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Corporate Transformation under Private Equity Ownership

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Project Paper with Discussant – Finance Spring 2013

Keywords: Private Equity, Leveraged Buyouts, Operating Improvements

Abstract

This thesis aims at investigating and comparing financial changes in private equity owned companies to non-private equity owned companies. We have done this by selecting 25 companies that have been exited by a private equity firm between 2004 and 2012 and compared changes in growth, profitability and efficiency during the holding period to a number of comparable companies. We found that private equity owned companies increased their profitability and growth more than comparable companies during the holding period, but there were no evidence of a similar superior increase in efficiency.

Contents

List of Abbreviations

EBITDA – Earning Before Interest, Taxes, Depreciation and Amortization

EBIT – Earnings Before Interest and Taxes

EVCA – The European Private Equity and Venture Capital Association

GP – General Partner

IFN – Research Institute of Industrial Economics

IPO – Initial Public Offering

LBO – Leveraged Buyout

NWC – Net Working Capital

PE – Private Equity

PIPE – Private Investment in Public Equity

ROIC – Return On Invested Capital

SNI – Svenskt Näringsgrensindelning 2007

1. Introduction

The private equity (PE) industry has expanded rapidly across the Western world since it rose to prominence in the United States in the early 80s. The spread of private equity has been particularly noticeable in Sweden, where in 2012 private equity buyout investments amounted to more than 0,5 % of GDP, which is the highest number in Europe (EVCA 2013). The same year, 28 billion euro was invested in European companies by private equity funds and a total of 16,5 billion euro was raised in new funds throughout the year. Despite the impressive absolute numbers, this represents a 19 % drop in total investments and 39 % less capital raised in new funds compared to last year, reflecting the very strong performance of the private equity industry in 2011 (EVCA 2013).

The European private equity industry experienced a boom from 2002 until the financial crisis of 2008, with a compounded average growth rate of 44 % in capital raised and 26 % in capital invested between 2002 and 2006 (EVCA 2013). Following the financial crisis, private equity fund raising and investing fell substantially, although the industry has recovered during the last three years. The private equity industry currently seems to be going in to a new phase with both regulatory changes and lower deal activity. This could possibly result in considerable changes of the industry in the coming years.

1.2. Real Economic Growth

Concurrent with the growing importance of the private equity industry, it has come under much scrutiny. A recurring critique is that private equity firms do not contribute with any real economic growth and that their debt financed acquisitions (so called “leveraged buyouts”) endangers the companies they acquire due to the heavy debt burden laid upon them. They have also been accused for stripping important assets of their portfolio companies in order to realize short term profits (The Economist, 2007).

Advocates of the private equity industry claim that the critique is unjustified and point to the fact that private equity firms often invest in companies that experience difficulties and therefore might otherwise go bankrupt. They also point to the fact that their experience from other portfolio companies enables them to create sustainable improvements and real economic growth (KPMG, 2013).

The Swedish Research Institute of Industrial Economics conducted a study in 2010 evaluating the effects of private equity buyouts and found that there were evident productivity gains associated with the buyout. The study also found that employment fell marginally in the short term, but that there were no consistent evidences of reduced investments in the long

term. In a concluding remark, the report states that "the concerns of industry critics seem unwarranted" (IFN, 2010).

1.3. Empirical results

Several articles and theses have examined the return of private equity investments as an asset class compared to benchmark indexes and outlined the reasons behind potentially superior return (Aigner et.al. 2008). There have also been studies examining the rationale behind superior performance of private equity owned firms drawing upon well-established theories including agency theory, stewardship theory, operational improvements etc. (Braun et.al. 2010). However, as far as we know there are no studies that compare interpretable financial metrics at the year of the buyout and at the exit year.

Hence, our aim with this thesis is to examine and evaluate what happens to the buyout firm during the time it is owned by the private equity firm. We will try to evaluate this by comparing certain financial metrics before and after the holding period. In order for these metrics to have an interpretable value, we have also decided that these metric should be compared to the same metrics of comparable companies not owned by PE firms.

1.4. Delimitations and Formulation of Thesis Question

The private equity industry is well known for being secretive and private equity firms do seldom release information concerning the performance of their portfolio companies. This was something we took under consideration when deciding what question formulation would underlie our thesis. In addition to this, we also examined what had already been written about the private equity industry.

Since our task is to evaluate and compare performance between private equity firms and comparable companies, we formulated the following thesis question:

How do companies owned by a private equity firm develop financially compared to non-private equity owned comparable companies?

We believe this question to be relevant when analyzing the changes in a company owned by a private equity firm. We hope our thesis will contribute to a more tangible understanding of what a company can expect when owned by a PE firm compared to not being owned by a PE firm.

2. Theory

In this section, we give an introduction to the PE industry and its main characteristics. We also outline plausible theoretical explanations for the difference in performance between PE owned firms and publicly traded firms.

2.1. What is Private Equity?

The general distinction made between private equity and non-private equity is that private equity refers to an investment in a company that is not traded on a stock exchange (Sampson, 2007). However, this definition does not tell you how to consider a private investment in public equity (PIPE), which is common practice within the private equity industry, and is therefore somewhat simplistic. Despite its shortcoming and due to the basic nature of this paper, it will be the definition used throughout.

A private equity transaction occurs when a private equity firm acquires either a private or public company, using a PE fund as the acquisition vehicle. The transaction is financed by using a relatively small amount of equity and a relatively large amount of debt (Sahlman, 1990). This transaction is often referred to as a leveraged buyout (LBO). In the typical leverage buyout transaction, the PE fund acquires all shares in an existing and mature company. The larger size of the acquired company (henceforth referred to as "target company") makes PE investments different from venture capital investments and the complete ownership takeover is due to the PE firm's desire to strongly influence and develop the target company's operations (Strömberg and Kaplan, 2008)

The PE fund consists of two participants, Limited Partners (LP) and General Partners (GP). The General Partner is the PE firm itself, whereas Limited Partners are pension funds, insurance companies, wealthy individuals and similar who want the PE firm to invest their capital when conducting acquisitions. Each Limited Partner commits a certain amount of capital to the PE fund set up by the PE firm and their investment is legally seen as a limited partnership, which is why the investor is called a Limited Partner. The PE firm will raise a predetermined amount of capital and close the fund when the target is reached. It is customary that the General Partner invests 1 % of the total capital in the fund (Strömberg and Kaplan, 2008) and the lifespan of a PE fund is usually around 10 years. Since the individual target company is owned between three and five years, it is unusual for the PE firm to acquire any company five years or later after inception (Strömberg and Kaplan, 2008). The number of

acquisitions made during the life span of the PE fund varies but is far less than that made by a normal mutual fund.

Due to the limited partnership structure of PE funds only General Partners take decisions regarding what companies to acquire. Normally, the LP does not have any mandates whatsoever when it comes to investment decisions. The relationship between the LP and the GP is stated in a contract agreed on at a time before the first investment. This contract also includes certain covenants, for example how large an investment can be and how much debt the PE firm can use in an acquisition. Other covenants include what kind of securities can be invested in within the fund.

The PE firm normally has three different sources of income from the PE fund (Berg and Gottschalg, 2003). First, the general partner earns a management fee that resembles the fee charged by mutual funds based on the amount of capital invested per year, and this fee constitutes the most predictable cash flow stream for the PE firm. Secondly, PE firms usually have a part that is based on the fund's performance. This source of income constitutes the lion share of the return to the PE firm from a successful fund. Industry standard for the performance fee is 20 % and the fee is often referred to as "carried interest" (Sampson, 2007). Thirdly, some PE funds have so called "deal fees" or "monitoring fees" for the companies they invest in, but these will vary and might look very different from fund to fund (for further reading on fund charges, see Metric and Yasuda, 2007)

The private equity industry is today mainly based in the United States and according to Private Equity International (PEI), 21 of the 30 largest PE firms in the world are based in the U.S. The 18 biggest PE firms all have more than 10 billion USD in assets under management and 17 of them are U.S. based (PEI 2013).

2.2. Agency theory and Corporate Governance

The Agency theory has been the most common explanation for the potentially superior return realized by companies owned by a PE firm. The Agency theory´s underlying argument is that the principle (owner, board) and the agent (CEO, management) of a company are in conflict regarding their own interests and that this conflict can be eliminated when the company is managed by a PE firm.

The agency cost arises mainly because of two human factors; moral hazard and conflict of interest (Bebchuk et.al. 2004). Moral hazard refers to a situation where it is possible for an individual to take on risk without having to deal with the (negative) consequences. An example of how this work can be found when looking at the history of the banking industry.

There has been close to a hundred bank crises during the last 20 years and nearly all have ended with taxpayers bailing out the banks risking to go bankrupt (Boyd 2000), which implies that banks have not been held fully responsible for the risk they have taken on.

Conflict of interest arises for example when an individual is employed as CEO and when he or she has a salary or bonus based on the company's stock performance. In this situation, the CEO might be inclined to boost short term stock price of the company to maximize compensation, which could counter the desires of the principal who have a longer term perspective.

According to Jensen (1989), the problem with moral hazard and the potential conflict of interest can be reduced or even eliminated in PE owned companies since the ownership structure aligns the interest of the agent and the principal. Jensen therefore concludes that PE ownership is a superior ownership structure and that it is likely to be a more prevalent type of ownership in the future (Jensen, 1989)

The PE firm's ability to curtail the agency cost lies in that it makes the agent part-owner of the target company. This aligns the interest of the PE firm and the agent, which minimizes agency cost. In cases where the agent has not been a part-owner of the business, the PE firm has used the board of directors to monitor the executives of the target company in order to make sure that they work for the benefit of the PE firm (Fama, Jensen 1983).

Ever since the PE industry emerged in the early 80s the importance of strong managerial incentives have been crucial. Research have been carried out trying to quantify what ownership stake is needed in order to incentivize management. Acharya and Kehoe (2008) conducted a study of major buyouts in the U.K. and found that the median CEO gets 3 % of the equity and the median management get 15 % equity. These results are in the same range as a study conducted by Kaplan in 1989 (cited in Strömberg, Kaplan 2008).

2.3. Financial and governance engineering

When the PE industry started to evolve in the beginning of the 80s the return from the portfolio companies was mainly associated with financial and governance engineering (Jensen, 1989). Nowadays, the focus of the PE firm has expanded to include three main areas; managerial incentives, leverage and governance of the board (Strömberg and Kaplan 2008).

First, private equity firms pay close attention to the management incentives of their portfolio companies. They give the top management illiquid assets such as stocks and options, which was an uncommon provision back in the 80s (Jensen and Murphy, 1990). This is supposed to incentivize the management by giving them a large upside if the company does

well, but at the same time they risk losing a substantial amount of money if the company does poorly.

The second measure taken in order to reap high returns is using leverage. Not only do you get an operational leverage which will boost profits during good times, a highly leveraged company will also incur large debt repayments which will limit the free cash flow. Having a limited cash flow requires the management to be careful when investing the company's capital and this can potentially reduce the "free cash flow problem" (Jensen 1989). The free cash flow problem occurs when the management of company has excess cash that they start to spend more recklessly, for example on costly project with bleak outlook or expensive acquisitions. The latter is a very real concern when management compensation is positively correlated with increase in revenue, since the company then might acquire growth beyond the point where it is most profitable.

The third measure focuses on the governance of the board. When a PE firm invests in a portfolio company they usually change management and hire key competence from either their own firm or their network. According to Acharya and Kehoe (2008), boards of PE owned companies are in general smaller, have more informal contact and meet more often than publicly owned companies. The boards are also less reluctant to replace poorly performing managers; one third of the COOs in the study were replaced during the first 100 days and two thirds were replaced sometime during the next four years.

2.4. Operational improvements

Operational improvements has become the most prominent way to increase the value of a target company and on average two thirds of the increase in value comes from operational adjustments (Vester, 2011). Operational improvements can be achieved and measured in many ways and today PE firms use multiples such as EBITDA/sales, revenue growth, sales/employee etc. when measuring operational improvements. Naturally, it varies how the management improves these multiplies but among common strategies you find cost cutting, mergers and geographical and market expansion. This focus on operational changes can be seen in the hiring of several former leading executives by PE firms (Strömberg and Kaplan 2008). Many companies also have internal and external consulting groups to help them increase their operational skills.

2.5. Financial Implications of Operational Improvements

Aligning with our thesis question we are limiting our paper to comparing the differences in the financial and operational management during a buyout period. Berg and Gottschalg (2003)

identified three key areas from where the private equity companies can lever the management of the portfolio company in order to create superior returns. These levers of value creation can be interpreted in measures for cost cutting and margin improvements, working capital management and employee efficiency. By dividing these financial measures into three areas we found that profitability, working capital management and employee efficiency are exhausting these measures.

2.5.1. Profitability

As mentioned in the agency theory section, concentrating ownership, aligning interests between management and board and using high leverage can enable general partners to increase operation efficiency and therefore overall profitability of the target company.

2.5.2. Employee Efficiency and Working Capital

As previously discussed, by increasing the ownership stake of the top management the principal-agent problem can be mitigated and employee efficiency increased. Studies have shown that PE firms sometimes also implement performance based salary for non-executive which should lead to a higher efficiency on all corporate levels (Bacon et. al. 2004). Muscarella and Vetsuypens (1990) found that a company increased its sales per employee metric following a buyout by a PE firm.

Improving the company's management of its working capital can be an important measure when increasing the value of a firm (Lichtenberg and Siegal 1990). This can be achieved by managing the working capital (such as accounts receivable, accounts payable and inventory) more efficiently. A decrease in working capital will also free cash, which can be used to pay down debt or give dividend to the PE firm. Holthausen (1996) found that target companies on average have lower working capital at time of exit than comparable industry peers.

3. Hypothesis development

In this section we outline the performance hypotheses that we will used to benchmark and evaluate private equity owned companies relative to its publicly owned peers.

Based on the discussion in the previous section regarding PE firms' ability to reduce agency cost by aligning financial incentives in target companies, and thus improving the company's operations, we have outlined a number of hypotheses that we seek to test by gathering information from recent buyouts. We decided to apply our hypothesis and conduct our tests on target companies being bought by a PE firm between 2004 and 2012, since the holding period for PE firms tend to range between 2 and 7 years. This of course implies that there will be few companies in our samples that have been bought after 2009.

We have drawn upon performance measures for PE owned companies used in previous studies (Goossens et.al. 2008, Guo et.al. 2011) and filtered for performance measures and metrics not deemed relevant for our analysis. From this, we have identified three main areas of performance measures for the company, namely:

(1) Revenue growth
(2) Profitability
(3) Efficiency

These three areas have in turn been subdivided into a number of different metrics that we have calculated for the accounting year of entry and then recalculated for the accounting year of exit. As previously mentioned, our hypotheses will have the character of an expected superior growth, profitability and efficiency for the PE owned company in relation to its peers, for reasons outlined in the previous section.

3.1. Revenue Growth

Our first hypothesis deals with the revenue growth for the company during the holding period.

H1: The target company's revenue grows faster than its peers' during the holding period

Revenue growth can either be achieved through organic growth or through acquired growth, meaning that the company acquires other companies in order to boost revenue. We make no distinction between these two types of growth in our hypothesis. We expect the private equity owned company to grow its revenues more than its peers.

3.2. Profitability

We evaluate profitability by measuring the EBITDA margin and the Return on Invested Capital (ROIC), which is an approach similar to that of other studies conducting the same kind of analysis (Goossens et.al. 2008). We formulate our hypotheses as follows:

H2: The target company's ROIC increases more than its peers' during the holding period

H3: The target company's EBITDA margin increases more than its peers' during the holding period

We expect the target company to improve the ROIC and the EBITDA margin more than its publicly traded peers during the holding period. This assumption follows what has previously been discussed, namely that the management of the target company should have strong incentives to run the company as profitable as possible.

3.3 Efficiency and Working Capital

Similar to our assumptions about profitability, we believe that the target company should exhibit higher levels of efficiency during the holding period, due to more stringent corporate governance than its publicly traded peers. We evaluate a company's efficiency by looking at its total sales in relation to the number of employees as well as the working capital as a percentage of sales (for definition, see section 4.3.3). We believe these two metrics to be good measures of efficiency since it tells us something about how many employees and how much working capital are required to generate certain revenues. We formulate our efficiency hypotheses as follows:

H4: The target company exhibits a lower net working capital to sales ratio than its peers during the holding period

H5: The target company exhibits higher sales per employee than its peers during the holding period

Besides describing efficiency, hypothesis *H4* also captures an important feature in many private equity buyouts, namely, the need to generate high cash flows in order to pay down debt assumed by the target company at the time of the buyout. Lower net working capital

requirements increase free cash flow[1], which can be used to pay down the company's newly issued debt.

[1] Free Cash Flow is defined as EBIT (1-t) + Depreciation & Amortization – Capital Expenditures - % Change in Net working capital.

4. Methodology

In this section we describe the gathering of data preceding our results and the required features of each company's peer group. We also describe metrics used to evaluate the performance of private equity owned companies and statistical methods used to gauge the reliability of the data.

Since our results and analysis largely depend on the reliability of the data collected as well as the choice of accounting metrics for evaluation, we have been particularly thorough in the process and choice of what data and which metrics to use. Our aim has been to use data that can be fairly measured (e.g. not distorted by accounting rules) and that has an inherent characteristic of comparability. Because of this, we have been prone to use items found as early as possible in the income statement (Revenue, EBITDA) and balance sheet items reported on an aggregated level rather than a level that is very detailed. An example of this is our use of a working capital ratio instead of several ratios including the decomposition of working capital (inventory, accounts receivable, accounts payable etc.) In cases where metrics have been negative, and thus hard to interpret, we have chosen to describe and analyze the metric in a qualitative way. Although this introduces a more arbitrary evaluation of the data than the strict quantitative approach, we still believe that it is a viable and meaningful way to make use of data hard to interpret quantitatively.

4.1 Data Collection

The first step in the data collection process was to decide which database to use in order to obtain information of private equity owned company. Data of this sort is not always easily accessible due to the secretive nature of private equity holdings. In addition to this, public databases with information about private equity deals are scarce, although this to some extent has been offset by a greater disclosure of information from the private equity firms themselves following new general guidelines (EVCA 2013).

We ended up using data provided by *Argentum*, which is a Norwegian investment company focusing on investments in private equity funds (Argentum 2013). The database provides information about private equity linked activities, such as buyouts, seed investment, mergers and divestments, for the entire Nordic region. Since the focus of this thesis lies on the transformation of a private equity owned company during the holding period, we decided to only focus on buyout activities. When the information provided by *Argentum* about a specific

buyout was incomplete, we used information from the private equity firm's website as complement.

We set our initial search to include companies with headquarter in Sweden, the transaction to be a buyout (since we wanted to avoid venture capital transactions) made during 2004 and 2012, and without any preference regarding sector and type of exit. This search yielded 160 hits. Further, we were not interested in buyout transactions that had no following exit date since our study focuses on benchmarking the target company to non-private equity owned peers during the holding period. One could therefore assume that recent buyout transactions (e.g. between 2009 and 2012) would seldom be of interest, unless the transaction was a so called "secondary buyout", meaning the target company is already owned by a PE firm when sold, since it is unlikely that the private equity company has exited the target company before the end of 2012. This refined evaluation left 116 buyout transactions.

Although the 116 buyout transactions fulfilled the above search criteria, we stilled faced a potential problem in that the private equity firm conducting the buyout transaction might not be Swedish and thus either (1) merge the company with a foreign company also owned by the PE firm and (2) deviate from Swedish generally accepted accounting principles. This could potentially inhibit us from obtaining reliable annual reports which in turn could jeopardize our results and complicate our benchmarking. We found the annual reports from companies bought by foreign private equity firms to be hard to access and therefore we decided to only include buyout transactions conducted by Swedish PE firms. Naturally, the aforementioned concerns might also apply to Swedish PE firms with portfolio companies abroad, but we found that sample to be small and manual adjustments could be made accordingly. Although our new search criterion removed a big chunk of the companies in our initial dataset, we still saw this necessary and after the refined search we were left with 32 companies.

Finally, for some companies we were not able to find annual reports for the entry and exit years, and we therefore decided to remove these as well. All-in-all, we ended up with 25 companies that could be properly evaluated. This is about the same number of companies that Bruton and Keels (2002) use in a similar study.

4.2 Comparable Companies

Since our thesis aims at investigating how a company is expected to change during the time it is owned by a PE firm, with respect to certain important metrics, we found it relevant to assign each target company a group of comparable companies (referred to as "peer group"). We did this since a metric by itself does not give you much information; a certain growth rate

can for example be considered high in one industry but low in another. It is possible that an industry or the overall economy has had a favorable development during the holding period, which would make it hard to gauge the importance of the PE ownership. Also, assigning a peer group to evaluate the impact of the PE firm on a target company is an approach taken by other similar studies (Bruton 2002, Bergström et.al 2007).

Each peer company assigned to the target company should function as a viable and unbiased benchmark of the target company. In order to achieve this, we started by looking at each target company's SNI code. The SNI code is used to categorize a company based on the type of industry it is mainly operating within. This approach resembles other researchers' (Bergström 2007 et.al.) with the difference being that they have used NACE codes instead, which is a standardized classification system for European companies. Since we are only interested in comparable companies operating in Sweden, we considered SNI to be more appropriate than NACE. In addition to using SNI in order to elect peer companies, we also added the following criteria for each peer:

(1) Not owned by another PE firm
(2) Revenue between 15 % and 300 % of that of the target company the year of exit
(3) Annual report available at both the entry and exit year of the target company

Both criteria (1) and (3) are intuitive to include since they are a matter of comparability and data access, respectively. Criterion (2) was chosen in order to avoid comparing the target company with a company of very different size, since this could mean that either company benefit from substantial economies of scale. Damodaran (2007) states that there is a scale effect in ROIC, implying that the ROIC for a company will be decreasing as the company grows bigger. Since we wanted to avoid this potential pitfall in our comparison between the target company and the peer company, we initially decided that the turnover should be between 30 and 200 % of that of the target company. However, in order to get a sufficient number of peers (3) we had to stretch this criterion to include companies with a turnover between 15 and 300 % instead.

4.3 Performance Measures

In order to evaluate changes in the target company following the buyout by the PE firm, we have chosen a number of metrics that will be calculated at the entry year and then recalculated at the exit year. We have focused and chosen metrics/ratios based on a couple of conditions, namely:

(1) The metric should be hard to distort by accounting measures
(2) The metric should be independent of tax rate and financial structure of the company
(3) The metric should potentially be interesting for someone conducting buyouts
(4) The metric should try to capture operating changes

The first and second condition can be satisfied by choosing items in the income statement as close to revenue as possible. This limits the PE firm's leeway to lower taxable income by using innovative financial structures. Two good measures to use for this purpose are EBITDA and EBIT. For the third and fourth condition we have chosen to focus on efficiency by using input-output related measures (such as profitability and changes in sales).

4.3.1 Change in revenue

Our first measure of the changes occurring in the target company during the entry and exit year is change in revenue. We deem this relevant for purpose of analysis since it tells us something about growth in the target company's revenue during the holding period. Growth can be achieved either through growing organically, or through acquiring other companies to create a bigger entity with higher revenues. The latter strategy is widely used within private equity and is sometimes referred to as "bolt on acquisition" or "buy and build acquisition". We pay no particular interest in whether the growth in the target company's revenue is achieved organically or through acquisition in this thesis.

4.3.2 Profitability measures

We are measuring changes in profitability by using two different metrics that complement each other in a way that we found appropriate. The first metric we use when measuring changes in profitability is Return on Invested Capital (ROIC), which is a measure of how much the company generate in profits in relation to its invested capital (Damodaran, 2007). The ROIC measure is not uniform between different scholars and can be calculated either on a pre-tax or post-tax basis (Damodaran, 2007). However, since we stated in our general principles that changes in tax rate should not affect our metrics, we decided to go with Damodarans's pre-tax definition of ROIC. We calculate ROIC as follows:

$$\text{ROIC} = \frac{\text{EBIT}}{\text{Fixed Assets} + \text{Current Assets} - \text{Cash} - \text{Current Liabilites}}$$

The reason for subtracting cash from current assets is because cash contributes with interest income to the Earnings Before Interest (EBT), and if we were to include this in our ROIC measure, we would be double counting. Also, we do not want to include effects of different financial structures in our profitability measure.

We intuitively see that this profitability measure can become negative if either (1) EBIT is negative, in which case the company is not profitable, or if (2) Invested Capital is negative, which can occur if the company either has a small asset base, a lot of cash or high levels of current liabilities. Since a negative ROIC is hard to interpret – it is not necessarily a bad thing to have a negative ROIC if it is the denominator that is negative – we also use the metric EBITDA/Sales as a measure of profitability. This metric is very straight forward to calculate and is sometimes referred to as "gross profit" in the income statement. One calculates the EBITDA margin as:

$$\text{EBITDA \%} = \text{EBITDA/Sales}$$

We believe that the two measures presented above give a fair indication of a company's profitability.

4.3.3 Efficiency measures and Working Capital

When measuring how efficient the company is when using its resources, we use two different metrics; sales per employee and working capital as a percentage of sales. These two metrics are calculated as follows:

$$\text{Sales per employee} = \frac{\text{Total Sales}}{\text{Total number of employees}}$$

$$\text{Working Capital of Sales} = \frac{\text{Current assets} - \text{Cash} - \text{Current Liabilities}}{\text{Total Sales}}$$

We use sales per employee as a straight forward measure of how much revenue each employee at the company generates. For the working capital measure, expressed as a percentage of sales, we are interested in knowing how much input is needed to get a certain output (revenue). Since an efficient organization will require lower levels of working capital to generate a certain amount of revenue than an inefficient organization, this is a good measure of how well the company manages its working capital. The working capital metric is

widely within used in private equity (Ashraf, 2012) since increased efficiency, in terms of lower working capital requirements, frees capital that can be used to for example pay down debt or make dividend payments.

4.4 Accounting Data

We have gathered accounting data mainly using the database *Retriever*, which includes annual reports for most Swedish companies. When necessary, we have used the database *Orbis* or the company's own website as complements when the data provided by *Retriever* has not been sufficient. All the data has been manually inputted in an excel spreadsheet, which has enabled us to be consistent when it comes to using accounting values such as net working capital and operating income as well as consistent when calculating ROIC. This has been done both for the target companies and for the peer group. In cases where recent annual reports have not been available, we have adjusted the exit year to the last year where the company's annual report can be found. Although this potentially could change our result somewhat in comparison to the actual outcome (if for example the exit year would look profoundly different from the preceding year), we do not deem it has since the adjustment only had to be made three times. All the target companies and the companies included in the peer group can be found in Appendix A.

4.5 Statistical Measures

Since our aim in this thesis is to evaluate the impact of PE ownership on the target company relative to its peers, we found it most reasonable to measure changes in our metrics between the year of entry and the year of exit and then compare them. Thus, we get the difference between entry and exit, which we will refer to as delta (Δ). Since our peer groups include more than one company, we have decided to use the median for our peer companies. We believe that the median gives a better measure then the mean, since the mean can easily be distorted by huge outliers. Using revenue growth as an example, our statistical measures for the target company looks as follows:

$$\text{Revenue}_{\text{Exit}}^{\text{Target Company}} - \text{Revenue}_{\text{Entry}}^{\text{Target Company}} = \Delta\text{Revenue}^{\text{Target Company}}$$

This is compared to the same metric of the target company's peers group, as follows:

$$\text{Revenue}_{\text{Exit}}^{\text{Median Peer}} - \text{Revenue}_{\text{Entry}}^{\text{Median Peer}} = \Delta\text{Revenue}^{\text{Median Peer}}$$

This is done for the metrics analyzed in this thesis, i.e. Sales, Working Capital/Sales, ROIC, Sales/Number of Employees and EBITDA/Sales.

4.5.1 Significance Measure

In order to measure and evaluate the significance of our data (at the 1, 5 and 10 % level), we have chosen to perform both a student t-test and a Wilcoxon Signed Rank Test. The student t-test is a common test to use when determining whether or not two data sets are significantly different from one another. The student t-test assumes normal distribution. Since our sample size is relatively small (25 target companies with 25 peer groups) the student t-test might not be reliable (Newbold, 2006) and for this reason we have also chosen to perform a Wilcoxon Signed Rank Test. This test can be applied on smaller samples ($N < 30$) and is a distribution free test based on ranks that can be used when the normality assumption is not certain (Newbold, 2006). In our results we will put emphasis on the Wilcoxon Signed Rank Test since we regarded this test to be more relevant then the student t-test due to the potential shortcoming mentioned above.

5. Results and analysis

Here we discuss the data and the results obtained from our sample companies. We evaluate our different hypotheses and compare our results with previous empirical research that has been done on the subject.

When analyzing and discussing the results obtained from our data sample, we have decided to evaluate the results by using segmentation similar to that of Berg and Gottschalg (2003) in their investigation of potential levers of value generation. This is also the segmentation used throughout this paper and consists of an evaluation of revenue growth, profitability, working capital and employee efficiency.

5.1 Revenue Growth

Since each target company's size of revenue at the entry year is of little importance for our analysis, we make no effort to compare these figures with the size of revenue for the peer group. During the holding period, the median revenue for the target companies increases by 66,6 % (we pay little attention to the average revenue growth since this figure is affected by a big outlier) compared to a median increase of 8,3 % for the peer group. Our first hypothesis *H1* stated that we expected the revenue growth to be higher for target companies, which seems to be the case when evaluating our data. As discussed in the theory and methodology section, we make no adjustment for acquired growth and the big difference between the revenue growth between the target companies and the peer group could probably be attributed to the "bolt on" acquisition strategy discussed in section 4.3.1.

Exhibit 1 shows the average and median revenue at the year of entry and the year of exit as well as the percentage change (Δbuyout) during the holding period.

Revenue target	**Entry**	**Exit**	**Δ Buyout**
Average	1 153 447	1 220 063	5,8%
Median	226 603	377 589	66,6%
St dev.	2 939 827	2 334 028	-20,6%

Revenue peers	**Entry**	**Exit**	**Δ Buyout**
Average	579 588	684 941	18,2%
Median	237 471	257 258	8,3%
St dev.	824 628	936 997	13,6%

According to the Wilcoxon Signed Rank test (below), the difference in revenue growth is significant at a 10 % significance level while the t-test was insignificant.

Metric	Z value	Significance level
Δ Revenue %	1,46	10%

5.2. Profitability

As described in the hypotheses section, we have used changes in ROIC and EBITDA/Sales as proxies for profitability changes during the holding period. A statistically significant difference in these measures between the target company and its peer group would indicate that profitability changes are related to the ownership structure of a company.

5.2.1 Change in ROIC

At the entry year where the target company was acquired, it had a median ROIC of 17,8 % and an average ROIC of 29,9 %. This compares to the median ROIC of 23,8 % and an average of 32,9 % for the peer group (excluding peer company HemoCue). From this, we can conclude that target companies seem to have a lower initial ROIC compared to its peers. From the perspective of the PE firm, this might be an indication that there are opportunities for profitability improvements in the target company.

Exhibit 2 shows the average and median ROIC in percentage at the year of entry and the year of exit as well as the change (Δbuyout) during the holding period.

ROIC target	Entry	Exit	Δ Buyout
Average	29,9%	38,4%	8,6%
Median	17,8%	29,4%	11,6%
St dev.	36,8%	42,1%	5,3%

ROIC peers	Entry	Exit	Δ Buyout
Average	32,9%	28,8%	-4,1%
Median	23,8%	19,6%	-4,2%
St dev.	35,5%	37,7%	2,2%

Our hypotheses *H2* stated that we expected the increase in ROIC for the target company to be higher than the increase of its non-PE owned peers. Reading from the tables, this seems to be

true since the median change in ROIC during the holding period for the buyout company is 12 %, compared to a decrease of 4,2 % for its peers. This difference in ROIC development is statistically significant at the 10 % level according to both the Wilcoxon Signed Rank test (below) and the t-test.

Metric	Z value	Significance level
Δ ROIC %	1,42	10%

5.2.2. Change in EBITDA/Sales

The entry period figure shows that PE firms buy companies with a higher EBITDA margin, median 12,0 % and average 15,7 %, compared to the peer group where the median EBITDA margin is 8,2 % and the average 9,9 %. Our hypothesis *H3* states that we expect the EBITDA margin to increase more for a PE owned company than for its peers during the holding period. The data shows a positive median change of 0,5 % (average 1,5 %) for the target companies, compared with a negative median change at -1,4 % (average -0,9 %) for the peer group which indicates that our hypothesis was correct.

Exhibit 3 shows the average and median EBITDA margin in percentage at the year of entry and the year of exit as well as the change (Δbuyout) during the holding period.

EBITDA % target	Entry	Exit	Δ Buyout
Average	15,7%	17,1%	1,5%
Median	12,0%	12,5%	0,5%
St dev.	14,8%	14,2%	-0,6%

EBITDA % peers	Entry	Exit	Δ Buyout
Average	9,9%	9,0%	-0,9%
Median	8,2%	6,8%	-1,4%
St dev.	8,6%	8,5%	-0,1%

This development is significant at the 10 % level according both to the Wilcoxon Signed Rank test (below) and for the t-test.

Metric	Z value	Significance level
Δ EBITDA %	1,29	10%

5.2.3 Analysis – Profitability

We have used ROIC and EBITDA margin as our profitability measures and our results are in line with previous similar studies (Bergström et al. 2007, Andersson & Gilstring 2009). Older studies have been conducted on the same topic, but we have only considered more recent studies due to changes in the PE industry. The increase in profitability seems to be one of the most important areas to improve for PE companies and referring to our theory section, parts of the increased profitability could potentially be contributed to the reduced agency cost. This view is supported by studies on post buyout performance (Sirmon et.al. 2003), where they discuss strategic entrepreneurial advantages that disappears following the departure of the PE firm.

5.2. Change in Working Capital

We have calculated net working capital (NWC) over sales during the holding period to determine how well the target company manages its working capital. At the entry year there was no substantial different between the target companies and the peer group. The target companies had a median ratio of 6,1 % working capital to sales at the entry year (average 10 %) while the corresponding peer group had a median of 7,0 % (9,7 % average). Our hypothesis *H4* stated that we expected the target company to decrease the NWC/Sales ratio, but our data shows no such development. The median change in NWC/Sales ratio for the target company was an increase of 1,0 % (average 3,1 %) while the median ratio for the peer group increased by 0,2 % (average -2,2 %).

Exhibit 4 shows the average and median NWC/Sales in percentage at the year of entry and the year of exit as well as the change (Δbuyout) during the holding period.

NWC/Sales target	Entry	Exit	Δ Buyout
Average	10,0%	13,2%	3,1%
Median	6,1%	7,1%	1,0%
St dev.	15,2%	23,6%	8,4%

NWC/Sales peers	Entry	Exit	Δ Buyout
Average	9,7%	7,5%	-2,2%
Median	7,0%	7,3%	0,2%
St dev.	18,1%	13,0%	-5,1%

This surprise is somewhat surprising since it indicated that the peer group manages it working capital more efficient than the target company. However, our data showed to not be significant according to the Wilcoxon Signed Rank test (below) and should therefore be carefully interpreted. The t-test was also insignificant.

Metric	Z value	Significance level
Δ NWC/Sales %	-0,9	Not significant

5.2.1. Analysis - Working Capital

The non-significant difference of the working capital management between the target companies and the peer group is somewhat surprising, although our result has been found in other similar studies as well (Lundgren & Norberg 2006). As proposed in the hypothesis section, it should be in the PE firm's interest to reduce the working capital in order to free cash, which can be used to pay down debt incurred at the leveraged buyout. However, if we go back in time, Holthausen and Larcker (1996) found that working capital requirements were in fact lower in PE owned companies than in non-PE owned companies. One can therefore speculate that there might have been a shift in non-PE owned companies' working capital management, leading to a more efficient use of their resources which has eliminated the efficiency gap enjoyed by companies owned by a PE firm.

5.3. Change in Employee Efficiency

In order to evaluate if the target company is more efficient when it comes to employee management we looked at the sales/employee ratio and how it changed during the holding period. The entry period shows that there is only a small difference in the sales/employee ratio, with a median for the target companies of 4 030 000 SEK versus a median of 4 134 000 SEK for the peer group. Our hypothesis *H5* states that we expect the target company to increase its sales/employee ratio more than the peer group during the holding period. However, our results do not support that notion. The median change in sales per employee for the target companies is an increase of 27,2 % (average 1,3 %) against an increase of 31,6 % (7,6 %) for the peer group. This shows that the peer group outperforms the target companies when it comes to increasing sales per employee.

Exhibit 5 shows the average and median Sales/Employee at the year of entry and the year of exit as well as the change (Δbuyout) during the holding period.

Sales/Employee target	**Entry**	**Exit**	**Δ Buyout**
Average	4030	4082	1,3%
Median	2210	2811	27,2%
St dev.	3804	3516	-7,6%

Sales/Employee peers	**Entry**	**Exit**	**Δ Buyout**
Average	4134	4448	7,6%
Median	2144	2822	31,6%
St dev.	6714	6587	-1,9%

Our results are significant at the 5 % level according to the Wilcoxon Signed Rank test (below) but insignificant for the t-test.

Metric	**Z value**	**Significance level**
Δ Sales/Employee %	1,65	5%

5.3.1 Analysis - Employee Efficiency

As with the working capital management, it should be in the interest of the PE firm to increase the sales per employee. The reductions of agency cost by aligning incentives of the management, the owner and the staff would imply a more efficient use of human resources and therefore higher return per employee. Some previous studies have found an increase of sales per employee for target companies during the holding period (Muscarella & Vetsuypens, 1990) whereas newer studies measuring sales per employee have only found a slight increase (Molander et.al. 2011). Some newer studies mentioned previously in this report have not measured sales per employee and it is therefore somewhat unclear if this represents a true change.

6. Conclusion

Our aim with this thesis was to answer the question of how private equity owned companies develop in terms of certain financial metrics compared to comparable companies not owned by a private equity firm. By doing this, one could argue that we simultaneously evaluated the impact of private equity ownership as a whole. From the hypotheses we stated regarding the target company's growth, profitability and employee efficiency, we have summarized our results in the table below.

Hypothesis	Support	Significance
H1: Revenue grows faster than its peers'	Yes	10%
H2: ROIC increases more than its peers'	Yes	10%
H3: EBITDA margin increases more than its peers'	Yes	10%
H4: Exhibits a lower net working capital to sales ratio than its peers	No	-
H5: Exhibits higher sales per employee than its peers	No	5%

As we can see, our results are not unanimous. It seems to be true that profitability, in our sample defined as ROIC and EBITDA margin, is superior for the private equity owned companies. This might be a direct result of the theoretical approaches of superior profitability presented throughout this thesis (reduced agency cost, less excess cash etc.) but could also be a result of factors we have overseen. The target companies increase their revenue faster than the peer group, which as discussed earlier could be due to a "bolt-on" strategy pursued by the target company, where it boosts its revenues by acquiring other companies.

Surprisingly, the target companies do not exhibit higher efficiency in regards of higher sales per employee nor in terms of more efficiency working capital management. This is surprising since one would think that the alignment of interest between owners, managers and staff would lead to a more efficient use of time and resources. When comparing older studies with newer, we notice that results found in older studies indicating a superior efficiency for PE owned companies seems to have vanished. It is hard to guess if this represents a true change, indicating efficiency convergence between PE owned companies and non-PE owned companies, or if observed change is non-significant.

6.1 Recommendations for further research

In this thesis we have discussed theoretical approaches behind the alleged superiority of private equity ownership as well as quantitatively examined it. Due to the nature of this paper and associated time constraints, more thorough and comprehensive further research could

expand the comparison made in this thesis by adding more financial metrics on a larger sample. This could potentially outline metrics that bear higher interpretation value but that is neglected in this or other similar research. One could also elaborate with qualitatively analysis in order to detect qualitatively patterns that affect financial metrics within a certain industry. Finally, it would be of great interest to look at how the benefits of private equity ownership have changed from the 80s and 90s compared to today. Some results in earlier papers as well as in ours suggest that there might have occurred some level of convergence between PE owned companies and non-PE owned companies, especially when looking at efficiency.

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Appendix

Target company in bold with entry and exit year, peer companies listed below target.

Fund Manager	Portfolio Company	Buyout	Exit
Accent	**Crem International**	2007	2011
	Franke Futurum AB		
	Tylö AB		
	Whirlpool AB		
Accent	**Jetpak**	2006	2011
	NTEX		
	Alltransport Östergötland AB		
	TNT Sverige		
Accent	**INR**	2007	2010
	Westcoast Windows		
	Kosta Glasproduktion		
	Glasma AB		
Accent	**Grycksbo**	2006	2009
	Munksjö AB		
	Rottneros		
	RexCell Tissue & Airlaid		
Accent	**Annas Pepparkakor**	2005	2008
	Dahls Bageri AB		
	Hägges Finbageri AB		
	Godbiten Konditori AB		
Accent	**Vaasan (Nordic Bake-off)**	2005	2006
	Farina AB		
	Frebaco Kvarn AB		
	Abdon Finax AB		
Accent	**Aveva (Tribon Solutions)**	2002	2005
	XDIN		
	Valtech		
	Tibco Software		
Accent Equity	**Wernersson Ost AB**	2004	2007
	Ockelbo Ost AB		
	Lindahls Mejeriprodukter AB		
	Di Luca & Di Luca Aktiebolag		
Credelity Capital	**Smoke free system**	2007	2011
	Cembrit		
	AB Tradeca		
	Paroc Panel Systems		
EQT	**Lundhags**	2006	2011
	Fjällräven		
	Röhnisch Sportswear AB		
	Bauer Hockey		

EQT/Investor	**Gambro**	2005	2011
	St Jude Medical Systems AB		
	Dentsply IH AB		
	Maquet Critical Care		
EQT	**HemoCue Aktiebolag**	2000	2007
	Foss Analytical AB		
	Trimble AB		
	Car-O-Liner Aktiebolag		
Litorina	**Coromatic**	2007	2011
	Teleca AB		
	Chotebor AB		
	Leröy AB		
Litorina	**Pahlen**	2007	2011
	Seibu Giken DST AB		
	Setrab AB		
	Ventur Tekniska AB		
Litorina	**Q-Matic**	2004	2007
	Carbex AB		
	Mobitec		
	GEMS PET Systems AB		
Nordic Capital	**Atos**	2005	2011
	Liko AB		
	TeamOlmed Nord AB		
	Getinge Sterilization AB		
Nordic Capital	**Kappahl**	2004	2006
	Stadium AB		
	Gekås AB		
	RNB Retail and Brands		
Procuritas	**Däkia**	2009	2011
	Vianor AB		
	Malmfältens Gummi AB		
	Euromaster AB		
Ratos	**Anticimex Holding AB**	2006	2011
	ISS Facility Services Ab		
	Sodexo AB		
	Allianceplus AB		
Ratos	**Camfil**	2000	2010
	BT Products AB		
	Swegon AB		
	Parker Hannifin AB		
Ratos	**Haglöf Holding**	2001	2010
	Team Sportia AB		

	STIGA Sports AB		
	Fjällräven AB		
Segulah	**Skandinavisk Kommunalteknik**	2008	2011
	GPA Flowsystem AB		
	KWH Pipe Sverige AB		
	Hugo Carping		
Segulah	**Exotic Snacks**	2008	2011
	Sam & Son Grossist		
	Green Sales Distribution		
	ER-t Godis AB		
Valedo	**Aspen**	2007	2010
	PEN Interiör AB		
	Ekenäs Design AB		
	Swedese Möbler AB		
Valedo	**Solhagaby**	2007	2010
	Brizad Behandlingskonsult AB		
	Schedevi Psykiatri AB		
	AB Vårljus		