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The Effect of Private Equity Ownership: A Study on Earnings Management in Connection to Nordic IPOs

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Abstract

This study researches if there is any difference in earnings management between private equity (PE) and non-PE backed firms in connection to initial public offerings (IPOs). The sample consists of firms that were listed on Nordic stock exchanges between 2014 and 2018, and differences between the two groups are tested for during the IPO year and the year prior to the IPO. The results indicate that there is a tendency that PE backed firms upwards adjust earnings to a lesser extent than non-PE backed firms. This points in the direction of our hypothesis, which is that PE backed firms upwards adjust to a lesser extent due to tighter monitoring and more sophisticated ownership. However, the results are in most cases not statistically significant, implying that we not are able to draw any significant conclusions. Rather, the results indicate that are other factors than ownership structure that have significant impact on the occurrence of earnings management.

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Table of Contents

1 Introduction	4
1.1 Background.....	4
1.2 Purpose	5
1.3 Contribution.....	6
1.4 Limitations	6
1.5 Disposition.....	7
2 Literature review and theoretical framework	7
2.1 Introduction to earnings management research	7
2.2 Earnings management in connection to initial public offerings	8
2.3 Earnings management in different countries	10
2.4 The link between venture capital and earnings management	11
2.5 Different perspectives on earnings management related to private equity	13
2.6 Hypothesis development.....	16
3 Method.....	17
3.1 Scope of work	17
3.2 Sample collection.....	17
3.3 Stock exchange overview	19
3.4 Modified Jones model.....	19
3.5 Additional earnings management measure (GNOA).....	20
3.6 Kothari model	21
3.7 Differences in earnings management.....	21
3.8 Regression model on earnings management.....	21
4 Empirical results	22
4.1 Descriptive statistics	22
4.2 Differences in earnings management.....	25
4.3 Regression model on earnings management.....	27

5 Discussion	30
5.1 Institutional differences between PE and non-PE backed firms.....	30
5.2 Differences in earnings management.....	31
5.3 Limitations	32
6 Conclusion.....	32
7 Future research	33
8 References	35
9 Appendix	39

1 Introduction

1.1 Background

Private equity (PE) as an ownership structure is a widespread phenomena in today's corporate setting. Since the initial public offering (IPO) of EQT in 2018, more and more people have been aware of its presence. Other Nordic PE players are Nordic Capital, Altor and Triton. These firms mainly invest in mature firms through either a Management Buyout, MBO, or through a Leveraged Buyout, LBO. In recent years there has been a surge in the number of private equity deals, and in 2021, a total of 760 deals¹ with a combined deal value of EUR 277bn was completed. These numbers are greater than the ones recorded in 2007, pre the global financial crisis (Baird, 2022).

Just as for PE deals, the IPO market was booming during 2021. It was a record year for IPOs globally, and as per November, a total of 2,850 companies had raised over USD 600bn in capital (Furuholm, 2021). It is reported that the increase can be explained by the monetary policies imposed as a consequence of the Covid-19 pandemic. At the same time, there has been a surge in exits via IPOs for private equity backed companies. The amount of capital that has flooded the market has made investors pay a premium, and the outcome is that PE firms boost their returns. However, there are indications that great returns for the PE firms can come at the cost of the IPO investors (Telling, 2021).

In the spring of 2021, the private equity firm Verdane took its portfolio company Desenio public through an IPO. A couple of months later, Desenio reported that they were facing headwinds in sales and also lowered their targeted profit margin. As a consequence, the stock price plummeted (Rydell, 2021). The actors involved, Verdane and the financial advisors, have faced criticism from the investors that took part in the IPO. Mats Qviberg, owner of Öresund AB, one of the IPO investors, argues that it might be difficult for Verdane to return to the stock market through another exit after the development of Desenio (Rex, 2021).

¹ Deals with an enterprise value larger than EUR 50m.

Despite the increase in PE backed IPOs, previous research on earnings management and financial sponsors has mainly focused on venture capital (VC). Given that there are institutional differences between PE and VC, it could be argued to be difficult to draw any parallels to PE backed IPOs. Additionally, the findings on the VC effect on earnings management are mixed. With regards to the existing research on PE, a significant share of previous research has been conducted in the US. One of the studies, conducted by Katz (2009), supports the author's hypothesis that PE firms impose a monitoring effect, resulting in less upward adjustments in earnings compared to non-PE backed IPOs.

As we conduct our study in a Nordic setting, we are able to test if PE firms have the same monitoring effect in the Nordics, and as a consequence, reduce the tendencies of upward earnings management. Although, despite the geographical differences, we do not expect to find results contrasting to Katz (2009), as we see no evident reason to believe that the private equity model in the Nordics differs from the US, at least with regards to earnings management.

1.2 Purpose

The purpose of this thesis is to investigate the occurrence of earnings management among PE and non-PE backed firms that seek financing through initial public offerings. Our sample consists of IPOs on stock exchanges in Sweden, Norway, Finland, Iceland and Denmark, between the years 2014 and 2018.

To estimate the occurrence of earnings management, three different proxies are applied. These are earnings management estimated through the modified Jones model, through the industry adjusted growth in net operating assets, and through the Kothari model. All aforementioned methods have been used to estimate earnings management in previous literature.

In order to test for potential differences among the two groups, PE backed and non-PE backed, we perform t-tests as our initial analysis. Hence, we identify potential differences in means between the two groups, as well as levels of significance. To support these findings, the t-tests are complemented with descriptive statistics, with tests for differences in mean values, as well as regressions.

In line with previous research within this area, primarily by Katz (2009), we expect lesser upwards adjusted earnings management by PE backed firms than non-PE backed firms. Katz (2009) tested this hypothesis on a sample of US based firms, and found significant support for the hypothesis. Theoretically, this is mainly explained by the monitoring effect of PE firms (Cotter and Peck. 2001).

The results in this paper might be of interest for several parties. Firstly, it lays the foundation for later research on earnings management in connection to IPOs in the Nordics. Further, it might be of relevance for investors, both institutional and private, as we investigate the occurrence of upwards earnings management in relation to offerings on the public equity markets.

1.3. Contribution

To this date, much of the previous research within the area of earnings management in connection to IPOs have been focused on VC backed firms. In addition, a significant share of these studies have been conducted on a US based sample. In general, earnings management is a very broad research area, but as far as we are aware, no previous studies have been conducted on the difference in earnings management between PE backed and non-PE backed IPO firms in a Nordic setting. Hence, our thesis clearly and evidently contributes to current research on earnings management.

1.4 Limitations

As already mentioned, we have been focusing on IPOs between 2014 and 2018. As our treatment group is related to PE, the sample size is one limitation of this study, since the amount of PE backed IPOs is limited. Hence, this might potentially impede the levels of statistical significance obtained when performing the tests. To aim for more statistically significant results, a possibility might be to extend the time periods, and, consequently, increase the total sample size.

Another limitation of this study is to control for all variables that affect earnings management, and how these correlate with PE ownership. In this study, we have controlled for several variables, in order to understand how they affect earnings management. However, a result of this might be that there are other variables, rather than PE ownership, that explains the occurrence of earnings management.

1.5 Disposition

This thesis starts with the introduction section and proceeds as follows; section 2 containing literature review and theoretical framework, including hypothesis development, section 3 containing a description of the methodology used to investigate the research question, section 4 containing a description of our empirical results, section 5 containing a discussion of our findings, section 6 containing our conclusion as well as description of areas for potential further research.

2 Literature review and theoretical framework

2.1 Introduction to earnings management research

Earnings management is a widely researched area and it is a method for firms to improve their financial performance. Several of the established models are estimating how firms are treating accruals in order to manage earnings. One of the pioneers within earnings management literature was Jennifer J. Jones, who introduced a model on earnings management in 1991. In the paper, the author modeled earnings management as a function of sales, total assets, and property, plant and equipment (Jones, 1991). This is one of the most commonly used models in earnings management and lays the foundation for much of the later research.

A few years later, the initial Jones model was developed, as the change in accounts receivables was added as an element when estimating earnings management (Dechow et al, 1995). Accordingly, the modified Jones model was introduced.

Later, the modified Jones model was complemented by adding a performance related factor. Kothari et al. (2005) developed the model in order to control for differences in performance among the firms. The performance effect was captured by adding return on assets (ROA) as a variable when estimating earnings management.

There are also alternative measures that have been used in previous research on earnings management. For example, Katz (2009), which will be further discussed later, uses change in net operating assets as a proxy for earnings management, as this is the component of operating income that is considered manageable.

In the existing literature, there are different views on earnings management and the mechanism explaining the occurrence. Healy and Wahlen (1999) summarizes previous research and conclude that the existence of earnings management is used by managers to impact the perception of the stock market, increase their compensation, mitigate the risk of exceeding limits in loan agreements, and the eventuality of regulatory interference.

Earnings management is a research area that has been developing during the last decades, and the views on it differ among researchers. In the below sections we will summarize prior research that shed light on the different perspectives, and is of relevance when reading our paper.

2.2 Earnings management in connection to initial public offerings

Results supporting the occurrence of upwards earnings management in connection to IPOs, are found by Teoh et al. (1998a). The authors follow up on previous literature that find evidence for IPOs performing worse, when looking at stock performance, than a matched sample of seasoned firms. The literature states that investors in IPOs overestimate the potentiality of earnings in younger and more fast-growing firms compared to already established public firms. Teoh et al. (1998a) address the underperformance phenomena with another explanation, which is that firms that go public might increase reported earnings compared to their cash flow, and that they do so through discretionary accruals. Evidence of upward earnings adjustment is found by several other authors (e.g., Teoh et al. 1998b; DuCharme et al. 2001; Marquardt and Wiedman 2004).

As discussed above, the findings from Teoh et al. (1998a; 1998b) suggest that firms are upwards adjusting earnings in connection to the IPO. Marquardt and Wiedman (2004) explain their findings of managed earnings by stating that managers speed up the recognition of revenue instead of delaying the recognition of costs. According to the authors, the reason is that managers are more eager to adjust the items that have the most significant effect on equity valuation. Managers adjust earnings in their best interest, and before equity offerings, the authors find evidence for upward adjustments. Although not statistically significant the authors

find contrary results for MBO, indicating that managers manage earnings in their best interest, by managing earnings downwards. Moreover, Perry and Williams (1994) find evidence that managers are incentivized to act in their own financial self-interest and hence influence the price of the firm in the most favorable direction.

Managers are incentivized to upward adjust earnings as according to the value relevance hypothesis, earnings is the only metric, when applying multiple equity valuation, they can influence the IPO price through (Ducharme et al. 2001).

On the other hand, there are several authors not finding any support for earnings management in connection to IPOs and other equity offerings (e.g., Ball and Shivakumar 2008; Premti 2013; and Aharony et al. 1993). Ball and Shivakumar (2008) criticize the hypothesis presented by Teoh et al (1998a) by presenting opposing arguments. The authors argue that an IPO firm is faced with increased surveillance, and that there are a variety of outside parties that are involved in reviewing the financial data, implying less possibility to manage earnings. Additionally, they state that there is a risk of getting exposed as the increased earnings today, through manipulation, comes at an expense of future earnings. Lastly, the authors argue that lower quality of earnings could affect the cost of capital making it more costly.

Further, Ball and Shivakumar (2008) present six reasons, with supporting results, that strengthens their hypothesis, which is that the results from Teoh et al. (1998a) are biased toward upward adjustments. Firstly, they provide evidence that the estimation of discretionary current accruals is not reliable. Secondly, they find that Teoh et al. (1998a) uses changes in working capital based on balance sheet items, which they show are tendentious toward their hypothesis compared to accruals collected from the cash flow statement. Thirdly, they point out that when looking at the development of items part of working capital, the reference point for development is the first reported number after the IPO. They problematize this and argue that any manipulation in earnings through inflation of working capital items occur too late to affect the price set in the IPO, and therefore they question the link between the discretionary accrual component, according to Teoh et al. (1998a), and the IPO price. Fourthly, the IPO firms have unusually high growth in sales and production, leading to unusual preferred levels of working capital, which automatically creates positive accruals. Additionally, to explain the high growth in receivables, the authors argue that cash constraint before raising capital in an IPO can lead to non-optimal levels of working capital pre-IPO. When the firm receives funding in the IPO,

the proceeds are invested in restoring working capital to optimal levels, which leads to positive accruals as the cash flow is decreased in relation to earnings. Fifthly, they refer to previous research stating that the Jones model doesn't capture the role of accruals in reducing earnings noise and in timely loss recognition. Lastly, the sixth argument that is brought up by Ball and Shivakumar (2008) is that there is an occurrence of extreme low values for the deflator as in lagged total assets.

Further, findings by Aharony et al. (1993) indicate that weak support for earnings management could be explained by managers believing that investors will do their due diligence on the prospectus, hence the upward adjustment will not imply a higher price. Another factor is the potential detection of any violation which could lead to personal wealth losses for the owners. Furthermore, Buchner et al. (2017) investigate the relationship between providing forecasts in the prospectus and the occurrence of earnings management. The authors find that large firms, and firms with reputable auditors, adjust earnings less than other firms. They also find results indicating that firms publishing a forecast in the prospectus are less likely to upwards adjust earnings. The authors conclude that firms that are presenting forecasts, more likely have a conservative view and serves as a signal of quality to investors.

To summarize, there are different perspectives on earnings management in connection to IPOs. The previous results are conflicting, with one side of the literature arguing that there are some mechanisms preventing managers from upward adjusting earnings. The other side of the literature is arguing for the opposite, and hence, there is a possibility that our results point in any of those directions.

2.3 Earnings management in different countries

Another subject that has been researched is how earnings management differs between countries. Leuz et al. (2003) take stand in previous literature, arguing that protection for investors is one important institutional factor influencing corporate policies, and therefore investigate investor protection as an explanatory factor for earnings management. Leuz et al. (2003) argue that insiders, firm owners, in general have incentives and the possibility to manage earnings, however, this opportunity can be limited by the regulations that protect outside investors, imposed by institutions and therefore they expect to see earnings management to a higher extent in countries with less regulations. The result from the study shows that earnings management appears to a lesser extent in the bundle with non-concentrated ownership base, a

larger stock market, stronger investor rights, and stronger legal authorities. Most of the Scandinavian countries are included in the middle bundle, compared to the US that is included in the top bundle.

Extended research on the similar area is conducted by Enomoto et al. (2015). The authors argue for two types of earnings management, either through earnings management based on accruals or real earnings management. In addition to Leuz et al. (2003), Enomoto et al. (2015) adds an analysis on real earnings management as they anticipate the occurrence of real earnings management in countries that can be classified to have better protection for investors, as there is a tradeoff between accrual based earnings management and real earnings management. The result for accrual-based earnings management is in line with the findings by Leuz et al. (2003). In addition, they find results supporting their hypothesis regarding real earnings management and better protection for outside investors.

Although it is proven that there are differences between countries, the above mentioned authors see that the characteristics are similar in the different Scandinavian countries. Accordingly, as our sample consists of IPOs in Nordic countries, geographical differences should not be a significant factor affecting our results. Although we are not testing for this in this paper, the Scandinavian markets are seen as less regulated than the Anglosaxian markets, and thus, we might see managed earnings to a higher extent than in previous American literature.

2.4 The link between venture capital and earning management

This research paper is mainly focusing on the impact by PE backed firms, and hence, makes a distinction between PE and VC ownership. However, much of the previous research on earnings management is related to VC backed firms. Katz (2009) notes that there are considerable institutional differences between the two ownership structures, but still finds the results somewhat relevant. Though, the results from VC backed firms might be problematic to apply in a PE setting.

Morsfield and Tan (2006) studies the effect of VC backing on IPO firms. They find that abnormal accruals are lower for IPO firms that are backed by VC. Further, the authors show that the lesser extent of earnings management is a consequence of the monitoring conducted by the VC firm. Morsfield and Tan's (2006) result is supported by the findings by Hochberg (2012). Hochberg (2012) examines VC firms' effect on earnings management during the pre

IPO and IPO period. The author's results support that firms backed by VC investors engage in less upward earnings management than firms with other ownership structures. According to Hochberg (2012), the results are in line with previous research stating that the entry of a VC firm before IPO has an effect on monitoring and governance. Additionally the author concluded that other shareholders that hold a large share of the company before IPO, do not have the same governance and monitoring effect.

Wongsunwai (2013) investigates earnings management in connection to the expiration of the lock up period. The author finds evidence that the quality of the VC firm has an impact on to which extent the firms engage in earnings management. The results indicate that higher quality VC firms are better on monitoring, implying less upwards earning management, compared to its peers of less quality. Lee and Masulis (2011) also investigate the relationship between VC reputation and earnings management. The authors do not find significant results that VC firms as a phenomenon reduces earnings management in IPO firms. Lee and Masulis (2011) test for endogeneity between VC and underwriter, and find that the VC firms do not play a large role in validating the financials compared to underwriters that play a large role. The authors assume that the previous research that has found evidence for VC reducing earnings management is due to the involvement of reputable underwriters in those IPOs, which they support by their results. Lee and Masulis (2011) find support for VC firms and investment banks with a high reputation reduces earnings management. Additionally, their research shows that when a VC firm and an investment bank both have a high reputation, the decrease in earnings management is even larger.

Cohen and Langberg (2009) investigate if there are any long term costs for firms getting financing from venture capital firms. Their research shows a connection between the informativeness of earnings and whether the IPO firms were backed by a VC firm or not. Firms that were backed by VC firms had less informative earnings than the group of firms that did not have any VC backer. Further the authors find that the informativeness decreased for firms where the VC firm had a larger ownership stake. The findings in the paper suggest that the VC limits the information available to increase their own returns by emphasizing the short term performance of the firm they have invested in. Darrough and Rangan (2005) finds that change in R&D spending is negatively related to VC firms selling shares when some specifications are met.

Darrrough and Rangan also find a positive relation between insiders selling shares during the IPO and discretionary accruals. Darrrough and Rangan (2005) have similar reasoning as Cohen and Langberg (2009), which is that insiders are focusing on their own interest by maximizing short term performance.

Chahine et al. (2012) conduct research on VC backed IPOs, both in the UK and the US, and find evidence for a negative relation between VC diversity among the ownership and discretionary current accruals. Their result shows that a more diverse VC shareholder base increases earnings management. Chahine et al. (2012) link their result to the principal agent dilemma that occurs between the firm that goes public and the new investors. They argue that the relationship between principals, when more than one VC firm is a shareholder, intensifies this moral hazard dilemma. In addition the study finds that this effect is larger for the firms in the US compared to the firms in the UK.

Evidence of a positive relationship between earnings management and VC is also found by Nam et al. (2014), which argues that their results are a consequence of VC firms focusing on their own returns in order to meet expectations from their investors. The study shows that earnings management occurs to a larger extent in firms that are backed by VC. Like Wongsunwai (2013) and Lee and Masulis (2011), the study discovered that VC firms with a high reputation mitigate the extent of earnings management.

The literature on VC ownership's effect on earnings management is divided, on one hand that VC firms are applying governance and monitoring and on the other hand that they are trying to maximize their own returns. As Katz (2009), argues it could be hard to draw any parallels from the VC literature to a private equity setting, but could give an indication of the impact of a financial sponsor.

2.5 Different perspectives on earnings management related to private equity

As previously mentioned, the studies on earnings management within PE-backed companies is limited. However, numerous studies have been performed on how VC ownership relates to potential earnings management, and the findings are contradictory. On the one hand, some previous research argues that there is a positive relationship between VC ownership and occurrence of earnings management, while others claim the opposite. For example, Morsfield and Tan (2006), finds that VC backed IPO firms use earnings management, to a lesser extent

than non-VC backed IPOs. These results are further supported by Hochberg (2012). However, there are other research papers concluding that VC backed companies have lower quality of earnings than non-VC backed counterparts. This is supported by Cohen and Langberg (2009) who finds that financials from VC backed companies are less informative than financials from non-VC backed firms. Further, there are studies indicating that there is a relationship between development in R&D spending, and earnings management at the year of an IPO. Darrough and Rangan (2005) finds that some VC backed firms, in the year of the IPO, have a negative change in the R&D share of sales. This goes hand-in-hand with their incentive to increase reported earnings during the IPO year.

There is, to this date, limited research on how, and whether, there is a relationship between PE ownership and occurrence of earnings management. A common theory, with support from empirical evidence, is that PE sponsors' role as active owners, and their monitoring capabilities, should restrain the use of earnings management. Cotter and Peck (2001) suggest that PE firms have capability to appoint board members, tighter monitoring and more sophisticated ownership. These are factors that, according to previous research, speak against the occurrence of earnings management (Cornett et al. 2006; Wongsunwai 2013; Xie et al. 2003). This is mainly due to the separation of management and control, as it strengthens the monitoring role of the PE sponsors compared to non-PE backed companies. Accordingly, PE owned companies might use earnings management to a lesser degree than non-PE owned equivalents. Further, there is additional research that investigates the occurrence of earnings management in relation to the type of owner. In accordance with previous research, there is reason to believe that the sophistication of the owner has a prevention effect on earnings management (Xie et al. 2003).

Further, as PE firms are frequently active in the debt and equity markets, a reputational factor might be taken into account. As the PE firms business model consists of raising debt to finance acquisitions, as well as often exiting investments in the equity markets, the firms' reputation is likely affecting their prospects of receiving favorable conditions. The theory behind PE firms and the reputational factor is supported by Cao and Lerner (2009) and Cotter and Peck (2001).

Furthermore, Katz (2009) researches the use of earnings management, depending on three different ownership structures. These are PE majority owned, PE minority owned and management owned. Katz (2009) finds that PE firms in general are upwards adjusting to a lesser extent than non-PE backed firms. Further, the study also shows that there is no significant

difference between whether PE backed firms are majority or minority owned. The author argues that the results are an indication that PE as an owner, and the monitoring imposed, restrict the upward adjustment of earnings. Additionally, Katz (2009) is testing for differences in firm characteristics between PE and management backed firms, and concludes that there are also significant differences in firm characteristics between the two groups.

Despite above mentioned findings, there is literature and research showing that PE portfolio companies to a higher degree use earnings management. This is particularly evident for IPO firms in the period around public offering (e.g. Chou et al (2006). For example, Degeorge and Zeckhauser (1993) mean that PE firms' decision to seek equity financing on public markets, might be influenced by the degree of which the PE-backed firm has exhausted the benefits of debt financing. In particular, if the PE backed portfolio company is not able to service its debt payments or sees a poor profitability development, PE firms might utilize an opportunistic behavior and, hence, engage in earnings management. Further, Cornett et al. (2006) address the relationship between PE ownership and performance metrics. The authors suggest that PE firms are more sophisticated with regards to formulation of earnings targets, which incentivize managers to utilize upwards earnings management.

Additionally, prior studies have researched how the ownership concentration might affect the occurrence of earnings management. According to Leuz (2006), in a more concentrated ownership structure, the larger owners typically have a significant influence over the management of the firm, thus, decreasing the importance of communicating through financial statements. Typically, PE backed firms have a high ownership concentration, and accordingly, there is reason to believe that PE backed firms have incentive to use earnings management (Haw et al. 2004; Leuz et al. 2003; Yeo et al. 2002).

Previous literature on financial sponsor ownership finds several mechanisms explaining the occurrence of less or more earnings management. On the one hand some literature argue that there are incentives for financial sponsors to upward adjust earnings. However, given the above mentioned findings when comparing earnings management based on ownership, there are indications of less upwards earnings management in a private equity backed IPO firm that also would apply in our Nordic setting.

2.6 Hypothesis development

To this date, the research on PE ownership's influence on earnings management, is relatively limited. Much of the prior studies have been performed on VC ownership, and, as discussed previously in the literature review, the findings and results are somewhat contradicting.

On the one hand, theories suggest that the monitoring role of PE firms should have the effect that PE backed firms to a lesser extent upwards adjust earnings (Cotter and Peck 2001). This argument is further supported through the arguments of PE firms, as described in the above section, as a more sophisticated owner that has tighter monitoring, with the ability to appoint board members.

In addition, the reputational factor, as discussed above, claims that PE firms should be more cautious with regards to upwards earnings adjustment, due to their role as a “repeat player” in the debt and equity markets (Cao and Lerner 2009; Cotter and Peck 2001). Further, these studies also find that PE owned firms have less upwards earnings management. Also, Katz (2009) finds evidence that PE backed firms in general, both majority and minority owned, engage in less upwards adjustment.

However, there are also theories and previous research suggesting the opposite – that PE backed firms should engage in more upwards earnings management. This might be due to opportunistic behavior, when the firm lacks profitability or is unable to satisfy its debt commitments. Further, the reasoning suggests that PE firms have more sophisticated performance metrics (Degeorge and Zeckhauser. 1993), as well as the theory regarding ownership concentration (Leuz 2006; Haw et al. 2004; Leuz et al. 2003; Yeo et al. 2002).

Given the above reasoning and previous research on earnings management in relation to PE ownership and IPOs, our hypothesis is formulated as below:

PE backed companies engage in less upwards earnings management than non-PE backed companies in connection to IPOs

3 Method

3.1 Scope of work

The sample is based on the Nordic countries, Sweden, Finland, Norway, Iceland and Denmark. Significant share of previous research that has looked into private equity backed IPO firms have examined the US market, which is larger than the Swedish market. Hence, in order to get a larger sample, the geographical region has been increased to not only include Sweden, but also other Nordic countries. Given the classification done by Leuz et al. (2003), where they bundle most Scandinavian countries into the same cluster, the different geographies can be seen as similar, and therefore reasonable to conduct the research across these regions. Given the time limitations of this thesis and that we need to manually collect some of our data points, the timespan for IPO firms is set to 2014 - 2018. We have selected this timeframe as it enables us to analyze earnings management without being forced to consider the potential impact by the COVID-19 pandemic. In addition, the new reporting standards IFRS16, was implemented in 2019. Accordingly, we minimize the impact from changes in accounting standards during the time period. Further, due to time limitations in this thesis we have chosen to look at a 5 year period as some of our data needed to be collected manually. Given that some previous researchers criticize the relevance of only looking at earnings management during the IPO year (Ball and Shivakumar 2008), we have decided to also include the year prior to the IPO in our analysis.

3.2 Sample collection

The sample of IPO firms between 2014 and 2018 were primarily retrieved through CapitalIQ. From CapitalIQ, an initial list of 284 firms were retrieved. The list was complemented with IPOs that were not included in the CapitalIQ database. These IPOs were retrieved by cross checking information from the official websites of the stock exchanges, and amounted to 36 additional firms. Real estate and financial firms were excluded in line with previous research (Katz, 2009). Firms that had undergone a list change were excluded from the sample as they had already undergone an IPO. Additionally, firms that were a result of a spinoff from an already public firm were also excluded. Information regarding ownership was retrieved from CapitalIQ, and was complemented by manual checks in listing prospectuses.

The treatment group was constructed by firms that were backed by private equity by the time of the IPO. For the control group, firms that were controlled to a higher extent than 50% by VC and/or investment firm/s were excluded, as previous literature suggest that there exists a link between venture capital/investment firms and earnings management.

The financial data for each firm was retrieved from Compustat. As the study investigates earnings management in two time periods, a total of three years' financials were retrieved, as the year prior is needed for some variables. The financial data was supplemented with manual inputs, retrieved from the listing prospectus or annual reports. Given that the study looks at firms transitioning from a private to a public environment, there is limited financial data for some firms. In cases where the financial data has been unable to be retrieved due to limited reporting, the firm has been excluded. Lastly, firms with revenue less than SEK 10m at the IPO year were excluded, in line with previous research Katz (2009). In total we get a sample of 123 firms, 45 PE backed and 78 non-PE backed.

Table 1.

IPOs between 2014 - 2018	Number of Firms
IPOs from Capital IQ	284
Firms that had undergone list change or similar (spin-off) and thus had not completed an IPO in the time period	-37
Additional IPOs from exchange website	36
Missing financial data	-107
VC or Investment firm backing	-30
Sales below SEK 10m	-23
Final sample of IPO firms	123
Firms with private equity sponsors	45
Firms that do not have private equity sponsors	78

3.3 Stock exchange overview

The IPOs on the main lists in each country above have been included. In addition, First North and Euronext Expand, previously Oslo Access has also been included as they are markets that operate under the same organization as the main lists. The main lists on Nasdaq follow the directives from the EU in addition the exchanges under Oslo Börs' umbrella also follow the European standards. According to Swedish law firm Lindahl, there are two main differences between being listed on the main list and a list with less regulations. These are the requirements of the documents filed before the IPO and the monitoring before going public. When listed on First North, a company is not in all cases obliged to file a prospectus, however, the firm is at least obliged to file a company description. The company description has less requirements regarding mandatory filings compared to a prospectus. A company initiating an IPO on First North needs to assign a certified advisor compared to a qualified advisor on the main list. A firm undergoing an IPO process is reviewed by a listing auditor, who evaluates whether the firm fulfills the requirements for a listing. There is no requirement for a market auditor when listed on First North, instead it is the firm and its advisor in dialogue with the stock exchange that evaluate if the firm is suitable for listing.

3.4 Modified Jones model

In order to measure the occurrence of earnings management, the modified Jones model has been used. Earnings management each year is estimated by a regression model, where the determinant is total accruals, defined as income before extraordinary items minus net cash flow from operating activities, adjusted to extraordinary items and discontinued operations (Katz 2009). The distribution of each variable is then winsorized at 1%, which is in line with previous research (e.g. Katz 2009). The independent variables are estimated using the modified Jones model where the proxy for earnings management is the residual term. Further, the independent variables are one divided by lagged total assets, change in revenue subtracted by change in trade receivables, divided by lagged total assets, as well gross property, plant and equipment divided by lagged total assets. Further, the industry effect has been taken into account into an one-digit SIC number level when computing the estimations of earnings management. In addition, these variables are winsorized at 1% of their distribution, in line with what is discussed above. The modified Jones model and the estimation of earnings management can be summarized in the below equation:

$$\frac{TA_{it}}{Assets_{i,t-1}} = a_1 \frac{1}{Assets_{i,t-1}} + a_2 \frac{(\Delta REV_{it} - \Delta TR_{it})}{Assets_{i,t-1}} + a_3 \frac{PPE_{it}}{Assets_{i,t-1}} + \varepsilon_{it}$$

The modified Jones model is a well-established model within earnings management research, and has been used in previous studies on PEs impact on earnings management. This makes our findings appropriate to compare to results in previous literature.

3.5 Additional earnings management measure (GNOA)

In previous literature, external factors that are unrelated to earnings management are addressed. Katz (2009) makes a distinction between “real performance” and “managed performance” and applies a model based on the research conducted by Penman and Zhang (2004). The model is separating the operating income into two components; one component representing real performance, and one component representing managed performance. Real performance is captured by free cash flow and managed performance is computed using growth in net operating assets. As the latter is considered “manageable”, this component might be used as a proxy of earnings management. Hence, an additional metric of earnings management is growth in net operating assets, summarized in below equation:

$$GNOA_{it} = \frac{(NOA_{it} - NOA_{i,t-1})}{NOA_{i,t-1}}$$

More specifically, the net operating assets is defined as the sum of common equity, long-term debt, debt in current liabilities, preferred equity, subtracted by cash and short-term investments as well as investments and advances.

Further, the growth in net operating assets each year is adjusted to industry effects in accordance with previous research by Teoh et al. (1998b). This is done by subtracting each company's growth in net operating assets by the median growth in NOA for companies in the same industry during the same year in relation to the public offering. In addition, the distribution of the variables is winsorized at 1%.

3.6 The Kothari model

Finally, our last proxy for earnings management is a developed version of the modified Jones model (1995) presented previously in this section. This model was introduced by Kothari et al. (2005) and continues to build on the regression in the modified Jones model. In addition to the three independent variables in the modified Jones model, the Kothari model adds return on assets (ROA) as an independent variable. The distribution of all input variables are winsorized at 1%. The Kothari model is summarized below:

$$\frac{TA_{it}}{Assets_{i,t-1}} = a_1 \frac{1}{Assets_{i,t-1}} + a_2 \frac{(\Delta REV_{it} - \Delta TR_{it})}{Assets_{i,t-1}} + a_3 \frac{PPE_{it}}{Assets_{i,t-1}} + a_4 ROA_{it} + \varepsilon_{it}$$

As mentioned, and can be seen in the above equation, the Kothari model takes into account differences in ROA among the firms when calculating the residual estimating earnings management.

3.7 Differences in earnings management

In order to test for differences in earnings management between PE and non-PE backed firms, we are testing for differences in mean for both groups. This is done by performing t-tests on each firm for each observable year. To capture for potential industry effects, the unexpected discretionary accruals derived from the modified Jones model have been matched on a one-digit SIC code level. Further, the GNOA rates have been adjusted to show their industry-adjusted growth in net operating assets, that is, the value of each observation is subtracted by the median GNOA in the same industry, for the same year in relation to the public offering. The results from above described analyses should reflect the differences in earnings management between the two groups.

3.8 Regression model on earnings management

To further investigate the difference between PE and non-PE, as well as testing for potential other variables that are affecting the occurrence of earnings management, an additional analysis is performed. In line with Katz (2009), we also perform a regression analysis, where below equation summarizes our regression:

$$EM = a_0 + a_1 * PE + a_2 * SIZE + a_3 * BV + a_4 * GROWTH + a_5 * LEV + a_6 * PROFIT + a_7 * QRATIO + a_8 * OPERCYCLE + a_9 * CASH + \varepsilon_t$$

In this regression, EM is defined as earnings management, using the modified Jones model, growth in net operating assets, and the Kothari model as described above in this section. PE is a dummy variable with the value of 1 for PE backed firms and 0 for non-PE backed firms. The independent variable SIZE is defined as the natural logarithm of sales, BV is common and preferred equity divided by total assets, GROWTH is revenue growth in the given year, LEV is total debt (long-term debt and debt in current liabilities) divided by total assets, PROFIT is defined as earnings before extraordinary items divided by total assets, QRATIO is defined as cash and short term investments and trade receivables divided by current liabilities, OPERCYCLE is operating cycle days, and CASH is defined as cash and short term investments divided by total assets.

4 Empirical results

4.1 Descriptive statistics:

In table 2 descriptive statistics are presented for our sample, including 45 PE backed IPO firms and 78 non-PE backed IPO firms. Accordingly, PE backed firms constitute 37% of our sample, and results are shown both for the year prior to the IPO and the IPO year.

As can be seen in the table 2 total assets are significantly higher for PE backed IPO firms than for non-PE backed equivalents. This also holds for total revenue, as revenue for PE backed firms is significantly higher. The result might not be unexpected as PE firms generally are acquiring relatively mature firms. Further, a difference in size of net operating cash flows can be identified, where PE backed firms have larger cash flows. This is also attributable to previous reasoning regarding total assets and sales differences.

As shown in table 2, a difference in sales growth between PE and non-PE backed firms can be observed during the IPO year, as non-PE firms see higher growth rates during both the IPO year and the year prior to the IPO. However, these differences are not significant.

Further, while looking at the quick ratios, there is a difference between the two groups. Both during the IPO year, and the year prior to the IPO, PE backed firms have lower quick ratios than non-PE backed firms, and at the IPO year, the difference is significant.

Table 2. Descriptive statistics

Metric		One year pre-IPO			IPO year		
		PE backed (1)	Non-PE backed (2)	Diff. (1) - (2)	PE backed (3)	Non-PE backed (4)	Diff. (3) - (4)
<i>Total Assets (SEK millions)</i>	Mean	6 005	1 870	4 135***	6 130	2 283	3 847
<i>Total Sales (SEK millions)</i>	Mean	6 029	2 348	3681*	6 055	2 420	3 635
<i>Sales Growth</i>	Mean	27.5%	47.5%	-20.0%	18.2%	126.6%	-108.5%
<i>Leverage</i>	Mean	42.1%	23.7%	18.5%***	27.7%	14.0%	13.7%***
<i>ROA</i>	Mean	2.4%	-4.1%	6.5%	3.8%	-8.6%	12.5%*
<i>Q-Ratio</i>	Mean	1.14	1.68	-0.54	1.68	3.01	-1.33
<i>Cash</i>	Mean	8.9%	21.2%	12.3%***	10.3%	31.6%	21.3%***
<i>TACC</i>	Mean	-7.2%	-6.0%	-1.2%	-4.4%	-0.2%	-4.2%
<i>NCFO</i>	Mean	376	171	205	351	203	148

***, **, * Significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 2. (continued)

Variable definitions:

Total Assets = End of year total assets in million Swedish crowns (SEK)

Total Sales = Net sales in millions Swedish crowns (SEK)

Leverage = $\frac{\text{Total debt (Long-term debt + Debt in current liabilities)}}{\text{assets at the end of the year}}$

Sales Growth = Growth in sales during the year

ROA = $\frac{\text{Earnings before extraordinary items}}{\text{assets}}$ divided by opening balance of total

Q-Ratio = $\frac{\text{Current receivables and cash and short-term investments}}{\text{current liabilities}}$, divided by

Cash = Cash and short-term investments, divided by total assets

TACC = $\frac{\text{Total accruals}}{\text{net cash flow from operating activities, adjusted to extraordinary items}}$ divided by opening balance of total assets, where total accruals is defined as: Income before extraordinary items subtracted by

NCFO = Net cash flow from operating activities in million Swedish crowns (SEK)

With regards to leverage, higher leverage ratios can be observed for PE backed firms. These differences are significant, but might be expected due to the fact that debt typically is a key element of the financing for PE acquisitions. In addition, there are significant differences in cash in relation to total assets for both years, where PE backed firms tend to have lower cash levels.

One remarkable difference is the difference in ROA, which tends to be higher for the PE backed group. In the year of the IPO, this difference is significant. This supports our choice of applying the Kothari model (2005) as a complement to the modified Jones model.

4.2 Differences in earnings management

In order to test for differences in earnings management between the two groups, t-tests are performed. The results are presented in table 3. Firstly, the modified Jones model has been used to measure earnings management. This model generates a residual, which is one of our proxies for earnings management. As presented in table 3, earnings management is lower for PE backed firms than for non-PE backed firms when applying the modified Jones model (1995). This holds for both the IPO year and the prior year, which supports our hypothesis 1. However the differences are not significant when using the modified Jones model.

Further, we have also estimated earning management through the development of net operating assets. As can be seen in table 3, the PE backed group has a lower growth in net operating assets, indicating non-PE backed firms upwards adjust earnings to a higher degree. This further supports the results observed using the modified Jones model, and strengthens our hypothesis. In addition, the difference in upwards adjusted earnings management appears to be significant at a 10% level during the IPO year. The year prior to the IPO, there is also an observable difference, though statistically insignificant.

Table 3. Differences in earnings management

Earnings management proxy		One year pre-IPO			IPO year		
		PE backed (1)	Non-PE backed (2)	Diff. (1) - (2)	PE backed (3)	Non-PE backed (4)	Diff. (3) - (4)
<i>Modified Jones model</i>	Mean	-0.0719	-0.0559	-0.0160	-0.0333	-0.0102	-0.0231
<i>GNOA</i>	Mean	0.1496	2.0769	-1.9274	-0.0051	0.6925	0.6976*
<i>Kothari model</i>	Mean	-0.0729	-0.0558	-0.0172	-0.0338	-0.0008	-0.0330

***, **, * Significance at the 0.01, 0.05, and 0.10 level, respectively.

As previously discussed, the Kothari model (2005) is also applied in order to account for differences in ROA. The results from this model appear to be in line with the results from the modified Jones model (1995) and the GNOA approach. As can be seen in table 3, PE firms upwards adjust earnings to a lesser extent both the IPO year and the year prior to the IPO, however, the results are not statistically significant.

To conclude, the results show an indication of less upward adjusted earnings in PE backed IPO, however for the majority of proxies the results are not significant. Accordingly, we do not find statistically significant support for our hypothesis across all proxies and years.

4.3 Regression model on earnings management

The result for the regression can be found in table 4. Differences between the groups are also tested through a regression, where PE is a dummy variable. The result when EM is defined according to the modified Jones model is a positive, although not statistically significant, coefficient for the variable PE, which is not consistent with our hypothesis. The positive coefficient indicates upward adjustment of earnings. Additionally, the regression finds a negative coefficient for Size at 5% significance. The negative coefficient indicates that firms that are greater in Size upward adjust to lesser extent than smaller firms.

When looking at the IPO year, we also get a positive coefficient for PE, as seen in table 4, but not significant, indicating that in the IPO year, firms backed by PE upward adjust their earnings to a greater extent than firms that are not PE backed. Regarding the control variables the coefficient for profitability is negative and significant at 10%, indicating that lower profitable firms upward adjust to a greater extent than more profitable firms. We also find positive and significant, at 10%, coefficients for QRATIO and OPERCYCLE.

The regression is also completed for GNOA, for both the year prior to the IPO and the IPO year we found the coefficient for the variable PE to be negative for both years, supporting our hypothesis, although not statistically significant. Further we find positive coefficients, at the year prior to the IPO for GROWTH, BV and LEV that all are significant at 1% significance level. Additionally the coefficient for OPERCYCLE is negative and significant at 10%, for the same year. Furthermore, for the IPO year we find positive and significant coefficients for profitability.

Lastly, the regression is run, when applying the Kothari estimation of earnings management. The results for the coefficient for PE, see table 4 are in line with the result for the regression performed when applying modified Jones model, but not in line with our hypothesis. For the year prior to the IPO, we found positive and significant results, see table 4, for PROFIT at 1% significance level. In addition we find a negative coefficient for size at 5% significance level for the same year, indicating that smaller firms upward adjust to greater extent.

To conclude, we find that other variables than PE are affecting the extent of earnings management. As mentioned above, we can see tendencies that variables, including growth, book value and leverage have significant impact.

Table 4.

Independent variable	PE-backed versus non-PE backed											
	Year prior to IPO						IPO Year					
	Modified Jones		GNOA		Kothari		Modified Jones		GNOA		Kothari	
	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
	(1)	(1)	(2)	(2)	(3)	(3)	(4)	(4)	(5)	(5)	(6)	(6)
PE	0.156	0.71	-3.076	-1.51	0.012	0.55	0.010	0.52	-0.770	-1.46	0.004	0.14
SIZE	-0.010	-2.09**	-0.207	-0.47	-0.012	-2.38**	-0.006	-1.05	-0.111	-0.78	-0.007	-1.04
BV	-0.040	-0.81	12.249	2.65***	0.005	0.09	-0.082	-1.50	2.269	1.55	0.008	0.10
GROWTH	-0.006	-0.57	3.649	3.75***	-0.012	-1.12	-0.002	-1.25	-0.017	-0.35	-0.004	-1.53
LEV	-0.079	-1.50	14.153	2.88***	-0.069	-1.28	-0.033	-0.53	1.762	1.07	-0.017	-0.20
PROFIT	0.024	1.21	-2.722	-1.48	0.067	3.34***	-0.043	-1.86*	1.462	2.36**	0.028	0.91
QRATIO	0.003	0.51	-0.177	-0.31	0.000	0.07	0.005	1.79*	0.007	0.09	0.005	1.27
OPERCYCLE	0.000	1.35	-0.017	-1.75*	0.000	1.50	0.000	1.87*	-0.001	-0.37	0.000	1.51
CASH	-0.069	-1.12	-1.089	-0.19	-0.090	-1.45	0.037	0.71	-0.372	-0.27	0.016	0.23
INTERCEPT	0.027	0.60	-4.384	-1.05	0.027	0.59	0.025	0.47	0.107	0.08	-0.002	-0.03
Adj-R ²	0.0116		0.1853		0.1166		0.0954		0.0413		0.0353	
No. of Observations	123		123		123		123		123		123	

***, **, * Significance at the 0.01, 0.05, and 0.10 level, respectively.

Table 4. (Continued)

Variable definitions:

Modified Jones	=	Earnings management derived from the modified Jones model
GNOA	=	Industry-adjusted growth in net operating assets after subtracting the median for the industry for the same year in relation to the IPO, where NOA is defined as common equity + preferred equity + debt in current liabilities + long term debt - Cash and cash equivalents - investments and advances
Kothari	=	Earnings management derived from the Kothari model
PE	=	Dummy variable that is equal to 1 if the firm is PE backed and 0 if not financial sponsor backed
Size	=	The natural logarithm of total revenue
BV	=	Book value of common equity, preferred equity and deferred taxes and investment tax credit, all divided by total assets
GROWTH	=	Growth in sales during the year
LEV	=	Total debt (Long-term debt + Debt in current liabilities) divided by total assets at the end of the year
PROFIT	=	Income before extraordinary items divided by the opening balance of total assets
QRATIO	=	Current receivables and cash and short-term investments, divided by current liabilities
OPERCYCLE	=	Operating cycle days, calculated as: (yearly average trade receivable) / (total revenues / 360) + (yearly average inventory) / (cost of goods sold / 360)
CASH	=	Cash and short-term investments, divided by total assets

5 Discussion

5.1 Institutional differences between PE and non-PE backed firms

As discussed in previous sections, there are several institutional differences to be aware of as our analysis aims to investigate the difference between two ownership structures.

Foremost, one group consists of financial sponsors and one group does not, but there are also several characteristics that make these types of owners different from each other. A selection of these differences are presented in the descriptive statistics section, whereof a few of them are statistically significant when testing for the difference in mean values.

As discussed above, the largest differences are in size of total assets, total revenue as well as net operating cash flow in absolute values. A reason for this might be the fact that PE firms in general invest in more mature businesses.

Further, profitability levels, in terms of ROA, are also higher for PE firms than for non-PE backed firms, both during the IPO year and the year prior. In line with the reasoning in the literature review, this might be a consequence of the PE ownership. Cornett et al. (2006) find that PE backed firms in general have more sophisticated and well-developed earnings targets, increasing the incentive for managers to perform on financial metrics. Thus, this profitability consciousness might be a reason for higher observable ROA numbers in the PE backed group. In addition, differences in leverage ratios are significant at 1%. Although, this is not unexpected given the traditional PE acquisition model, where targets are financed using significant debt financing and the debt appears on the acquired companies' balance sheet. Additional differences that may be explained by the PE model are the statistically significant differences in cash levels. As shown in the descriptive statistics section, PE firms have lower levels of cash in relation to their total assets at a 1% significance. This might be an implication of the debt financing discussed above, as PE firms typically are using the generated cash flow to pay down, at least part of, their outstanding debt. Lastly, an additional metric that appears to be statistically significant for one of the observable years, and hence enlightens the difference in characteristics between the ownership types, is the difference in QRATIO. The QRATIO tends to be lower for PE backed firms, and accordingly, indicating lower working capital requirements.

In general, PE is considered being a more sophisticated owner with regards to cash generation and working capital management, and accordingly, this might be an explanation for the differences in QRATIO. To conclude, as discussed in above paragraphs, there are several financial characteristics that differ between PE firms and non-PE backed firms.

5.2 Differences earnings management

The result from our t-tests regarding differences in earnings management, as seen in table 3, indicates that PE backed firms upwards adjust to a lesser extent than non-PE backed firms. Although the results are insignificant for most proxies and years, the findings point in the same direction as previous research (e.g. Katz 2009). This might be a consequence of the stricter monitoring among PE owned companies and the reputational effect, as suggested by Cao and Lerner (2009). Support for the monitoring theory has also been found in previous research on VC (e.g. Hochberg 2012; Morsfield and Tan 2006) as discussed in the literature review section. However, as mentioned, most of our results are insignificant and this might not be unexpected as previous findings in this area have been somewhat contradicting, as there is previous literature supporting upwards earnings management among PE backed firms as well (e.g. Chou 2006).

As can be seen in table 4, the results from our regressions point in several directions. When applying the modified Jones model and the Kothari model, the results indicate that PE should imply a higher extent of upwards earnings management. This contradicts our results from the t-tests, but is supported by findings from Chou (2006). However, the findings are not significant. Further, when looking at the GNOA variable as the proxy for earnings management, the PE coefficient indicates the opposite, which is in line with our t-tests but contradicts our regression when estimating earnings management through the modified Jones model and the Kothari model. Nevertheless, these results are also insignificant.

Given the insignificant impact from the PE coefficient, in combination with the fact that other independent variables have significant impact on earnings management, there is reason to believe that other variables than the binary PE variables are the ones explaining earnings management. Accordingly, the results in our t-test indicating less upward adjustments by PE backed firms, thus not significant, could therefore be a consequence of other explaining factors, rather than the pure ownership structure. Hence, the PE effect, as suggested by previous research (e.g. Katz 2009; Cao and Lerner 2009), might not be an effect by pure monitoring, but rather be

an effect of other variables that characterize PE backed firms. A similar reasoning is emphasized by Ball and Shivakumar (2008), stating that current accruals could be proxying for characteristics of the issuer. The differences in firm characteristics are also noticed by Katz (2009), who argue that there is a difference between firms backed by PE and not. Based on the above reasoning, we acknowledge that our results indicate that other factors than the monitoring effect explains the difference between PE and non-PE backed firms that our t-tests indicate.

5.3 Limitations

One limitation of our study is the sample size. One way of expanding our sample could be, like Katz (2009), to look at a longer time period. We could have expanded our research to a European or a Northern European setting. However, given our ambition to research the Nordic environment and given the different institutional characteristics across Europe, as found by Leuz et al. (2003), additional analysis might need to be added to capture differences among countries. Additionally, given that we look at firms' financials in a private setting there is a limitation in being able to collect financials for all firms. There could be a selection bias as more transparent firms report financials to greater extent, but as this would apply to both PE and non-PE backed firms.

6 Conclusion

This thesis aims to research the difference in earnings management between PE backed IPO firms and non-PE backed IPO firms. Given previous findings and research within this field, our hypothesis was that PE firms should engage in less upward earnings management. Previous researchers (e.g. Katz 2009) find evidence that this type of relationships have existed in the US markets. However, earnings management in a Nordic setting is still a relatively unexplored area of research.

Our findings suggest that there might exist a difference, and that PE backed firms upwards manage earnings to a lesser extent. However, we only find statistically significant differences when applying the industry adjusted growth in net operating assets for the IPO year. For all other tests and observations, we find that PE firms adjust upwards to a lesser extent, although statistically insignificant.

As can be seen in our regression models, we need to be aware of the fact that other variables might affect earnings management as well. For example, as discussed in the Discussion section, there are differences between PE and non-PE backed regarding characteristics and our regression shows that other factors than PE ownership are explanatory for earnings management. We can conclude that we are not able to find statistically significant results for the monitoring and governance effect as suggested in prior research.

Our thesis contributes to the literature by making a distinction between PE, VC and investment firms. Previous research has not made this distinction in a Nordic setting. Given the institutional differences between PE and VC, our thesis shed light on one specific type of owner. Our result could be interesting for investors participating in an IPO. Even though our result is not significant it could give an indication that earnings are less inflated in a private equity backed IPO. Additionally, our result could be interesting for people doing further research on the area of ownership structure effect on earnings management.

7 Future research

After completing this study, we are well aware that there are several areas for potential future research within this area. Firstly, as much of previous research has been focused on the VC field, there should be possibilities to develop hypotheses and compare VC backed firms to a group of PE backed equivalents. As far as we are aware, this type of research has not been done previously, at least not in a Nordic setting. Additionally, a further dimension to study could be if there is any difference between PE players that are returning more frequently to the equity capital markets than firms that do not. By adding this dimension, it could be tested if the explanation of less earnings management in private equity backed firms is related to the cost associated with upward adjusting earnings, that could be reflected by lower prices in future IPOs by the same issuer, as investors expect earnings to be upwards managed.

Given our relatively narrow time span for IPOs, we are aware that our sample is limited. In order to shed further light on the earnings management analysis, one might consider to extend the time frame, and hence, increase the sample size. As previously discussed, there are differences in firm characteristics that have a significant impact on the degree of earnings management. Accordingly, there is room for further research on how to account for these differences in future earnings management studies.

As of this paper, we have only focused on PE firms' earnings management practices in relation to an IPO. Although much of prior research is focusing on IPO firms, it might be interesting to research other exit routes. For example, to research PE exits through trade sale or secondary buyouts, might be of interest.

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9 Appendix

Appendix 1. (PE backed firms included in treatment group)

Company	PE firm
ISS A/S	EQT
Bufab AB	Nordic Capital
Zalaris ASA	Nordic Capital
Inwido AB	Ratos
Thule Group AB	Nordic Capital
Com Hem AB	BC Partners
Bravida Holding AB	Bain Capital
Eltel AB	3i Group
Dustin Group AB	Altor Equity Partners
Troax Group AB	FSN Capital Partners AS
Asiakastieto Group Oyj	Investcorp
Pihlajalinna Oyj	Sentica Partners
Coor Service Management AB	Cinven
Alimak Group AB	Triton
Europris	Nordic Capital
Minesto AB	Verdane
Dometic Group AB	EQT
Scandic Hotels Group AB	EQT
Consti Oyj	Intera Partners
AcadeMedia AB	EQT AB
Humana AB	Argan Capital Advisors
LeoVegas AB	Aggregate Media
Tokmanni Group Oyj	Nordic Capital
Nordic Waterproofing Holding AB	Axcel Management A/S
ByggPartner i Dalarna Holding AB	Priveq
Internationella Engelska Skolan AB	TA Associates
Ahlsell AB	CVC
Crayon Group Holding ASA	Norvestor
Ambea AB	Triton and KKR
Actic Group	IK Partners
Instalco AB	FSN Capital Partners AS
Munters Group AB	Nordic Capital
Boozt AB	Verdane
Balco Group AB	Segulah
Webstep AB	Reiten & Co

Terveystalo Oyj
TCM Group A/S
Lyko Group AB
Silmäasema Oyj
Handicare AB
Green Landscaping Group AB
Harvia Oyj
Shelf Drilling Ltd
Netcompany Group A/S
Jetpak Top Holding AB

EQT Partners
IK Partners
Fidelio
Intera Partners
Nordic Capital
FSN Capital Partners
CapMan Oyj
Champ Private Equity
FSN Capital Partners
Polaris Management
A/S