



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Private equity owned companies' performance in
Sweden after the financial crisis in 2007-2008

Project Paper with Discussant – Finance Autumn 2014

Authors: Joakim Andersson 920305-1231
Fredrik Daun 930713-4396

Adviser: Jianhua Zhang

Abstract

The private equity industry has grown tremendously in the past 20-30 years, and several studies have been made to examine the potential superior returns by private equity owned companies. However, there has been limited research on the performance of private equity owned companies during extraordinary conditions, such as financial crises. The aim of this paper is to compare the performance of publicly traded companies to the performance of private equity owned companies during a four year period after the financial crisis, and examine what factors had impacted the companies' profitability the most. It was hypothesized that increased growth, a higher debt level and decreased working capital would have had a positive impact on profitability. The results show that increased growth and higher debt levels had a positive significant impact on profitability for private equity owned companies, while having had a negative impact on profitability for publicly traded companies. Reduced working capital did not have a statistically significant impact on profitability. The interpretation of these results is that private equity owned companies were better at optimizing their capital structure, even under extraordinary conditions. Furthermore, the interpretation of the negative effect of increased growth on profitability for publicly traded companies is that they did not perform as well after the financial crisis as the private equity owned companies. The conclusion from this study is therefore that private equity owned companies did recover better than publicly traded companies, and that growth and debt level affected the companies' profitability the most.

Contents

1. Introduction	1
1.1 Background	1
1.2 Objective	1
1.3 Layout of the thesis	1
2. Theory	3
2.1 Private Equity	3
2.2 Capital structure	3
2.3 Corporate governance	5
3. Literature review	6
3.1 Operational improvements	6
3.2 Working capital	6
3.3 Profitability	6
4. Hypotheses	7
5. Methodology	9
5.1 Data	9
5.2 Comparable companies	9
5.3 Performance Measures	10
5.4 Econometric models	11
5.5 Descriptive statistics	11
5.6 Heteroskedasticity and omitted variables	13
5.7 Methodology used compared with source of inspiration	13
6. Results and analysis	15
6.1 Regressions	15
6.2 Growth	15
6.3 Debt level	16
6.4 Private equity firms' debt level	16
6.5 Working Capital	16
6.6 Private Equity ownership	17
7. Conclusions	18
8. Further research	20
References	21
Appendix	23

1. Introduction

1.1 Background

The private equity industry and the number of LBO's have increased tremendously in the western part of the world in the last 20-30 years. In 2011, the private equity industry accounted for 8.8 % of GDP and 4.3 % of the total employment in Sweden. Furthermore, €28 billion were invested in European companies by private equity firms in 2012. Such an increase raises the question of why the private equity industry has increased so fast and how they succeed (Brizell, 2014).

Lots of studies have already been made in this area, mainly focusing on the potential superior growth and profitability of private equity owned companies, but also on how the management changes during the holding period. Several studies have also been made on the impacts of different exit strategies. Recently, Sweden and the rest of the western world went through one of the biggest financial crises in modern time. Few studies have been made to examine whether or not the management and capital structure of private equity owned companies are superior in times of a financial crisis, and how the private equity owned companies recovered after the crisis compared to publicly traded companies.

1.2 Objective

The aim of this paper is to compare the performance of private equity owned companies to the performance of publicly traded companies and conclude which group recovered best from the financial crisis, and to examine how companies' profitability in the two groups has been affected by the choice of capital structure, the asset growth and the management in working capital. This paper will solely focus on the Swedish market during a four-year period after the financial crisis.

1.3 Layout of the thesis

In section one a background to the issue and the aim of the thesis is presented. Section two starts with a short introduction of the private equity industry, followed by a study of relevant theory. The introduction to private equity consists of information about how the private equity industry works and how their holding companies differ from publicly traded companies.

Furthermore, the capital structure's impact on profitability is presented in the theory section. Section three consists of a literature review of corporate governance, working capital and how operational improvements affect a firm's value and profitability. Together section two and section three forms the basis for the hypotheses of the thesis. In section four, the hypotheses of the thesis are presented, as well as how they are related to the theory. Section five describes of the methodology used in the study. The methodology is presented in a chronological order; starting with how the data was collected, how comparable companies were selected, a presentation of the econometric model used in the analysis, descriptive statistics, heteroskedasticity problems, performance measures and differences with the methodology used in our source of inspiration. In section six the results of the study are presented and analyzed. In section seven the conclusions of the study's findings are presented, as well as an evaluation of the thesis. Section eight consists of recommendations for further research.

2. Theory

2.1 Private Equity

The difference between private equity and non-private equity is that private equity refers to an investment in a company that is not publicly traded (Sampson, 2007). This does not tell how to define a private investment in a public company, which is commonly made by private equity firms, but due to the basic nature of this paper this will also be considered to be a private equity investment.

A private equity transaction, also referred to as a leveraged buyout (LBO), occurs when a private equity (PE) firm acquires a private or public company with borrowed capital. In a leveraged buyout transaction, the private equity firm typically gains majority share of the acquired, existing or mature company. This is not to be confused with a venture capital (VC) transaction, which usually invests in young or emerging companies and typically does not gain majority share. While VC firms typically does not gain majority share in the companies they invest, private equity firms typically focuses on majority ownership due to its desire to strongly influence and develop the acquired company's operations. After the acquisition, the private equity firm typically applies performance-based managerial objectives, highly leveraged capital structures and active governance to the acquired company (Strömberg & Kaplan, 2008).

2.2 Capital structure

A company's liabilities consist of equity and debt, the proportion of which forms the company's capital structure (Berk, 2011). The capital structure impacts the cost of capital but also the profitability.

According to the Modigliani-Miller proposition, the capital structure does not affect the value of a firm if the capital market is assumed to be perfect (Berk, 2011). The firm value is defined as the price of buying the entire company, thus debt plus the market value of equity. Since the value of the firm is independent of the capital structure when the market is assumed to be perfect, the change in capital structure only affect the allocation of the cash flow between equity holders and creditors. Furthermore, equity and debt have the same cost; the allocation does not affect the value if there are no taxes or transaction costs. More specific, a perfect capital market is defined as a market where:

1. Investors and firms can trade the same set of securities at competitive market prices equal to the present value of their future cash flow.
2. There are no taxes, transaction costs, or issuance costs associated with security trading.
3. A firm's financing decisions do not change the cash flows generated by its investments, nor do they reveal information about them (Berk, 2011).

In reality though, there are no perfect markets due to different factors such as different price of different securities, risks, tax shields and costs of financial distress. Taking these factors in consideration, the capital structure does affect the value of a company. In general the creditors demand a lower return than the equity holders, but this cost cannot be considered as the cost of debt solely since higher debt increases the risk for equity. Even if there is no risk for the company to default, the risk of equity increases and thereby the price of equity, which may result in that the total cost of capital is unchanged (Berk, 2011). Since there are no perfect markets, the capital structure does affect the value of the firm. The leverage of the firms will not only affect the value of the firm, but also the profitability. The capital structure is therefore an important factor to consider and will be further studied in this paper.

As previously mentioned, the tax shield gained when using debt typically results in a higher income available for all investors. This is because all interest expenses are tax deductible, which makes higher leverage preferable. However if a company fails to pay interest to their creditors they default on the loan and might even go into bankruptcy in a worst-case scenario. In those cases, the creditors have a legal right to the company's assets, while equity holders have not. Since the company can lose vital assets for the core business by having too much debt, high leverage can in some cases be very harmful for a company. In addition to this, other expenses arise when a company is in financial distress, e.g. fees to lawyers. Since the creditors are keen of receiving their interest payments, cost of financial distress might arise before a company defaults if the company seems to be in the risk zone of defaulting. The capital structure, or the choice of leverage, therefore becomes a strategic question for each company.

2.3 Corporate governance

One of the most common explanations for the potentially superior returns of private equity owned companies is the agency theory. The agency theory states that a possible explanation for the superior returns of private equity owned companies is that they do not suffer from principal-agent problems to the extent that publicly traded companies might do. Principal-agent problems are problems that arise when the principal (i.e. owner, board) and the agent (i.e. CEO, management) have different objectives and act in their own best interests. The agency theory states that these kinds of problems can be eliminated by aligning the interests of principals and agents and thus reducing its impact on the agency costs.

Bebchuk et.al. (2004) states that agency costs mainly arise from two human factors; moral hazards and conflict of interests. Moral hazard refers to the situation of handling risk without considering the possible negative consequences. A common example of this is the banking industry. During the past few years several banking crises have occurred, many of which resulted in governments using taxpayer money to bail out the banks. This strongly implies that banks have not suffered the full negative consequences of their risk-taking (Boyd, 2000).

Conflict of interests may arise when a CEO's bonus and/or salary is based on the performance of the company's stock, which might incentivize CEO to short-term boost the stock price of the company while the board and owners most likely has a more long-term objective. This is a common example of the principal-agent problem described above. Jensen (1989) states that principal-agent problems may be reduced or even eliminated when a private equity firm aligns the interests of the principals and the agents. The way to commonly give the agents the same interest as the principals is to reward the agents with illiquid assets such as stocks or options, which recently has become more common now than back in the 80s in the early years of the private equity-industry (Jensen & Murphy, 1990). Rewarding top management with these types of illiquid assets is supposed to incentivize them by a large upside when the company is running well, but also giving them a huge risk to lose a lot of money if the company does not perform well.

3. Literature review

3.1 Operational improvements

Operational improvements have lately become the most eminent way to increase an acquired company's value, and according to Vester (2011) operational adjustment corresponds to two thirds of the increased value of an acquired firm on average. The performance of operational improvements can be measured in a variety of ways, e.g. by using multiples such as sales/employee, EBITDA/sales, growth etc. How the management chooses to improve these measures varies but common practices include market expansion, cost cutting and mergers. The importance of operational improvements can be somewhat confirmed by the fact that private equity firms usually hire former executives to manage the acquired company (Strömberg and Kaplan, 2008). Additionally, many private equity firms also choose to hire consultants to help boost the growth and performance of the acquired company.

3.2 Working capital

An additional way to increase the value of a firm is to improve its management of the working capital (Lichtenberg and Siegal, 1990). When the working capital, e.g. accounts receivable, accounts payable and inventory, is managed more efficiently it is quite possible that the value of the firm increases as well. Furthermore, a decrease in working capital will also free cash that can be used to either distribute dividend to the private equity firm or to pay off debt. Holthausen (1996) states that companies owned by private equity firms appear have a lower working capital than their peers on average.

3.3 Profitability

All private equity firms aim for higher profitability through optimal capital structure, more efficient operations and the reduction of principal-agent problems. There are several ways to measure profitability. In this paper return of equity (RoE) and return on assets (RoA) will be used.

RoE is interesting to private equity firms since it is the return for the equity holders. A company with a higher debt ratio, defined as debt over total assets, will have higher RoE compared to its peer when they both have the same RoA. Return on assets on the other hand, is a measurement of the profitability relative to the company's total assets, which is independent of the capital structure.

4. Hypotheses

The hypotheses are based on the previous discussion in the theory and literature review sections, and will be tested with econometric models using data collected primarily from Bloomberg. The main factors identified that affect companies' profitability are operational improvements, agency governance, choice of capital structure and reduced working capital. When outlining what performance measures to use in the study, we gathered information about performance measures used in previous studies within this subject and selected the most appropriate for our analysis. Performance measures that are not vital for our study have been filtered.

As stated in section three, operational improvements have lately been the most eminent way to increase the value of a company. A common measure of operational improvements is growth. Thus it is expected that growth will have a positive impact on profitability, forming the basis for the hypothesis 1.

Hypothesis 1: Increased growth has had a positive impact on profitability.

It is expected that private equity firms more often choose optimal capital structure in their holdings than publicly traded companies. As presented in the theory section, increased leverage results in higher tax shields that increases both the profit and also the risk of financial distress. This trade-off, often referred to as the trade-off theory, is one factor, which lays the basis for companies' choice of leverage. However, as long as there is no financial distress, it is expected that higher leverage will have a positive impact on profitability. It is expected that private equity firms are willing to have higher leverage due to better management and risk diversification in their portfolio. Furthermore, higher leverage might also incentivize top management to work harder and make good decisions since their bonuses often are illiquid assets based on the company's long-term performance. Thus, it is expected that increased leverage will have a positive impact on profitability, and that this effect will be greater for private equity owned companies, which lays the basis for hypothesis 2.

Hypothesis 2: Increased leverage will have had a positive impact on profitability. The effect for private equity owned companies is expected to be greater than the effect for publicly traded companies.

With a similar discussion, it is also expected that the private equity firm's capital structure will have a positive impact on the profitability of its holdings, which forms hypothesis 3.

Hypothesis 3: Increased leverage within a private equity firm will have had a positive impact on probability for its holdings.

As stated in the literature review a company's working capital is generally reduced when owned by a private equity firm. When the working capital is more efficiently managed it is expected that the value of the firm increase as well. Furthermore, a decrease in working capital will also free cash, which can be used to pay off debt or to give dividend to the equity holders. Thus, it is expected that increased working capital will have a negative effect on profitability for both private equity owned and publicly traded companies, which leads to hypothesis 4.

Hypothesis 4: Increased working capital will have had a negative impact on profitability.

It is also expected that other factors related to private equity ownership, such as managerial improvements made by the private equity firm, will have had a positive impact on profitability, resulting in a fifth hypothesis.

Hypothesis 5: Private equity ownership has had a positive impact on the private equity owned company's profitability.

5. Methodology

5.1 Data

The first step of collecting the data was to decide which database to use. As previously stated, the required data is somewhat hard to access due to the secretive nature of private equity firms. Furthermore, a private equity firm should not have previously owned the publicly traded companies. The publicly traded companies also needed to fulfil certain criteria, which are presented in section 5.2. These companies who served as peers, are mainly traded on the Nasdaq OMX Stockholm Small Cap list. The distribution of publicly traded and private equity owned companies is presented in table 1. A complete list of private equity owned companies used in the study can be found in appendix.

Table 1

N.o companies	N.o Publicly traded companies	N.o Private Equity owned companies
136	96	40

Sample size and size of the subgroups

Since the report focuses on the Swedish market, the objective was to find private equity firms active in Sweden. In the search for data, several databases were examined, such as Capital IQ, Bloomberg and Data Stream. Bloomberg turned out to provide the best information about private equity holdings in Sweden, which is why it was chosen to be the main source of data for this study. Furthermore, Bloomberg also provided information about ownership history, which was useful when examining whether the peers had previously been owned by a private equity firm or not. Since the aim of this study is to examine and compare private equity owned companies' and publicly traded companies' performance after the financial crisis, companies which had been acquired by a private equity firm later than 2008 have been filtered. Information about the private equity firm's debt level was not easily accessed via Bloomberg, which is why another source, Orbit, was used to find this information.

5.2 Comparable companies

It is imperative to study companies within the same industry since e.g. high growth rate in one industry might be considered low in another. However, enough data to make such a study significant was not possible to obtain within the time scope of this study, which is why this study is limited to comparing private equity owned companies and publicly traded companies in general and not industry specific. The companies still had to be of comparable size in order

for them not to benefit from economies of scale, and data needed to be accessible for all the four years after the financial crisis. Another criterion to be fulfilled for the peers is that a private equity firm may not have previously owned them, since that would most likely make the results biased. To make sure all of these criteria were fulfilled, Bloomberg was used to examine the size, data availability and ownership history.

5.3 Performance Measures

In order to test the hypotheses discussed in the previous section, some performance measures have been defined and each performance measure's effect on profitability will be studied.

The performance measures are the following:

1. Asset Growth
2. Debt level
3. Working Capital

The first performance measure is asset growth, defined as the most recent years' assets over the previous years' assets. As stated in the literature review, operational improvements are one of the most eminent ways to increase a company's value, and that growth is a measurement of operational improvements. Thus, it is expected that growth is important for a company's profitability. The second performance measure is the debt level, defined as:

$$Debt\ level = \frac{Debt}{Debt + Equity}$$

As discussed in the theory section the capital structure is directly related to the company's profitability, and thus it is an important factor to consider. The third profitability measure is working capital, which is also discussed in the literature review. When a company's working capital is managed more efficiently, cash will be freed which can be used to either pay down debt or to give dividend to the equity holders. Thus, the working capital is also an important factor to consider in this study. As previously stated, private equity ownership may have other effects on profitability that cannot be measured by the measurements described above. In

order to capture and measure these effects, a private equity dummy is added to examine if private equity ownership affects profitability in other ways.

5.4 Econometric models

In the process of testing the hypotheses, several econometric models were set up, of which two were selected. Model one has return on assets as the dependent variable and model two has return on equity as the dependent variable. The independent variables in the econometric models are debt level, working capital and asset growth. Our model also consists of a private equity dummy variable in order for it to capture other factors, such as managerial improvements and better incitement for top management. Furthermore, the model also consists of a variable representing the private equity firms' debt level in order to examine whether the private equity firm's debt level had a significant impact on profitability or not.

Model 1

$$RoA = \alpha_0 + \beta_0(Debt-level) + \beta_1(Growth) + \beta_2(Working\ Capital) + \beta_3(Debt-level\ PE-firm) + \beta_4(PE-Dummy)$$

Model 2

$$RoE = \alpha_0 + \beta_0(Debt-level) + \beta_1(Growth) + \beta_2(Working\ Capital) + \beta_3(Debt-level\ PE-firm) + \beta_4(PE-Dummy)$$

5.5 Descriptive statistics

In table 2 – 4, the mean and standard deviation for the data sample are presented. As presented in table 2, the mean of RoA of the whole data sample was negative while the mean of RoE was positive. As seen in table 3, the mean of both RoA and RoE for private equity owned companies were positive while being negative for publicly traded companies, as seen in table 4.

Furthermore, it is shown in tables 3 and 4 that the debt level and asset growth were higher on average for private equity companies. However, the average working capital is lower for publicly traded companies than for private equity owned companies.

As seen in table 3 the standard deviation for RoE is 18 times higher for private equity owned companies than for publicly traded companies. This is because of one company had extraordinarily high leverage during 2009 and had a positive return on assets, which made its return on equity very high. The standard deviations for the independent variables are similar,

except the standard deviation for working capital that was almost twice as high for private equity owned companies.

Table 2

Whole data sample 2009-2012	Mean	Standard Deviation
RoA(%)	-0,83	21,14
RoE (%)	17,12	340,00
Debt Level (%)	49,22	23,63
Asset Growth (%)	9,60	50,78
Working Capital	93,29	287,23

Mean and standard deviation of the whole data sample

Table 3

PE-owned companies 2009-2012	Mean	Standard Deviation
RoA(%)	2,66	20,90
RoE (%)	66,43	621,56
Debt Level (%)	61,87	23,10
Asset Growth (%)	16,38	54,40
Working Capital	116,80	398,70

Mean and standard deviation of the private equity owned companies

Table 4

Publicly traded companies 2009-2012	Mean	Standard Deviation
RoA(%)	-2,28	21,07
RoE (%)	-3,43	36,88
Debt Level (%)	43,95	21,77
Asset Growth (%)	6,77	48,92
Working Capital	83,50	224,31

Mean and standard deviation of the publicly traded companies

The correlation matrices for model 1 and 2 are presented in tables 5 and 6. As seen in the tables, the correlation between debt level and profitability was 0,13 on average. The correlation between RoA and growth was also stronger than the correlation between growth and RoE. Working capital had a weak correlation with both RoA and RoE. RoAs correlation with the private equity firm's debt level was also stronger than the correlation between return on equity and the private equity firm's debt level. Note that the correlation between the private equity firm's debt levels is strongly correlated with the debt level of the private equity owned company.

Table 5

Correlation Matrix Model 1					
Variables	1.	2.	3.	4.	5.
1. RoA	1,00				
2. Debt Level	0,14	1,00			
3. Growth	0,19	0,11	1,00		
4. Working Capital	0,08	-0,16	-0,02	1,00	
5. PE-Debt Level	0,14	0,24	0,08	0,04	1,00

Correlation matrix of Model 1

Table 6

Correlation Matrix Model 2					
Variables	1.	2.	3.	4.	5.
1. RoE	1,00				
2. Debt Level	0,12	1,00			
3. Growth	0,02	0,11	1,00		
4. Working Capital	0,00	-0,16	-0,02	1,00	
5. PE-Debt Level	0,01	0,24	0,08	0,04	1,00

Correlation matrix of Model 2

5.6 Heteroskedasticity and omitted variables

In the initial regressions, the Breusch-Pagan test showed evidence of heteroskedasticity. After trying several methods to solve this problem. It was concluded that weighted least squares was the best method to solve the problem which is why it was used. Using weighted least squares also strengthened the R-squared in the regression. However, since the weighted least squares method was used the growth variable in the regression, denoted growth star, is defined as one over the company's asset growth as presented in the formula below:

$$Growth\ Star = \frac{1}{Growth}$$

5.7 Methodology used compared with source of inspiration

In the early process of writing this paper, it was obvious that several papers had already been written about private equity. In order to understand private equity and to find a unique niche for this paper, several of these papers were studied. The main source of inspiration for this paper is "Private Equity Performance: What do we know?" written by Robert Harris and published in the Journal of Finance in October 2014. In order to examine a new area within

this subject, some changes in methodology were made to customize this paper to the Swedish market.

Fewer companies are studied in this study, mainly because information about private equity holdings is scarce and hard to obtain and since the Swedish market is smaller than the American market. Another difference is that this study solely focuses on companies in Sweden, however the private equity firms may be of foreign origin. Like the source of inspiration, this study also makes a clear distinction between private equity and venture capital ownership. Harris studied both categories, but only private equity ownership is considered in this paper. Furthermore, the performance measures used in this study are also different from those used in the source of inspiration. In “Private Equity Performance: What do we know?” something called “Public Market Equivalent” is used, which is a number of analyses used to benchmark private equity firms with a publicly traded index, internal rate of return and investment multiples. In this paper asset growth, debt level and working capital are used as performance measures. Public Market Equivalent is not used in this study, since the aim is to find the factors that affect the profitability the most. Furthermore, Harris uses capital flows into private equity firms as the dependent variable, but this study uses return on assets and return on equity as the dependent variables in the two models.

6. Results and analysis

In this section, the findings of the study is presented and analysed. First, the regressions are presented, and then an analysis of each variable follows.

6.1 Regressions

Below in the table 7 the results of both regressions are presented.

Table 7

Independent variable	Model 1: RoA	Model 2: RoE
Debt-level (PE-owned)	0.65** (7.73)	1.06** (2.71)
Debt-level (Public)	-0.34** (-20.02)	-0.72** (-9.11)
Growth Star(PE-owned)	-8.78** (-5.50)	-15.73* (-2.12)
Growth Star (Public)	7.07** (12.51)	14.74** (5.62)
Working Capital (PE-owned)	-0.005 (-1.18)	-0.023 (-1.19)
Working Capital (Public)	-0.00 (-1.54)	-0.007 (-0.81)
Debt-level (PE-Firm)	0.07* (2.27)	0.17 (1.29)
PE-dummy	0.96 (1.49)	6.87* (2.30)
R-Squared	0.839	0.526
Adjusted R-Squared	0.837	0.520
F	339.4	72.38
Prob > F	0.00	0.00

The t-values are presented in parenthesis

** Significance at the 0.05 level*

*** Significance at the 0.01 level or better*

For starters, the R-squared is high in both regressions, somewhat higher in model 1. Also note that the value of the adjusted R-squared is quite similar to the value of the R-squared. The test also has high F-values, indicating that the test is significant.

6.2 Growth

As stated in the hypothesis, it was expected that growth had had a positive impact on profitability for all the companies. In table 7 it is seen that the estimated coefficient for the growth star variable is negative for private equity owned companies and negative for publicly

traded companies. Recall from the methodology section that the growth star variable was defined as one over growth, which makes the interpretation of this variable slightly different. As seen in table 7, the profitability decreases when the growth star variable increases. But if the growth star variable increases, growth decreases, since the variable growth star is defined as one over growth. Thus, increased growth had a positive impact on profitability for private equity owned companies, and Hypothesis 1 cannot be rejected for private equity owned companies. Conversely, growth had a negative impact on profitability for publicly traded companies, which rejects Hypothesis 1 for publicly traded companies. The estimated coefficients for growth are statistically significant in both models at the 0.05-level.

6.3 Debt level

As presented in the hypothesis section, it was expected that increased debt would result in higher profitability for all companies, but that the effect of increased debt level would be greater for private equity owned companies. As presented in table 7, the estimated coefficient is positive for private equity owned companies and negative for publicly traded companies. Thus Hypothesis 2 is rejected, since increased debt did not result in higher profitability for all companies. The estimated coefficients for the debt level are statistically significant at the 0.01-level.

6.4 Private equity firms' debt level

As stated in the hypothesis section, an increase in the private equity firms debt level is expected to have had a positive impact on the private equity owned company's profitability, i.e. the estimated coefficient is expected to be positive.

As seen in table 7 the estimated coefficient is positive in both regressions. However it is only statistically significant at the 0.05-level in model 1, while not being statistically significant in model 2. Thus, the Hypothesis 3 cannot be rejected at a 0.05-level in model 1 but is rejected in model 2.

6.5 Working Capital

In the hypothesis it was stated that it was expected that the private equity owned companies did have lower working capital. The interpretation of that is that increased working capital would have had a negative effect on profitability, i.e. the estimated coefficient was expected to be negative.

As seen in table 7 the estimated coefficient is negative for both private equity owned and publicly traded companies in both regressions. However, since the estimated coefficient is statistically insignificant Hypothesis 4 is rejected.

6.6 Private Equity ownership

As previously stated, it was also expected that other factors, such as managerial improvements etc., of private equity ownership had a positive impact on profitability. Therefore a dummy variable was added in the regressions in order to capture such effects.

In table 7 it is seen that the estimated coefficient of the dummy variable is positive and somewhat greater in model 2 than in model 1. However, the result is only statistically significant at a 0.05-level in model 2 but not statistically significant at all in model 1. Thus, Hypothesis 5 cannot be rejected for model 2 but is rejected for model 1.

7. Conclusions

The aim of this thesis was to compare the performance of publicly traded companies to the performance of private equity owned companies after the financial crisis and analyse the factors that had been most vital for the company's profitability. As presented in the results, increased growth and higher debt had a positive effect on profitability for private equity owned companies, while having a negative effect on profitability for publicly traded companies. Our conclusion of these results is that private equity owned companies is better at managing the risks of higher leverage and that they successfully makes high leverage a strategic advantage even under extraordinary circumstances, while the publicly traded companies were not as successful at managing the risks of higher leverage. As presented in the descriptive statistics section the average return on equity and return on assets was positive for private equity owned companies, while being negative for publicly traded companies. It was expected that the average return on equity was greater for private equity owned companies since they traditionally have a higher debt level, but since the return on assets also was higher for the private equity owned companies actually performed better on average, which is why our conclusion is that the private equity owned companies also recovered better on average.

As presented in the previous section the estimated coefficients for working capital was statistically insignificant, which is why Hypothesis 4 was rejected. Since the correlation tables in the descriptive statistics section shows a weak correlation between profitability and working capital our conclusion is that the management of the working capital was not vital for the profitability or recovery of either private equity owned or publicly traded companies.

Private equity ownership did not have an effect on profitability that was statistically significant, which is why Hypothesis 5 was rejected. Our conclusion on this is that there is no evidence that private equity ownership affects profitability in other ways than previously discussed. Furthermore, the debt level of the private equity firm did not play a vital role for the profitability of the private equity owned companies either. Thus, Hypothesis 3 was rejected and it is concluded that there are no evidence that the debt level of the private equity firm affects the profitability of its holdings.

Our conclusions from this study is therefore that there are evidence that suggests that private equity owned companies recovered better than publicly traded companies after the financial crisis, and that private equity owned companies were better at managing the risks of higher debt levels. There is statistically significant evidence that the management of the working capital has an effect on profitability. Furthermore, there is no evidence to suggest that the debt level of the private equity firm has a significant effect on the profitability of its holdings.

8. Further research

The objective of this paper was to examine whether private equity owned companies recovered better than publicly traded companies during a four-year period after the financial crisis or not, and to examine what factors had affected the profitability the most. Principal-agent problems within individual companies are discussed in this paper, but the principal-agent problem between the private equity firm and its holding is not discussed. The private equity firm may have different intentions than the companies they own, such as boosting the companies' short-term financial ratios before they sell the company, which unlikely is the long-term objective of the owned companies. This could potentially be harmful to the private equity owned company in a longer perspective, and therefore it would be interesting to see how the private equity owned companies perform in the long run after they have been sold. This could likely identify the actual, long-term impact on a company's performance of private equity ownership.

References

- Bergström, Clas et.al. (2007). “The Operating Impact of Buyouts in Sweden”. *The Journal of Private Equity*.
- Berk, Jonathan and DeMarzo, Peter (2011) “Corporate Finance”. *Pearson International Edition*.
- Brizell, Andy (2014). “What next for Swedish private equity?” [Online] *Aztec Group*. <http://www.aztecgroupp.co.uk/andy-brizell-industry-comment/what-next-for-swedish-private-equity> [Accessed: 8th of December 2014]
- Bebchuk, Fried. (2004). “Pay without performance.” [Online]. *Harvard University Press*. [Accessed: 9th of December 2014]
- Boyd, John et. al. (2000). “A User’s Guide to Banking Crisis.” [Online]. April. [Accessed: 9th of December 2014]
- Damodaran, Aswath. (2007). “ROC, ROIC and ROE: Measurement and Implication”. *Stern School of Business*.
- Harris, Robert et. al. (2014). “Private Equity Performance: What do we know?”. *The Journal of Finance*.
- Holthausen, Robert and Larcker, David. (1996) “The financial performance of reverse leveraged buyouts”. *Journal of Financial Economics*. 42.3: 293-332.
- Jensen, Michael. (1989). “Eclipse of the Public Corporation.” [Online] *Harvard Business Review*. October. [Accessed: 9th of December 2014]
- Jensen, Michael and Fama, Eugene. (1983). “Agency Problems and Residual Claims”. *Journal of Law and Economics*. 26.2: 327-349

Jensen, Michael and Murphy, Kevin. (1990). "Performance Pay and Top-Management Incentives". *The Journal of Political Economy*. 98.2: 225-264

Kaplan, S. (1989), "The Effects of Management Buy-outs on Operating Performance and Value", *Journal of Financial Economics*.

Lichtenberg, Frank and Siegel, Donald. (1990). "The effects of leveraged buyouts on productivity related aspect of firm behavior". *Journal of Financial Economics*. 27.1:165-194

Muscarella, Chris and Vetsuypens, Michael. (1990) "Efficiency and Organizational Structure: A study of Reverse LBOs." *The Journal of Finance* 45.5: 1389–1413.

Sampson, Guy. (2010). "Private Equity as an Asset Class". Wiley. 2nd Edition.

Strömberg, Per and Kaplan, Steven. (2008). "Leveraged Buyouts and Private Equity." *Journal of Economic Perspective*. 22:4

Vester, John. (2011). "How Do Private Equity Investors Create Value?" *Journal of Private Equity*. 14.4: 7-20

Appendix

Appendix I - The Private Equity firms and their holdings used in the study.

Private Equity Firm	Holdings
Nordic Capital	Orc Group AB Munters AB Menigo Foodservice Euroline
Accent Equity	Scandic Hotels AB Scandbook AB Hoist AB Mont Blanc Group AB Bergteamet AB Corvara Industri & Skadeservice
CapMan	Cederroth International AB Munksjö AB DNV Inspection Gunnebo Industrier AB Bufab AB Life Europé AB Driconeq AB LGT Logistics Holding AB Ball Group A/S Heatex AB Umecrine Cognition AB Åkers AB Papyrus AB Q-Matic AB Dustin AB Kwintet AB
EQT Partners	IP-Only Telecommunication Granngråden AB Coromatic Group AB Atos Medical AB Orexo AB HealthCap Venture
Innovations Kapital	21 Grams AB Besedo Global Services AB Crayon AB Projectplace International AB
Credelity Capital	Aritco Group AB Fameco Group AB Saddler Scandinavia AB Sevendays Finans AB