner & Figge (2014)	Western Europe	448 SBOs	No robust evidence was found that SBOs generate lower equity returns or possess less potential for operational improvements compared to other buyouts.
Bergström et al. (2007)	Sweden	14 SBOs	No robust evidence that SBOs underperform LBOs in terms of operating improvements. Further improvements are possible in a second round.
Wang (2012)	UK	485 SBOs	The results show no significant efficiency gains during the holding period and hence, operational improvements are not the motive behind SBOs.
Degeorge et al. (2016)	Global	548 SBOs	SBOs perform similar to primary buyouts, unless performed under pressure. If the dealing counterparties have complementary skills, SBOs outperform PBOs.

3. Hypotheses

Based on previous research and existing theory outlined in section two, four hypotheses have been formulated regarding the operational value creation in secondary buyouts. As highlighted, academic research has repeatedly concluded operational improvements to be the most crucial source of value creation in secondary buyouts (Anslinger and Copeland, 1996; Plagborg-Møller and Holm, 2017). In accordance with previous research and the delimitations presented in section 1.3, we have chosen to investigate operational improvements in the target companies as the primary source of value creation. Through our hypotheses, we aim to investigate how the change in operational performance accomplished in secondary buyouts differ in relation to their primary counterparts. For this purpose, we have chosen four different measures as a basis for operational performance.

3.1 Sales growth

PE firms are commonly said to “reap the low-hanging fruit” as they acquire a target firm, meaning that they undertake the most easily realised improvements. However, the second sponsor will reap the benefits from better control and management systems, allowing for further expansion. Also, in line with section 2.2.3, PE sponsors possess different skill sets and characteristics, enabling them to undertake different kinds of value enhancing activities in their portfolio companies. Operational improvements in the second buyout round are thus expected to take the form of growth, rather than margin expansions and improved profitability. Thereby, we hypothesise SBOs to exhibit a higher level of sales growth compared to PBOs.

H1: Secondary buyouts exhibit higher sales growth than primary buyouts

3.2 EBITDA

Since the primary sponsor is expected to reap the low-hanging fruit, there should be less room for the second sponsor to undertake the same level of efficiency improvements. These measures include efficiency improvements, cost cutting and governance restructuring (Achleitner and Figge, 2014). In congruence with their findings, we hypothesise that secondary buyouts do not exhibit a lower level of value creation in terms of EBITDA growth than primary buyouts. However, we expect different underlying improvements to drive that performance.

H2: Secondary buyouts do not exhibit EBITDA growth lower than that of primary buyouts.

Once acquiring a portfolio company, the primary PE sponsor will most likely focus on addressing potential inefficiencies such as cost cutting (Achleitner and Figge, 2014). In line with the findings by Wang (2012), we hypothesise that once inefficiencies have been addressed by the first sponsor, the possibilities for the second sponsor to accomplish the same level of improvements are limited.

H3: Secondary buyouts exhibit lower EBITDA Margin delta expansion than primary buyouts

3.3 Net working capital

The efficiency measures implemented in a buyout is expected to also improve cash flow through better management of working capital. Kaplan (1989b) found that the cash-flow-to-sales ratio increases following a buyout. Sponsor backed firms also seem to improve two of three areas affecting the cash conversion cycle, outperforming peers both in terms of accounts receivable and inventory turnover (Smith, 1990; Singh, 1990), ultimately improving the company's cash flow. For the same reasons as argued around EBITDA, the effects on working capital from efficiency measures is assumed to occur already in the first buyout, hence we hypothesise that the improvement in net working capital (NWC) efficiency will be lower in the second buyout. It also provides a relative measure useful to our final analysis and is in line with Baker and Wruck (1989).

H4: Secondary buyouts exhibit less improvements in working capital management than primary buyouts

4. Method

4.1 Accounting Measures

Type	Definition of measures
I) Growth measures	
<i>Sales growth</i>	$Sales\ CAGR = \left(\frac{Sales_{exit}}{Sales_{entry}}\right)^{\left(\frac{1}{Years}\right)-1}$
<i>EBITDA growth</i>	$EBITDA\ CAGR = \left(\frac{EBITDA_{exit}}{EBITDA_{entry}}\right)^{\left(\frac{1}{Years}\right)-1}$
II) Efficiency measures	
<i>EBITDA margin delta₁</i>	$Margin\ \Delta = EBITDA\ margin_{exit} - EBITDA\ margin_{entry}$
<i>NWC, % of sales delta₂</i>	$NWC\ \%\ of\ sales\ \Delta = NWC\ \%sales_{exit} - NWC\ \%sales_{entry}$
1) $EBITDA\ margin = \frac{EBITDA_t}{Sales_t}$	2) $NWC, \% of sales = \frac{Net\ Working\ Capital_t}{Sales_t}$

4.1.1 Growth measures

Growth measures are commonly used to measure operational performance. It is preferable to use a measure of operating income rather than earnings (Barber and Lyon, 1997; Bergström et al., 2007). Buyout companies are often subject to changes in the capital structure, which in turn affects the bottom line through interest expenses regardless of any change in the underlying operations. In addition, by focusing on operating income, one captures a better outline of the operational performance in terms of asset productivity (Barber and Lyon, 1997; Bergström et al., 2007).

The use of operational metrics is also favorable when considering unwanted effects from minority interest and tax considerations, which are largely dependent on the ownership structure. It is not for nothing that “associating corporate performance and shareholder value creation with growth in [...] sales have been the modus operandi in the investment industry” as (Ramezani et al., 2002) put it. Growth in sales also drive value creation through its positive influence on EBITDA (Bergström et al., 2007). Therefore, measuring the change in EBITDA and sales over the holding period both accommodate the conventional measures applied in private equity and serves to capture the effect of operational improvements. We choose to look at CAGR in both cases to consider the compounding effect, in accordance with (Achleitner and Figge, 2014).

4.1.2 Efficiency measures

As argued, EBITDA margin is particularly relevant in the private equity sphere and leverage is also often expressed in terms of multiples of EBITDA (Bergström et al., 2007). Hence EBITDA is also the base for our choice of efficiency measures.

Several former quantitative studies have explored the change in working capital requirements in relation to sales following a buyout (e.g., Baker and Wruck, 1989; Guo et al., 2011), showing an improved relationship under the ownership of a sponsor (Baker and Wruck 1989). The more efficient working capital management stems from i) higher inventory turnover, ii) shorter accounts receivables collection period (Smith, 1990; Singh, 1990), both being closely related to sales and cash flow. Since the three cornerstones of net working capital, i) accounts receivable, ii) inventory and iii) accounts payable, respond to increasing sales volumes (D'Attilio, 1992), this measure takes into account the sales expansions expected in a buyout. We choose to define net working capital as receivables and inventory less payables. As we have defined the measure as $NWC\%sales_{exit} - NWC\%sales_{entry}$, a negative sign of delta will be interpreted as an improvement.

4.1.3 Limitations of research methodology

The following segment describes some potential limitations of our research method. Due to the performance being measured based on the holding period of the transaction, accounting data for the target company has been collected for two points in time. What adds further complexity is the fact that the unit subject to measurement at entry typically undergoes a structural transformation under the holding period and hence, does not exist in the same composition at exit.

These changes occur for instance due to buy-and-build strategies and bolt-on-acquisitions, undertaken with the purpose of extending the scope and adding resources and competences to the firm. The significant changes in the structure and scope of the target companies could potentially cause distortions in the measurement of performance. However, as M&A activities constitute an inherent characteristic of buyouts and serve as one of the most important tools applied by private equity firms, no adjustments have been made.

Another limitation of the research methodology stems from the fact that difference in performance between PBOs and SBOs is not measured as excess performance over the market but compared directly between the groups. Our results thereby fail to pick up some nuances, as we do not account for how the target firms perform in relation to the overall market under the same period.

4.2 Statistic method

4.2.1 T-test

A two-sample T-test has been performed to conclude whether there is a significant difference between the means of the two samples, namely between the PBOs and the SBOs. The four hypotheses are tested through one-sided t-tests. H_1 and H_3 have been tested through a two sample T-test with equal variances, while H_2 and H_4 have been tested using a two-sample t-test with unequal variances. The t-tests with unequal variances have been applied due to observed differences in variances.

For instance, the hypothesis that PBOs perform better or equal to SBOs in terms of sales growth is tested against an alternative hypothesis that SBOs achieve higher sales growth (expressed in terms of compounded annual growth rate).

One-sided t-test

$$\Delta\text{SalesCAGR} = \text{SalesCAGR}_{\text{PBO}} - \text{SalesCAGR}_{\text{SBO}}$$

$$H_0: \Delta\text{SalesCAGR} \geq 0$$

$$H_1: \Delta\text{SalesCAGR} < 0$$

The t-test with equal variances is carried out with a decision rule to reject the null hypothesis if:

$$t = \frac{\bar{X}_{\text{PBO}} - \bar{X}_{\text{SBO}}}{sp \sqrt{\frac{1}{n_{\text{PBO}}} + \frac{1}{n_{\text{SBO}}}}} > t_{n_{\text{PBO}} + n_{\text{SBO}} - 2, \alpha}$$

$$\text{where } sp = \sqrt{\frac{(n_{\text{PBO}} - 1)s_{\text{PBO}}^2 + (n_{\text{SBO}} - 1)s_{\text{SBO}}^2}{n_{\text{PBO}} + n_{\text{SBO}} - 2}}$$

For the t-test with unequal variances, the following decision rule is applied to determine whether the null hypothesis should be rejected or not:

$$t = \frac{\bar{X}_{PBO} - \bar{X}_{SBO}}{\sqrt{\frac{S_{PBO}^2}{n_{PBO}} + \frac{S_{SBO}^2}{n_{SBO}}}} > t_{n_{PBO} + n_{SBO} - 2, \alpha}$$

4.2.2 OLS Regression

In order to further discover the potential for operational value creation in SBOs, we run a set of linear regressions with Sales CAGR, EBITDA CAGR, EBITDA margin delta and $NWC\Delta$ as our dependent variables. This approach is similar to the one used by Achleitner and Figge (2014), who conducted a linear regression with the aim to explain differences in performance between PBOs and SBOs. However, their study also investigates the differences in equity returns between the two samples, which lies outside the scope of this study. On the contrary, our study captures the effect PE sponsors have on the working capital management in their portfolio companies, an important operational value driver that is not examined by Achleitner and Figge (2014).

As presented in section 4.1, four primary operating statistics have been chosen to explain the differences in performance between PBOs and SBOs. The same specification holds for the four operating statistics.

Specification of regression models:

i. *Sales growth*

$$\begin{aligned} (\text{Log})\text{Sales}_{\text{CAGR}} = & \beta_0 + \beta_1 * \text{BuyoutType} + \beta_2 * (\text{Log})\text{EV}_{\text{entry}} + \beta_3 * \\ & \text{EBITDA}_{\text{MarginEntry}} + \beta_4 * \text{HoldingPeriod} + \beta_5 * \text{PEAge}_{\text{entry}} + \beta_6 * \\ & \text{TransactionStatus} + \varepsilon \end{aligned}$$

ii. *EBITDA growth*

$$\begin{aligned} \text{EBITDA}_{\text{CAGR}} = & \beta_0 + \beta_1 * \text{BuyoutType} + \beta_2 * (\text{Log})\text{EV}_{\text{entry}} + \beta_3 * \text{EBITDA}_{\text{MarginEntry}} \\ & + \beta_4 * \text{HoldingPeriod} + \beta_5 * \text{PEAge}_{\text{entry}} + \beta_6 * \text{TransactionStatus} + \varepsilon \end{aligned}$$

iii. *EBITDA margin expansion*

$$\text{EBITDA}_{\text{margin}\Delta} = \beta_0 + \beta_1 * \text{BuyoutType} + \beta_2 * (\text{Log})\text{EV}_{\text{entry}} + \beta_3 *$$

$$\text{EBITDA}_{\text{MarginEntry}} + \beta_4 * \text{HoldingPeriod} + \beta_5 * \text{PEAge}_{\text{entry}} + \beta_6 * \text{TransactionStatus} + \varepsilon$$

iv. NWCA

$$\text{NWCA} = \beta_0 + \beta_1 * \text{BuyoutType} + \beta_2 * (\text{Log})\text{EV}_{\text{entry}} + \beta_3 * \text{EBITDA}_{\text{MarginEntry}} + \beta_4 * \text{HoldingPeriod} + \beta_5 * \text{PEAge}_{\text{entry}} + \beta_6 * \text{TransactionStatus} + \varepsilon$$

Explanatory variables

The model contains one explanatory variable, which is the buyout type dummy. The buyout type dummy has been included with the purpose of capturing the potential differences in operational value creation between primary and secondary buyouts.

Control variables

In addition to our explanatory variable, our model encompasses five control variables. In congruence with the discussion in section 2.2.5, the characteristics and the current stage in the target firm's lifecycle is likely to determine the value creation profile of the transaction. According to Achleitner and Figge (2014), the source of value creation is expected to be growth in larger transactions, in contrast to smaller transactions where margin expansions are more likely to generate value. To account for the fact that the target firms differ in size, we have included the natural logarithm of the enterprise value (EV) the year prior to entry as a control variable. Not only the size of the target firm will affect the value creation profile of the transaction, but also the profitability of the target firm at the time of entry. To control for that effect, we have included EBITDA margin at entry in our model.

Previous research within the field of private equity have come to the conclusion that the performance of the firm increases with the experience of the PE sponsor (Kaplan and Schoar, 2005). Similar to Achleitner and Figge (2014), the age of the PE sponsor at entry has consequently been included as a proxy for experience to control for this effect.

The operational performance during the holding period, which we aim to investigate, is measured between the year prior to entry and the exit year. As our sample comprise unrealised deals, i.e. deals for which the PE sponsor has not made an exit yet, it is crucial to control for the fact that the full set of data is not available for all transactions. One way of

overcoming this issue would be to exclude all unrealised transactions when conducting the regression analysis (e.g., Achleitner and Figge, 2014). Excluding unrealised deals could however lead to a selection bias, as PE sponsors may avoid exiting underperforming transactions. As our sample size would be considerably affected if excluding the unrealised deals, we have adopted an alternative approach by including a dummy variable for the current transaction status.

Furthermore, we have chosen to control for the holding period in our regression analysis. This is motivated by the fact that two of our operational statistics, namely the measures expressed in terms of “delta” between the entry and exit year, do not consider the time period under which the change has been realised.

Market conditions and industry factors

Other factors controlled for in previous research include country specific effects, market conditions and industry factors. Studies controlling for country specific effects such as creditor rights and legality index include Cao et al. (2015) and Cumming and Walz (2010). Due to our geographic delimitation to include transactions on Swedish firms solely, same country specific effects hold for all transactions. Furthermore, Wang (2012) control for market-wide effects by including the industry sales growth in the model and similarly, Achleitner and Figge (2014) include EBITDA growth for the industry. Our model does not include any such control variables. However, we control indirectly for the industry effects to some extent by conducting an additional analysis on a sample matched based on industry. The matching method applied to construct this sample is presented in the section below.

Table 4.2 – *Summary of included variables in regression models*

Variable	Description
Dependent variables	
(Log)Sales _{CAGR}	Natural log of the target company’s compound annual sales growth during the holding period.
EBITDA _{CAGR}	Compound annual EBITDA growth achieved between entry and exit.
EBITDA _{marginΔ}	EBITDA margin expansion achieved during the holding period.
NWCA	NWC as % of sales, measured as delta between entry and exit.

Explanatory variables

Buyout type Dummy variable taking a value of 1 if the buyout type is SBO and 0 otherwise.

Control variables¹⁾

$EBITDA_{marginEntry}$ EBITDA margin the year before the investment.

$(Log)EV_{entry}^{2)}$ Natural of log of the enterprise value the year prior to the investment.

HoldingPeriod Holding period²⁾ = Exit date – Entry date

PEAge PE sponsor age at entry, based on foundation year.

TransactionStatus Dummy variable taking a value of 1 if unrealised and 0 otherwise.

1) “Entry” denotes the entry year for the transaction

2) Holding period is calculated monthly and stated in years, using two decimals.

4.2.3 Propensity score matching

To test the robustness of our result and reduce any bias and estimates of treatment effects, we repeat our regressions using propensity score matching (PSM). The methodology was introduced by Rosenbaum and Rubin (1983) and is a statistical matching method aimed to estimate the effect of the treatment by considering the covariates that predict the likelihood of being treated. PSM build on two assumptions: i) unconfoundedness, and ii) overlap (Caliendo and Kopeinig, 2008). The first one implies that D_i is exogeneous in the sense that the outcome Y_0 and Y_1 is independent of treatment D_i conditional on the observable set of covariates. The second one states that companies with the same covariates have the same probability of receiving treatment (Caliendo and Kopeinig, 2008). Conducting a matching under these assumptions mitigates any effect of selection bias that might weaken the credibility in our full sample regressions.

The technique has been used in other SBO settings (Rigamonti et al., 2016; Bonini, 2015), which help to mitigate any omitted variable bias that our original regressions might contain, due to a straight comparison between the two buyout groups (Caliendo and Kopeinig, 2008). Our sample consists of different target companies in each group, hence we cannot compare the difference in operational performance in an PBO versus SBO for the same company. It is likely that these companies differ in the fundamental characteristics regardless of treatment, which determine whether they go through a second round or not. By applying a propensity score matching, the problem with selection bias can be alleviated.

We use a probit model with robust standard errors to match target companies from our SBO sample with similar companies found among the PBOs, allowing us to control for characteristic heterogeneity at a company level (Caliendo and Kopeinig, 2008). The basis for the matching is set to size using EV at entry and industry through a two-digit SNI-code. PSM enables us to match one or more non-treated transactions to every treated transaction in the sample, which is used to rerun our tests to validate our previous findings. In this study, we use a $k = 3$ propensity score matching method, giving us three PBOs for every SBO chosen based on the smallest difference in the propensity score between the treatment group and the control group. Choosing the number of matched observations involves a trade-off between bias and variance (Stuart, 2010). A 1:1 matching reduces bias but will in return increase the variance. In our case, we choose to match on a 1:3 due to our limited number of observations, in order to preserve a sufficient sample size. In return, we match using replacements, meaning that every PBO can be matched to more than one SBO. This can in turn help to counteract for the incremental bias caused by several matches (Stuart, 2010). The combination of multiple matches and with replacement is found to provide the most significant matching result for our sample.

In our PSM model, the companies that are subject to a secondary buyout are considered the treatment group, which operational improvements materialized over the holding period is defined Y_1 . The companies bought in a primary buyout forms the control group, which operational improvements over the holding period is defined Y_0 . The treatment indicator $D_i = \{0,1\}$ is set to take on the value 1 for an SBO and 0 in case of a PBO. The average treatment effect on the treated (ATT), reflecting the expected outcome effect gained from the treatment on those observations receiving treatment (Caliendo and Kopeinig, 2008), is thus defined as:

$$\tau_{ATT} = E(\tau | D = 1) = E[Y_1 | D = 1] - E[Y_0 | D = 1]$$

Note that the last term, the counterfactual mean $- E[Y_0 | D = 1]$ cannot be found in the data as no PBOs receive the treatment and must instead be replaced with alternative data. To avoid bias, propensity score matching is used to find a group of comparable PBOs to mimic the counterfactual performance. Using the PSM sample, the average treatment effect on the treated (ATT) can be estimated to the mean difference between the change in operating performance over the holding period in an SBO and our matched PBOs, in order to isolate the effect in a secondary buyout. Before rerunning the regressions, outliers exceeding 3 standard

errors for each dependent variable in our original models is excluded to avoid distortion in our analysis, giving a final PSM sample of 85 SBOs and 146 PBOs.

4.3 The theoretical framework

When assembling the theoretical framework, we initially conducted a screening with the aim of finding academic sources to form an overall understanding of the private equity industry and its value creation process. Once we had formed a better understanding of the industry and its fundamentals, we narrowed down our search criteria to specifically target studies on operational value creation and secondary buyouts. Key words used in our assembling process include “leveraged buyout”, “secondary buyout”, “value creation” and “operational performance”. These key words were effectively applied as search criteria in online databases such as Business source premier and Scopus to identify relevant articles.

Other studies focusing more closely on how the characteristics of PE sponsors are connected to value creation, and when PE firms are likely to choose a certain exit route were also examined. The careful screening enabled us to form a relevant theoretical framework consisting both of articles concerning operating performance in secondary buyouts and others, taking a general more approach on value creation in leveraged buyouts.

5. Empirical data

The sample of transactions and corresponding details have been collected from the databases Capital IQ and Eikon. The geographical scope of the study is set to Sweden to assure that sufficient accounting data is available, reported using similar accounting principles. In addition, the time period was restricted to buyouts between 2000 and 2018, to ensure that reports reflecting minimum one year’s holding period have been published. The period also includes different turns in the economic cycle, both downturns and periods of growth, ultimately avoiding any biased sample and to better reflect the long-term trend. Accounting data was retrieved from the databases Serrano and Retriever, using data from the accounting year prior to the buyout and the year of exit, to best mirror the operational development. For unrealised deals, we use accounting data from 2019.

The list of transaction was then evaluated against a set of criteria, see table 5.1. To serve the purpose of our study, transactions for which the accounting data was missing, or the buyer was undisclosed were excluded. Further, venture capital buyers were filtered out due to the

fundamental difference in their investment strategy, typically buying minority stakes in growth companies (Strömberg and Kaplan, 2009). In terms of the buyout company, windfarms and forest were excluded due to their “non-operative” nature. Real estate and financial companies were excluded as they apply different accounting standards.

We have chosen to control for outliers to achieve more adequate test results. For each transaction identified as a potential outlier, the underlying reason has been investigated. In some cases, the identified transactions possess underlying characteristics that differ from the rest of the sample. To address these and reduce potential distortion in our statistical analysis, we exclude outliers exceeding three standard errors. This result in eight outliers being dropped, whereof six PBOs and two SBOs.

Table 5.1 – *The filtering process*

	<i># of transactions classified as PBOs</i>	<i># of transactions classified as SBOs</i>
Initial sample collected from Capital IQ	956	92
Initial sample collected from Eikon	738	86
Preliminary dataset	1694	178
Keep unique transactions only	1016	133
Applying criteria “known buyer”	789	117
— — buyer is a PE firm	551	112
— — accounting data is available	392	106
— — holding period exceeds 12 months	328	98
— — target company does not go bankrupt	294	94
Exclude if target company is:		
<i>Bank</i>	268	93
<i>Forest</i>	256	91
<i>Windfarm</i>	252	91
<i>Real estate</i>	243	87
Exclude outliers > 3 sd	237	85
<i>Final sample</i>	237	85

5.1 Descriptive statistics

Table 5.2 shows the descriptive statistics for our two samples, which form the basis for our analysis. Panel A presents the fundamental transaction and sponsor characteristics, while Panel B aims to give an overview of the differences in performance between the groups. From Panel A we observe that the full sample includes 322 transactions, whereof 237 transactions constitute LBOs and 85 SBOs. The propensity score matched sample consists of 146 PBOs and 85 SBOs. We observe a similar holding period between the two groups, with LBOs having an average holding period of 5.62 years and 5.49 for SBOs. The fraction of unrealised deals is 33.85% and 33.77% for the full and PSM sample, respectively. We also note a relatively high number of transactions undertaken by foreign sponsors, corresponding to 39.75% of the total number of deals, foreign sponsors being more common in the SBOs. Furthermore, we conclude that the average age of sponsors participating in SBOs exceeds the average age of sponsors in PBOs.

Table 5.2 – *Overview of transactions by year*

Time period	<i>Full sample</i>		<i>Primary buyouts</i>		<i>Secondary buyouts</i>	
	# of transactions	% of total	# of transactions	% of total	# of transactions	% of total
2000-2005	57	17.70%	47	14.60%	10	3.11%
2006-2011	128	39.75%	96	29.81%	32	9.94%
2012-2018	137	42.55%	94	29.19%	43	13.35%
Total	322	100.00%	237	73.60%	85	26.40%

Panel B outlines descriptive statistics based on the performance measures that we aim to investigate. In terms of sales growth, we observe that SBOs have a mean of 10.41% which is higher than the mean of LBOs corresponding to 8.87%. It should be emphasized that the sales growth measure has been transformed with the natural logarithm. This adjustment has been undertaken due to identified tendencies of skewness in the sales growth variable, as further discussed in section 6.3. One remarkable observation is that the mean EBITDA growth for the primary buyouts in our sample is negative of -1.2%, whilst secondary buyouts demonstrate a positive mean of 13%. It is also in this variable that we find the largest variations in our data, with a standard deviation of 0.63 for the PBOs. This suggests that the variation of EBITDA growth during the holding period is large.

The same pattern is identified for the EBITDA margin delta as for EBITDA growth, with the SBO sample mean of 0.6% compared to the PBO sample mean of -2.4%. Furthermore, the

mean value of -2.2% and -0.8% in NWCA indicate that PBOs achieve greater improvements in working capital management. Lastly, we also note that the mean enterprise value at entry is about 2.55x higher for SBOs compared to PBO.

Figure 5.1 – *Illustration of transaction timing (entry year)*

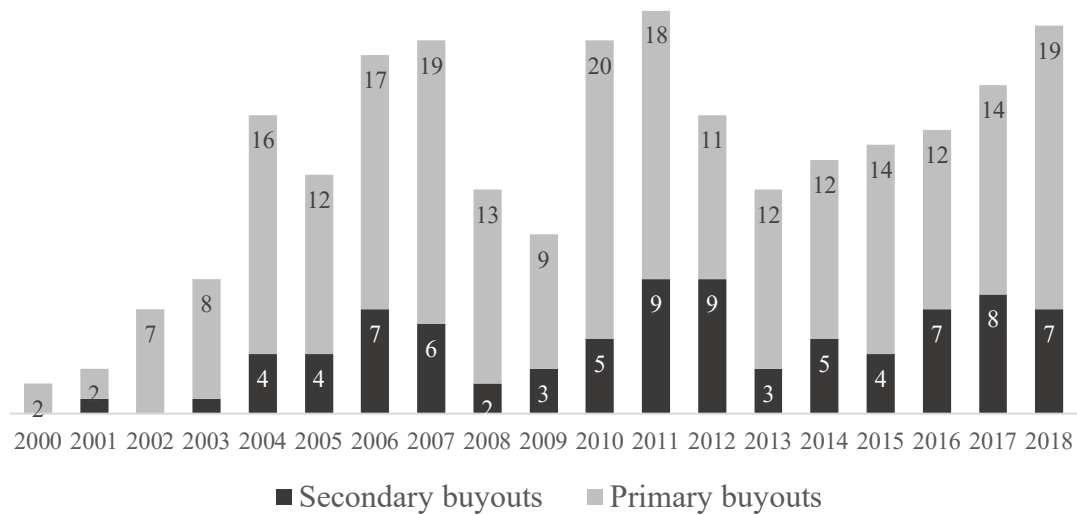


Table 5.3 – Descriptive statistics*(I) Full Sample**(II) PSM Sample*Panel A – *transaction characteristics*

	PBOs	SBOs	Total	PBOs	SBOs	Total
Total nr observations	237	85	322	146	85	231
Average holding period	5.62	5.49	5.58	5.57	5.49	5.54
Average sponsor age	13.05	14.30	13.38	12.59	14.3	13.22
Realised transactions	158	55	213	98	55	153
<i>As % of total</i>	66.67%	64.71%	66.15%	67.12%	64.71%	66.23%
Unrealised transactions	79	30	109	48	30	78
<i>As % of total</i>	33.33%	35.29%	33.85%	32.88%	35.29%	33.77%
Whereof Swedish PE sponsors	154	40	194	93	40	133
<i>As % of total</i>	64.98%	47.06%	60.25%	63.70%	47.06%	57.58%
Whereof foreign PE sponsors	83	45	128	53	45	98
<i>As % of total</i>	35.02%	52.94%	39.75%	36.30%	52.94%	42.42%

Panel B – *performance metrics*

	<i>(I) Full Sample</i>								<i>(II) PSM Sample</i>							
	PBOs				SBOs				PBOs				SBOs			
	Mean	Sd	Min	Max	Mean	Sd	Min	Max	Mean	Sd	Min	Max	Mean	Sd	Min	Max
(Log)Sales _{SCAGR}	0.085	0.122	-0.253	0.518	0.099	0.118	-0.253	0.432	0.081	0.121	-0.253	0.497	0.099	0.118	-0.253	0.432
EBITDA _{CAGR}	-0.012	0.63	-3.053	2.273	0.13	0.437	-1.042	1.034	0.002	0.62	-2.07	1.926	0.13	0.437	-1.042	1.034
EBITDA _{marginΔ}	-0.024	0.132	-0.565	0.397	0.006	0.129	-0.351	0.551	-0.009	0.124	-0.46	0.397	0.006	0.129	-0.351	0.551
NWC _Δ	-0.022	0.094	-0.609	0.418	-0.008	0.053	-0.164	0.113	-0.019	0.074	-0.299	0.171	-0.008	0.053	-0.164	0.113
EBITDA _{marginEntry}	0.105	0.189	-1.315	0.744	0.16	0.189	-0.284	1.281	0.075	0.211	-1.315	0.448	0.16	0.189	-0.284	1.281
(Log)EV _{entry} ¹	355.6	1110	0.747	14650	909.4	2202	3.002	14650	493.8	1392	0.747	14650	909.4	2202	3.002	14650
HoldingPeriod	5.616	3.288	0.833	15.92	5.487	3.238	1.25	13.833	5.57	3.154	1	13.5	5.487	3.238	1.25	13.833
PEAge	13.05	7.682	0.833	34	14.30	7.225	0.25	28.5	12.59	7.699	0.833	31.33	14.30	7.225	0.25	28.5

¹EVentry presented in mSEK

5.2 Diagnostics tests

Table 5.4 – *Pairwise correlations*

Variables (Full sample)	(1)	(2)	(3)	(4)	(5)
(1) (Log)Sales _{CAGR}	1.000				
(2) EBITDA _{CAGR}	0.342***	1.000			
(3) EBITDA _{marginΔ}	0.213***	0.658***	1.000		
(4) NWC _Δ	-0.021	0.082	0.035	1.000	
(5) EBITDA _{MarginEntry}	-0.105*	-0.099*	-0.392***	0.008	1.000
(6) (Log)E _{Ventry}	-0.083	0.069	0.150***	-0.029	-0.034
(7) PE _{Age}	0.119**	-0.006	0.013	0.016	0.068
(8) Holding _{Period}	-0.301***	-0.136**	-0.108*	-0.150***	-0.069
	(6)	(7)	(8)		
(6) (Log)E _{Ventry}	1.000				
(7) PE _{Age}	0.049	1.000			
(8) Holding _{Period}	0.012	-0.219***	1.000		
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$					

Table 6.3 displays a Pearson's correlation matrix, with the purpose of forming a more comprehensive understanding of the variables included in our model. The matrix reveals a general pattern of relatively low correlation between the independent variables.

The correlation matrix can also serve as a tool to identify signs of multicollinearity. Multicollinearity implies that two explanatory variables are highly linearly related, thus making it difficult to distinguish the effect of a certain variable on the dependent variable. As a general rule, a correlation value exceeding 0.8 or several correlation values above 0.5 should be interpreted as a sign of multicollinearity. From our results, we find no values above 0.8, nor 0.5. In addition, a variance inflation factor (VIF) test has been performed to further check for multicollinearity (see appendix B). The observed VIF mean falls significantly below 4, which is usually recognised as a threshold for what should be identified as a sign of

multicollinearity. Hence, we recognise no tendencies of multicollinearity.

The Breusch Pagan's test has been performed to test for heteroskedasticity. We found tendencies of heteroskedasticity for all of the four regressions. As the OLS regression assumes a constant variance of error terms, violating this assumption implies that estimators are no longer serving its purpose as linear unbiased estimators (White, 1980). This issue has been addressed by applying robust standard errors for the regressions. We have also investigated our data to control for the normal distribution assumption underlying the OLS regression. Due to identified tendencies of skewness in the sales growth variable, a natural log transformation has been applied to the Sales CAGR variable. This approach is similar to the one applied by Achleitner and Figge (2014).

With the purpose of assuring the validity of our results, two non-parametric tests have been conducted. These tests have the property of being robust to the normality assumptions underlying both the OLS regression and the T-test. A Wilcoxon Signed rank test was completed to assure the validity of the t-test and a Kernel regression was used to complement our OLS regression analysis. Both of the non-parametric tests returned results similar to our t-test and OLS regression (see appendix C and D), confirming the validity of our findings.

6. Results

6.1 T-tests

The table 6.1 presented below displays the t-tests performed with the purpose of determining the differences in operational improvements between primary and secondary buyouts. When considering Sales CAGR, we note the expected negative sign. However, we find no evidence to conclude whether SBOs and PBOs differ in their performance.

In the case of EBITDA CAGR, we find evidence of SBOs outperforming their primary counterparts. The difference in mean of 14.15% is significant on a 5% level. Conducting the t-test on the PSM sample yields similar results with a difference in mean of 12.75% significant on 5% level. Consequently, the findings provide initial support for H₂, stating that SBOs do not exhibit EBITDA growth lower than that of PBOs.

We also observe that SBOs exhibit a higher level of EBITDA margin delta, which is significant on a 5% level for the full sample. The results reveal that SBOs outperform PBOs with a difference of 3 percentage points. The findings contradict our third hypothesis that SBOs underperform PBOs in terms of EBITDA margin expansion. When performing the test for the PSM sample, we observe no significant difference.

In terms of $NWCA$, we receive the expected negative sign. However, no significant evidence is found to conclude that PBOs outperform SBOs.

Table 6.1 – *T-test*

	<i>(I) Full Sample</i>				<i>(II) Propensity score matching</i>	
	Hyp	Exp sign	Diff mean	T-statistic	Diff mean	T-statistic
(Log)Sales _{CAGR}	H_1	-	-0.014	-0.9219	-0.018	-1.0681
EBITDA _{CAGR}	H_2	-	-0.1415	-1.90**	-0.1275	-1.650**
EBITDA _{marginΔ}	H_3	+	-0.03	-1.8461**	-0.015	-0.886
NWCA	H_4	-	-0.0135	-1.250	-0.0105	-1.150

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

6.2 OLS regression

Regression (I)-(II): Sales growth

From regression (I) we note the expected positive coefficient for the buyout type variable. While the result is not statistically significant for the full sample, the result is significant on a 10% level for the propensity score matched sample. The positive coefficient of the Buyout type variable in Regression (II) suggests that SBOs generate higher compounded annual sales growth by approximately 2.9% compared to PBOs. This finding supports our first hypothesis (H_1) suggesting that SBOs once matched on company characteristics obtain a higher sales growth than PBOs.

All control variables, except for PE sponsor age, exhibit a negative coefficient. In line with previous research, enterprise value at entry and EBITDA margin at entry show a negative

relationship with sales growth (Achleitner and Figge, 2014). Furthermore, the negative coefficient of the holding period variable implies that a longer holding period tends to come with a negative effect on sales growth. The adjusted R^2 value of 0.109 for specification (I) suggests that the independent variables can explain 10.9% of the variability in the dependent variable.

Regression (III)- (IV): EBITDA growth

The results of our regressions (III)- (IV) suggest that SBOs outperform PBOs in terms of EBITDA growth. The positive coefficient of 0.161 can be interpreted as SBOs achieving a 16.1 percentage points higher EBITDA growth than PBOs. Similar results hold for the matched sample, although the results display a somewhat lower difference of 14.4 percentage points. The results provide support for H_2 on a 5% significance level.

Similar to the results in regression (I)-(II), a longer holding period is expected to have a negative effect on the EBITDA growth. A negative relation with EBITDA CAGR can also be identified for unrealised transactions. The R^2 value of 0.059 can be interpreted as the model having a weak explanatory power of 5.9% on the variability in the dependent variable EBITDA CAGR. The model has greater explanatory power when applied on the PSM sample, as the adjusted R^2 increases to 7.0%.

Regression (V)-(VI): EBITDA margin delta

Regression (V) demonstrate that SBOs outperform PBOs also in terms of EBITDA margin expansion. The positive coefficient of the buyout type variable implies that the EBITDA margin expansion of SBOs exceeds the one of PBOs by 4.08%, which is significant on a 1% level. Specification (VI) shows a coefficient of EBITDA margin delta corresponding to 2.97% on a 10% significance level. Although we observe some differences in the results between regression (V)-(VI), the findings contradict what we hypothesized, namely that PBOs should exhibit higher EBITDA margin delta. In congruence with regression (I)- (IV), the control variables display negative coefficients, implying that they have a negative relation with the dependent variable. For instance, a higher EBITDA margin at entry will negatively impact the EBITDA margin expansion.

Regression (VII)-(VIII): NWC delta

The results from regression (VII) suggest that PBOs outperform SBOs in terms of improvements in working capital efficiency during the holding period (defined as NWC as a percentage of sales). The positive coefficient implies that SBOs obtain a positive delta of 1.52 percentage points compared to PBOs, which is statistically significant on a 10% level. Due to our delta being defined as $NWC\%ofSales_{exit} - NWC\%ofSales_{entry}$, a firm improving its working capital management will have a negative delta. Hence, the findings confirm our hypothesis that PBOs support greater improvements in working capital management than SBOs.

For the propensity matched sample, we find no evidence to conclude whether PBOs outperform their secondary counterparts. Furthermore, we note for both regressions (VII)-(VIII) that a longer holding period has a negative impact on improvements in working capital management.

Table 6.2 – *Summary of results of hypothesis testing*

Hyp.		Support (Full)	Sig. level	Support (PSM)	Sig. level
H ₁	<i>Secondary buyouts exhibit higher sales growth than primary buyouts</i>	No	-	Yes	*
H ₂	<i>Secondary buyouts do not exhibit EBITDA growth lower than that of primary buyouts</i>	Yes	**	Yes	**
H ₃	<i>Secondary buyouts exhibit lower EBITDA Margin delta expansion than primary buyouts</i>	No	-	No	-
H ₄	<i>Secondary buyouts exhibit less improvements in working capital management than primary buyouts</i>	Yes	*	No	-

Coefficients statistical significance at 10%, 5% and 1% are marked with *, ** and *** respectively. The significance level presented corresponds to the lower of the t-test and OLS regression.

Table 6.3 – OLS regression

	(1)(Log)Sales _{CAGR}		(2) EBITDA _{CAGR}		(3) EBITDA _{marginΔ}		(4) NWC Δ	
	(I) Full	(II) PSM	(III) Full	(IV) PSM	(V) Full	(VI) PSM	(VII) Full	(VIII) PSM
Buyouttype	0.0241 (0.0147)	0.0281* (0.0161)	0.161** (0.0655)	0.144** (0.0720)	0.0408*** (0.0152)	0.0297* (0.0158)	0.0152* (0.00847)	0.0121 (0.00875)
(Log)EV _{Entry}	-0.00879** (0.00405)	-0.00641 (0.00418)	0.00311 (0.0224)	0.0191 (0.0229)	0.00623 (0.00492)	0.0101** (0.00502)	-0.00179 (0.00302)	-0.00170 (0.00253)
EBITDA _{marginEntry}	-0.0917** (0.0393)	-0.109** (0.0432)	-0.350** (0.162)	-0.274* (0.159)	-0.283*** (0.0613)	-0.244*** (0.0658)	-0.00710 (0.0159)	-0.0119 (0.0153)
HoldingPeriod	-0.0109*** (0.00219)	-0.0123*** (0.00235)	-0.0272** (0.0112)	-0.0341*** (0.0124)	-0.00548** (0.00212)	-0.00628** (0.00242)	-0.00399** (0.00181)	-0.00421** (0.00173)
PEAge	0.00104 (0.000845)	0.00130 (0.000982)	-0.00164 (0.00455)	-0.00155 (0.00497)	0.000309 (0.000868)	0.000324 (0.00102)	-0.000332 (0.000679)	-0.00000377 (0.000575)
TransactionStatus	-0.00366 (0.0143)	-0.0285* (0.0164)	-0.219*** (0.0716)	-0.233*** (0.0850)	-0.0513*** (0.0136)	-0.0464*** (0.0158)	0.0139 (0.00999)	0.0121 (0.00906)
_cons	0.306*** (0.0800)	0.271*** (0.0839)	0.215 (0.401)	-0.0489 (0.420)	-0.0664 (0.0943)	-0.133 (0.0960)	0.0343 (0.0564)	0.0335 (0.0477)
<i>N</i>	322	231	322	231	322	231	322	231
<i>R</i> ²	0.125	0.161	0.077	0.094	0.239	0.236	0.035	0.061
<i>Adj. R</i> ²	0.109	0.138	0.059	0.070	0.224	0.215	0.017	0.036

Robust standard errors in parentheses
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

7. Discussion

7.1 Analysis of results

Growth performance

7.1.1 Hypothesis 1: Log Sales CAGR

In line with our first hypothesis, regression (I) and (II) present coefficients for the independent variable Buyout type of 2.44% and 2.85% respectively, suggesting that SBOs outperform PBOs in terms of sales growth. However, the full sample regression lacks statistical significance (p-value equals 0.103), wherefore our test fails to confirm (H_1). From the t-tests, it also follows that we do not get any significant evidence that the two groups differ in their sales growth performance. Our overall findings point in the same direction as those ideas brought forward by Achleitner and Figge, 2014, as well as Wang, 2012, i.e. that SBOs offer further room for turnover growth, but fail to show statistical significance on an aggregate level. However, once applied on our PSM sample, we get significant support in our regression. This suggests that when companies of similar size and industry are acquired, SBOs tend to outperform PBOs.

Previous literature is diverged in the view on SBO's scope for sales growth. Cressy et al. (2007) note one interesting source to the contrarious evidence, namely the geographic focal area, as more mature and experienced PE nations create value through secondary levers. Degeorge et al. (2016) continue the same path, showing that complementary skills, and GP's educational and career background are determinants in the second investor's ability to create value. The authors also found that the focus area of the sponsor is of importance. SBOs prove higher sales growth if the first sponsor is focusing on margin growth rather than sales growth. This is exactly the idea put forward by Achleitner and Figge (2014), suggesting that SBOs provide larger room for growth expansion, while first rounds will be focused on plucking the low hanging fruit. However, evidence provided by Bonini (2015) stand in stark contrast, showing that PE firm's inherent ability to create superior growth evaporates over time, leaving SBOs with a sales growth similar to that of the overall industry.

There are clearly mixed perceptions on this subject and the question remains if the efficiency measures performed in a PBO set out a favorable groundwork for further sales growth. The different viewpoints on the SBOs economic rationale are likely a result of secondary levers as

explained in Berg and Gottschalg (2005). While many studies have attempted to control for indirect levers through proxies, secondary buyouts are yet a rather unexplored area and still lack robust empirical evidence on the value creation phase and its determinants. In our case, we turn our heads to Sweden, a rather seasoned PE market, which might help to improve further growth in the second round. We also note an increase in foreign sponsors in the second round, from 35% to 53%, hence our positive result could be connected to the DeGeorge et al. (2016) findings of SBOs providing higher growth when a global fund buys from a regional sponsor.

7.1.2 Hypothesis 2: EBITDA CAGR

The results from regression (III) and (IV), as well as the t-tests, testing our EBITDA growth hypothesis provide statistical support that SBOs offer further scope for profitability improvements, confirming (H₂) at the higher scale. We hypothesized that SBOs would offer at least the same opportunity for EBITDA growth through the combination of increased sales and maintenance of efficiency measures implemented by the first sponsor. Our findings suggest that SBOs are truly superior in this area. The propensity matched sample shows a slightly lower mean in the buyouts' effect on EBITDA CAGR, but yet a significantly positive improvement in the second round. Comparing to the other columns in table 6.3, EBITDA growth seem to be the operational metric in which the secondary sponsors really outshine their predecessors. We also notice the same significance level when the model is applied on the PSM sample, providing additional support to our findings also when industry and company size are accounted for.

While the literature is unanimous in the perception of buyouts' ability to create value (see e.g., Baker and Wruck, 1989; Bergström et al., 2007; Guo et al., 2011). The opinions divert when looking at SBOs. Bonini (2015) found that PBOs outperform their secondary counterparts, suggesting that most of the hidden value is already reclaimed in the first round. Wang (2012) was on the same track, showing that SBOs show a higher profitability in terms of EBITDA, but once scaled by the size of the company, primary buyouts surpass. Our result also takes on a more extreme conclusion compared to Achleitner and Figge (2014), who found that PBOs and SBOs perform equally well in EBITDA CAGR.

Value drivers through EBITDA can be divided into two sections: i) turnover and ii) costs reductions. Put together with our findings on sales growth, the observed improvements in

SBOs could potentially be derived from a combination of higher turnover and efficiency improvements. Intrinsic levers such as experience, size and complementary skills as discussed in section 7.1.1 are again potential determinants. Other explanatory sources are early exits or synergies, further discussed in section 7.1.3.

7.1.3 Hypothesis 3: EBITDA margin expansion

Based on the descriptive statistics outlined in table 5.1, we observe a higher mean of EBITDA margin at entry for the SBO sample compared to the PBO sample (16% and 10.5% for each group, respectively). To our surprise, the findings derived from our t-test show that SBOs outperform PBOs in terms of EBITDA margin expansion. The same outcome is observed in regression (V)-(VI), in which we investigate the performance in a setting where factors such as firm size and holding period are controlled for. This leads to the third hypothesis being rejected. Our results contradict the ones of Wang (2012), showing that SBOs exhibit lower efficiency gains than PBOs. Although we recognise these findings as the most puzzling in our study, we distinguish two ways of explaining what could potentially drive the superior performance of SBOs relative to PBOs.

We have chosen to frame the first explanation as the “*early exit argument*”, implying that the first sponsor leaves low-hanging fruit to be captured by the second sponsor. As discussed in section 2.2.5, there are circumstances under which it could be optimal for a private equity sponsor to exit before all easily realised value creation opportunities have been claimed. For instance, it may be optimal for a PE firm constrained by liquidity needs once advancing towards the end of the fund’s lifetime or alternatively in the case of striving to establish a track record (Wang, 2012; Arcot et al., 2015).

The second explanation is outlined in this section as the “*synergies and scale argument*”. As concluded in section 5.1, SBOs demonstrate a mean enterprise value 2.55x the mean enterprise value of PBOs at the point of entry. The fact that the target firm has likely grown in scale during the first buyout period could potentially welcome new types of value enhancing practices and strategic initiatives in the second round. For instance, firms subject to a second buyout round might adopt an acquisition driven strategy to a greater extent, allowing them for synergies to be realised in the form of improved margins. Degeorge et al. (2016) uncover that SBOs occurring between a “margin-focused” PE firm and a PE firm focusing on external growth perform better. Extending the argument presented by Degeorge et al. (2016) –

implementing a growth-based strategy in the second round could also potentially result in scale benefits, in turn leading to margin expansions. Conclusively, topline growth is not the only source of value creation in secondary buyouts, but value is also created through improved operational profitability and efficiency.

7.1.4 Hypothesis 4: $NWC\Delta$

In terms of the fourth sets of regressions (VII)-(VIII), we find partial support for (H₄). For the full sample we identify that the Buyout type variable has a positive impact on the dependent variable, which is significant on a 10% level. Thus, regression (VII) suggests that the improvements in working capital management is greater in PBOs compared to SBOs. This is in line with the findings of Bonini (2015), suggesting that a higher level of working capital optimisation is achieved in the first buyout round compared to the second round.

Guo and Hotschkiss (2011) argue that one of the efforts initially undertaken by a PE firm is to eliminate unproductive assets and make more efficient use of working capital. Once inefficiencies have been addressed by the first sponsor, there seem to be limited possibilities for the second sponsor to accomplish the same level of improvements.

In contrast to Smith (1990) who argue that efficient management of working capital is one of the greatest sources of value creation in buyouts, we observe relatively limited improvements in each buyout round. Table 5.3 displays the surprising results with an observed mean for PBOs of -2.2% and -0.8% for SBOs. Furthermore, the coefficient of 0.0152 in regression (VII) can be interpreted as a modest difference between the groups.

When performing the regression analysis to our PSM sample, no statistically significant result is observed. Furthermore, we cannot confirm the difference in performance from our t-test as it lacks significance. This implies that we cannot confirm our hypothesis when performing the tests on companies of similar size and industry. The mixed support should be interpreted with prudence and the first result should not be used as a generalised proof of the buyout's impact on NWC, as the outcome is evidently dependent on the inclusion of certain transactions.

8. Conclusion

Secondary buyouts have increased in popularity among practitioners, a trend that has caused many raised eyebrows among researchers arguing they are second rate deals exhausted of any potential value creation. This study aimed to explore the economic rationale behind secondary buyouts and shed light to *if* and *how* they provide scope for true value creation from the more stringent view only encompassing operational improvements. To test the conventional wisdom, we investigate two different categories of value sources: i) growth and ii) efficiency measures.

Consistent with our growth hypotheses, we find evidence that SBOs outperform PBOs when it comes to EBITDA growth. The results also indicate that SBOs seem superior in terms of sales growth, showing robust significance once we examine propensity scored matched transactions. However, we do not find robust evidence for our sales growth hypothesis on our full sample. Overall, the growth prospect in SBOs make them economically rational deals, rebutting the conventional wisdom often permeated in literature (e.g., Wang, 2012; Bonini, 2015).

In contradiction to our hypothesis, also SBOs surpassed PBOs in the change in EBITDA margin over the holding period. In regard to previous literature, this result seems very puzzling. However, we conclude that this could be explained from two perspectives. The first one being the ‘early exit argument’, meaning that the first sponsor is forced to sell, leaving low hanging fruit to the next sponsor. The second one being the ‘synergies and scale argument’, referring to the ability once the buyout company has grown in scale to adopt more of a “buy-and-build strategy” to gain synergies, ultimately improving margins. Finally, and in contrast to previous literature, we find no evidence that SBOs underperform relative to PBOs in improving NWC relative to sales, once applied on our PSM sample.

Overall, our study concludes that secondary buyouts are not in any way subordinate primary buyouts in terms of operational value creation, but generally demonstrate superior performance compared to its primary counterparts. Hence, our findings contradict the ‘conventional wisdom’ claiming SBOs to be “second-rate deals”. While some of the low hanging fruit might already be plucked, we show that PE firms consistently find new ways to foster value creation also in succession. Other researchers have introduced sponsor

characteristics and secondary levers to explain this puzzle and it is likely to think that complementary skills and toolboxes do function as a ladder to the next level of branches. However, more research is needed to fully understand what drives value creation in ‘pass the parcel’ deals, as this is yet an area with two camps regarding their scope for operational improvements. Because eventually, one day, the music will stop and the parcel is to be opened, but as the PE firms seem to believe, this might be a rewarding surprise.

“In pass-the-parcel with private equity, the parcel is usually getting bigger and better”

Neil MacDougall, Silverfleet

9. Suggestions for future research

In our analysis, we distinguish two potential explanations of the superior EBITDA margin improvements, observed in SBOs relative to PBOs. This highlights the need for future research to determine the actual underlying determinants of the operational improvements in SBOs. Do the sponsors leave low hanging fruit to be reaped by the second PE firm because they are being constrained by factors such as liquidity, or because they have extracted all value which they possibly could, given their skillset and timing?

We also believe it would be fruitful to further investigate how the characteristics by primary and secondary sponsors differ. As the private equity industry has grown massively, more PE firms have also become more globally oriented (Kaplan and Strömberg, 2009). From our study, we note that around half of the sponsors that participated in the transactions represents international sponsors. Thus, we encourage future studies to investigate the geographic profiles of the private equity firms, as an extension of the studies determining how the sponsor characteristics are connected to the value creations in SBOs, as this is yet an unexplored area.

The scope of our study was extended to the Swedish market only, which is considered a mature private equity market. Thus, applying our results on other countries with different fundamentals should be done with care. The research design has also been constructed with the purpose of analysing transactions within one and the same country. Extending the geographical scope of the study would require certain modifications of the model specification, to account for “country-specific effects”.

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Appendices

Appendix A - Propensity score matching

<i>Propensity Score Matched Results</i>				
	k	ATT	S.E.	t-statistic
(Log)Sales _{CAGR}	3	0.014	0.015	0.90
EBITDA _{CAGR}	3	0.21	0.081	2.59***
EBITDA _{marginΔ}	3	0.024	0.02	1.21
NWCA	3	0.014	0.01	1.42

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix B - Variance inflation factor test

	VIF	1/VIF
(Log)EV _{entry}	1.108	0.903
Buyouttype	1.092	0.915
FinancialSponsorAge	1.074	0.932
HoldingPeriod	1.054	0.949
TransactionStatus	1.049	0.954
EBITDA _{MarginEntry}	1.029	0.971
Mean VIF	1.068	.

Appendix C - Wilcoxon signed-rank test

(Full sample)	Hyp	Diff mean	P>z
(Log)Sales _{CAGR}	H_1	-0.014	0.3169
EBITDA _{CAGR}	H_2	-0.142	0.017
EBITDA _{marginΔ}	H_3	-0.03	0.0866
NWCA	H_4	-0.013	0.0939

Appendix D – Kernel Regression

Full sample	(I) Sales CAGR	(II) EBITDA CAGR	(III) EBITDA marginΔ	(IV) NWCA
Buyouttype	0.021	0.172**	0.040**	0.014*
(Log)EV _{Entry}	-0.009**	0.004	0.006	-0.001
EBITDA _{MarginEntry}	-0.069	-0.719***	-0.325***	-0.011
HoldingPeriod	-0.011***	-0.030**	-0.006**	-0.003**
PEAge	0.001	-0.002	-0.000	-0.000
TransactionStatus	-0.016	-0.203***	-0.046***	0.008
<i>N</i>	322	322	322	322

The table presents the Kernel estimates. Coefficients statistical significance at 10%, 5% and 1% are marked with *, ** and *** respectively.

Appendix E – List of Financial Sponsors

Private Equity Sponsor	SponsorAge	Nation	Private Equity Sponsor	SponsorAge	Nation
3i Group PLC	4,33	Foreign	Investor AB (publ)	14,42	Swedish
AAC Capital Partners	1,75	Foreign	Karnell	3,50	Swedish
ABRY Partners LLC	27,42	Foreign	Kohlberg & Co LLC	19,08	Foreign
Accel-KKR LLC	14,92	Foreign	Latour Industries		
Accent Equity Partners AB	17,17	Swedish	International AB	31,33	Swedish
Adelis Equity Partners AB	5,50	Swedish	Ledstiernan AB	12,33	Swedish
Aksiom Partners	1,58	Foreign	Litorina Capital Advisors		
Alder	3,33	Swedish	AB	20,00	Swedish
Allegra Capital GmbH	18,17	Foreign	Mannerheim Invest AB	2,67	Swedish
Altor Equity Partners	6,58	Swedish	Marlin Equity Partners		
American Industrial			LLC	12,67	Foreign
Partners	24,58	Foreign	MedCap AB (publ)	6,25	Swedish
Amplico Kapital AB	4,50	Swedish	Nalka Invest AB	1,42	Swedish
Andera Partners	17,00	Foreign	NC Advisory AB	12,83	Swedish
Apax Partners LLP	6,33	Foreign	NDX Group, UAB	12,50	Foreign
Argan Capital Advisors			Neqst Partner AB	2,08	Swedish
LLP	7,17	Foreign	Nordic Capital	27,00	Swedish
Armada Mezzanine			Nordstjernan AB	20,92	Swedish
Capital Oy	12,92	Foreign	Norgesinvestor AS	13,00	Foreign
Arts et Biens	14,25	Foreign	Norvestor Advisory AS	21,67	Foreign
ATP Private Equity			Orlando Management AG	13,75	Foreign
Partners	6,42	Foreign	PAI Partners	22,33	Foreign
Axcel Industriinvestor A/S	13,92	Foreign	Palamon Capital Partners		
Bain Capital LP	28,50	Foreign	LP	7,33	Foreign
Baker Capital Corp			Pamica AB	2,58	Swedish
NC Advisory AB	8,67	Foreign	PEQ AB	4,33	Swedish
BC Partners LLP	25,50	Foreign	Peq AB	2,75	Swedish
Bridgepoint Advisers			Perusa GmbH	5,83	Foreign
Limited	16,42	Foreign	Polaris Management A/S	17,33	Foreign
BWB Partners	2,42	Foreign	Preato Capital AB	4,58	Swedish
Candover Investments			Priveq Investment	18,25	Swedish
PLC	6,58	Foreign	Priveq Partners AB	17,58	Swedish
CapMan Oyj	21,08	Foreign	Procuritas Capital	20,50	Swedish
Carlyle Group	26,67	Foreign	Ratos	11,08	Swedish
Ceder Capital	5,83	Swedish	Riverside Co	20,50	Foreign
Cinven Partners LLP	10,92	Foreign	Rutland Partners LLP	18,67	Foreign
Connecting Capital	8,83	Swedish	Segulah Advisor AB	9,42	Swedish
Credelity Capital AB	3,92	Swedish	Silverfleet Capital Partners		
CVC Capital Partners			LLP	19,25	Foreign
Limited	24,08	Foreign	Skanditek		
ECI Partners LLP	10,50	Foreign	Industriförvaltning AB	16,25	Swedish
eEquity AB; Unity Beauty			Small Cap Partners		
Group AB	3,42	Swedish	Management i Malmo AB	9,08	Swedish
EQT Partners AB	11,17	Swedish	Sobro AB	6,50	Swedish
Evolver Investment Group			Starcap Private Equity		
Ltd	6,58	Foreign	Fund AB	12,08	Foreign
Fagerberg & Dellby AB	2,33	Swedish			
Fairford Group	16,75	Swedish			

Fidelio Capital	0,92	Swedish	Stena Adactum AB	2,00	Swedish
Five Arrows Managers SAS	7,50	Foreign	Stirling Square Capital Partners Lp	15,58	Foreign
FSN Capital Partners AS	8,83	Foreign	Summa Equity AB	1,33	Swedish
GMT Communications Partners LLP	12,17	Foreign	Symphony Technology Group LLC	0,92	Foreign
Gores Group LLC	18,83	Foreign	The Riverside Company	22,75	Foreign
Gro Capital A/S	3,83	Foreign	Triton	9,75	Foreign
Herkules Capital AS	13,67	Foreign	Valedo Partners Fund I AB	5,33	Swedish
HgCapital LLP	21,33	Foreign	Ventizz Capital Partners Advisory AG	11,42	Foreign
Holta Invest AS	27,42	Foreign	VIA Equity A/S	12,83	Foreign
IK Investment Partners	21,83	Foreign	Vision Capital LLP	6,08	Foreign
Inter IKEA Investments AB	5,83	Swedish	Vitruvian Partners LLP	12,17	Foreign
Intera Equity Partners Oy	3,75	Foreign	Volati AB	4,17	Foreign
Investment AB Latour	21,42	Swedish			

Appendix F – Distribution of transactions based on industry

Industry description	SNI 2 digit	Nr Total	Nr PBO	Nr SBO
Crop and animal production, hunting and related service activities	1	1	0	1
Manufacture of food products	10	4	3	1
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	16	3	3	0
Manufacture of paper and paper products	17	3	2	1
Printing and reproduction of recorded media	18	1	1	0
Manufacture of chemicals and chemical products	20	5	4	1
Manufacture of basic pharmaceutical products and pharmaceutical preparations	21	1	1	0
Manufacture of rubber and plastic products	22	4	2	2
Manufacture of other non-metallic mineral products	23	3	2	1
Manufacture of basic metals	24	3	2	1
Manufacture of fabricated metal products, except machinery and equipment	25	8	6	2
Manufacture of computer, electronic and optical products	26	5	4	1
Manufacture of electrical equipment	27	6	3	3
Manufacture of machinery and equipment n.e.c.	28	24	19	5
Manufacture of motor vehicles, trailers and semi-trailers	29	7	5	2
Manufacture of other transport equipment	30	3	3	0
Manufacture of furniture	31	3	3	0
Other manufacturing	32	4	2	2
Repair and installation of machinery and equipment	33	2	2	0
Electricity, gas, steam and air conditioning supply	35	1	1	0
Construction of buildings	41	2	2	0
Civil engineering	42	2	2	0
Specialised construction activities	43	9	8	1
Wholesale and retail trade and repair of motor vehicles and motorcycles	45	4	3	1
Wholesale trade, except of motor vehicles and motorcycles	46	63	43	20

Retail trade, except of motor vehicles and motorcycles	47	17	14	3
Land transport and transport via pipelines	49	3	2	1
Warehousing and support activities for transportation	52	5	4	1
Postal and courier activities	53	1	1	0
Accommodation	55	1	1	0
Food and beverage service activities	56	2	1	1
Publishing activities	58	9	7	2
Motion picture, video and television programme production, sound recording and music publishing activities	59	5	3	2
Telecommunications	61	6	4	2
Computer programming, consultancy and related activities	62	17	15	2
Information service activities	63	2	1	1
Financial service activities, except insurance and pension funding	64	5	5	0
Activities auxiliary to financial services and insurance activities	66	2	0	2
Real estate activities	68	1	0	1
Activities of head offices; management consultancy activities	70	17	12	5
Architectural and engineering activities; technical testing and analysis	71	9	9	0
Technical testing and analysis	72	1	1	0
Other professional, scientific and technical activities	74	1	0	1
Veterinary activities	75	1	1	0
Rental and leasing activities	77	6	3	3
Employment activities	78	3	3	0
Travel agency, tour operator and other reservation service and related activities	79	1	1	0
Security and investigation activities	80	2	1	1
Services to buildings and landscape activities	81	7	4	3
Office administrative, office support and other business support activities	82	2	1	1
Education	85	3	2	1
Human health activities	86	12	9	3
Residential care activities	87	5	3	2
Sports activities and amusement and recreation activities	93	3	2	1
Other personal service activities	96	2	1	1
Total		322	237	85