Financial Sponsors: Friend or Foe in an IPO?

Earnings management in Nordic initial public offerings

Niki Ngiam[1]

Abstract

In this study, I examine the extent of earnings management in Nordic initial public offerings ("IPOs") and the impact of third-parties, with emphasis on financial sponsors (private equity, venture capital and family-owned investment companies). In an IPO, insiders have incentives to manipulate earnings in order to maximize the monetary gain when they divest their shares. Previous research has found that IPO firms tend to manipulate earnings to a higher extent than comparable firms, but that highly reputable third-parties can mitigate earnings management due to increased monitoring and the possibility for firms that engage in less manipulation to signal quality through engaging such advisors. I follow previous research and apply discretionary current accruals as a proxy for earnings management on a sample of 138 IPOs between 2010-2014 as well as 719 private companies in the Nordics. I provide evidence that supports a higher level of manipulation among IPO firms than comparable private companies. Contradictory to previous research, I find a positive relationship between earnings management and financial sponsors, which is further increased if a top underwriter is engaged in the IPO, whereas the impact of top underwriters in isolation is found insignificant. These findings support that financial sponsors engage in higher extents of earnings management in order to increase their financial gain in the IPO. Consistent with previous studies, I further find a decreasing relationship between earnings management and legal advisors as well as financial sponsors that can be considered more credible. I conclude that the first is a result from signaling and the latter a consequence from monitoring conducted by the credible sponsor, which limits the ability to manipulate earnings.

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1. Introduction

In this study, I examine the question of whether companies in the Nordics engage in earnings management to improve their financial performance in connection to initial public offerings ("IPOs") as a mean to maximize their financial gains and if so, whether third-parties and financial sponsors (private equity, venture capital and family-owned investment companies[3]) in particular, mitigate this behavior or not.

In 2017, the global market for IPOs is predicted to have experienced the best outcome since the year before the global financial crisis (Steinbach, 2017) and skeptical voices continue to come forward and claim an overvaluation of the stock market (Wendel, 2017). Albeit the global capital markets experienced a downturn during 2015-2016, as a result from the uncertain political climate, the market has already surpassed the full year outturn for 2016 during the first three quarters of 2017 (Steinbach, 2017). In addition, the Nordic stock exchanges have experienced a record number of deals conducted within a year, reaching 100 IPOs in November 2017 (Edling, 2017). The recovery of the IPO market post-financial crisis has mainly been driven by financial sponsors[4] (Steinbach, 2017), whom have a business model that constitutes to acquire, develop and divest companies. The higher the exit value, the higher the return on the investment and consequently the higher the profitability of the financial sponsor. As company transactions in terms of acquisitions and divestments are conducted constantly, a financial sponsor has vast experience from the capital markets, which should improve the ability to attain a high valuation. Hence, it is an excellent opportunity for such sponsors to exploit the current IPO surge, leverage on their inherited experience and push introduction prices further, which in turn can have negative consequences for the new investors post-IPO.

An IPO is particularly subject to asymmetric information. The current owners, managers and advisors have access to inside information compared to potential outside investors and thus have an opportunity to exploit the imbalance to their advantage. Agency theory evolves around the need for alignment between agents (managers and initial owners) and principals (new shareholders) since agents are deemed to work with their best interest in mind, which is not necessarily what is best for the principals. Various corporate governance controls exist in order to limit behavior of self-interest, however, opportunistic behavior is still found, e.g. through manipulation of earnings. In an IPO, a prospectus is prepared for potential investors, which includes information regarding the

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[3] A family-owned investment firm is an investment company owned by a family as opposed to a group of partners, e.g. Nordstjernan owned by the Axel Johnson family in Sweden.
[4] Mainly private equity and venture capital.

company, the market environment, relevant risks and financial statements to enable investors to make an informed investment decision. Since the company is private and limited information is available, the investors rely heavily on the prospectus and manipulation of earnings is suspected for the presented numbers as insiders could benefit from a higher offering price. This type of manipulation is commonly referred to as "window-dressing" (Brau and Johnson, 2009). There are several incentives to practice window-dressing in IPOs, one being that insiders want to divest their holdings and a higher introduction price increases their monetary gain. Moreover, the grandstanding theory dictates that newly established financial sponsors or those of lower quality take companies public too early as they want to establish a track-record to enable further fund raising as well as return capital to their investors. As a consequence, they are incentivized to engage in earnings manipulation to compensate for the premature state of the IPO firm (Morsfield and Tan, 2006). One might argue that this behavior should be detected by auditors, but the manipulation could fall within what is prevailing generally accepted accounting principles ("GAAP") and auditors are responsible for the compliance to GAAP, not necessarily what is the fair representation of the business (Teoh et al., 1998).

Numerous studies have found existence of window-dressing both in public companies on a global level (Leuz et al., 2003) and in connection to IPOs specifically (DuCharme et al., 2001). Furthermore, third-parties including attorneys, underwriters, auditors and venture capitalists ("VCs") have been examined and it has been found that companies with highly reputable third-parties involved in the IPO engage in less earnings management than comparable firms. The aforementioned evidence is mainly focused on the US and UK market and, to the best of my knowledge, evidence from the Nordic market is limited, especially regarding the role of third-parties in IPOs. As the Nordic IPO landscape currently has high liquidity and the market has reached an all-time high, it is reasonable to expect insiders to take advantage. In addition, as an investor, one might wonder whether to stay away from firms backed by financial sponsors as the transaction experience and contribution to the high IPO activity, and thereby arguably the current valuations, puts them in a favorable position to take advantage of the situation, or on the other hand if aforementioned factors contribute to increased monitoring and can be used as a safeguard for the investor.

With this paper, I aim to contribute to the field of earnings management in IPOs by adding a Nordic perspective including part of the current surge in IPO activity and a broader definition of financial sponsors as much of the previous work is focused around venture capital or private equity.

In addition, I compare the IPO firms to a sample of private firms as opposed to other public firms, which has not been conducted in previous studies. This allows for a better comparison since the companies prior to IPO are in fact private. To test for earnings manipulation, I apply a proxy of discretionary current accruals through the modified Jones as well as the Kothari model to a sample of 138 Nordic IPOs from 2010-2014. I find that IPO firms tend to window-dress to a higher extent than private firms and that the level of manipulation significantly decreases in the first year post-IPO. Contradictory to previous research, I find that financial sponsors engage in window-dressing to a higher extent than comparable firms and that the effect is further increased when the sponsor has engaged a highly reputable underwriter. I conclude that the financial sponsor attempts to maximize their financial gain and that the combined effect is driven by financial sponsors wanting to signal high quality as well as insignificant monitoring from the underwriter as a result from trust in the remaining third-parties and a willingness to please the sponsor. However, when differentiating between more and less credible sponsors, I find a negative impact on earnings management for the sponsors deemed more credible, which is in line with previous studies. Further consistent with prior research, legal advisors are found to have a negative relationship to earnings manipulation. I propose that this is fully related to signaling as the attorneys are not involved in the financials. Moreover, a positive relationship is found between big 4 auditors and earnings management. I suggest that this is a result from extensive monitoring for firms that do not have a big 4 auditor to compensate for a perceived lack of quality.

1.1 Purpose
Previous research has failed to provide clear evidence related to the role of third-parties in IPOs as a whole. A number of studies focused on the US setting have found evidence consistent with an increased monitoring effect i.e. lower levels of earnings management pre-IPO in the presence of highly ranked underwriters (Chang et al., 2010) and VCs (Morsfield and Tan, 2006). On the other hand, Levis (2011) argues that investors generally mistrust private equity firms and expect their IPOs to have a more aggressive valuation. Consequently, the market is surprised if private equity-backed IPOs perform well post-introduction, which results in a corresponding increase in the post-IPO share price. In the Nordic market, the expected role of third parties is even less evident. The Nordic media has portrayed a rather negative view of financial sponsors built on the notion that profit is maximized by any means necessary. This view is supported by several historical events, e.g. the bankruptcy of the John Bauer high school in Sweden (Lagerström and Zachrisson, 2013), the scandal related to the elderly care facility Carema (Aijer, 2012) and the panama papers leak related to tax havens (Alestig, 2016). The first concerns a high school that was owned by a private equity firm, which decided to discontinue the operations as it did not meet the required

targets for a decent investment, leaving hundreds of students with uncertain educational futures (Lagerström and Zachrisson, 2013). The second event relates to a private equity held elderly care facility where the focus on profitability resulted in inhumane conditions for the residents. People shared stories of how their family had been treated including how it took several hours to discover that residents had deceased since the cost-saving program had significantly reduced personnel (Wallin, 2016). Third, the lux leaks in 2014 and panama papers leak during 2016, which showed that numerous PE and VC firms have set up companies in tax havens, have further fueled the negative image with the perspective of tax evasion (Alestig, 2016). These events have contributed to the negative reputation of financial sponsors and raised doubts related to their role in value creation. In the context of IPOs, they have clear incentives to encourage window-dressing to maximize their short-term profits rather than constrain it. Given these conflicting views, the purpose of this paper is to examine whether the media picture is supported in terms of earnings exploitation in IPOs through window-dressing or if the negative portrayal is uncalled for and financial sponsors in the Nordics act in a similar manner as in the US, i.e. as a mitigating factor for the manipulation of earnings.

1.2 Contribution
With this study, I contribute to the current research field of earnings management in three aspects; i) a broad view on investment companies ii) a Nordic setting that adds to the literature, which mostly evolves around the US and UK iii) and the inclusion of private firms in the estimation of discretionary current accruals. The previous studies that examine third-parties mainly focus on underwriters and VC's (e.g. Lee and Masulis, 2011 and Chang et al., 2010). Levis (2011) suggests that the emphasis on venture capital in the US is a result from the relative importance of Silicon Valley and since the majority of the research within this field is conducted on the US market, the VC perspective is also included in most of the previous research. In this study, I expand the group of financial sponsors to include private equity ("PE") and family-owned investment companies ("FO") in addition to VCs. The three types of investment firms are similar as they acquire a majority stake in the companies that are subject for investment as well as the practice of active ownership to improve the acquired firm before divestment, e.g. through taking a seat in the board of directors. Moreover, they are faced with the same incentives to or not to window-dress. All sponsors will benefit directly from an increased valuation of the firm subject to investment, but at the same time their business model requires continuous divestments and too unsuccessful IPOs can damage their reputation and thereby their ability to find investors in the future.

The main difference between PE and VC is the maturity of the firms they invest in, where a VC firm enters at an earlier stage of the company's life cycle than a PE firm[5]. By including private equity, I expand the sample to include larger and more mature IPO companies. This can have an effect on earnings management as a more mature firm has had more time to get procedures for financial reporting and monitoring initiatives in place, which is expected to decrease earnings manipulation, ceteris paribus. The main difference between family-owned investment firms compared to VC and PE, is the ownership structure and financing. Instead of having a group of partners and external investments from general partners, e.g. pension funds, the companies are owned and financed by a family. At what point in time of the company's life cycle the FO invests at varies between investment firms and can range from VC to PE, or higher levels of maturity[6]. In addition, FOs are not bound to a set time frame in which they have to divest the holding since there are no general partners to whom they need to return capital. Since FOs resemble both VC and PE in terms of company maturity, the impact on earnings management as a group is not obvious. Due to the unlimited time frame of the investment, they have an opportunity to engage in extensive monitoring practices and enhance the financial reporting, although as the business model includes divestment, it is not certain that this option is utilized in that way, but rather as a mean to find an optimal exit opportunity.

Previously, the Nordic capital market has been relatively immature compared to that of the US and UK, on which the majority of the research is conducted, with less IPOs as well as much lower proceeds. This is arguably a reason for why the studies of earnings management in IPOs conducted in the Nordics are limited. However, during the last five years, the activity has increased significantly and as at September 2017, the Nordics[7] have had more IPOs than the UK during the current year. Furthermore, the Nordic capital market is currently ranked fourth globally in terms of IPO frequency during the year, up from a sixth placing for 2016.

[5] Refer to the private equity and venture capital associations (SVCA, NVCA, DVCA and FVCA) for additional information about private equity and venture capital in the Nordics.
[6] E.g. the Axel Johnson family in Sweden has two investment firms, one more similar to PE (Nordstjernan) and one that resembles VC (Novax).
[7] The statistics include the Nasdaq OMX and First North exchanges, hence Sweden, Denmark, Finland and Iceland.

Figure 1. The IPO development between 2014-September 2017 for the US, UK and Nordics

Number of IPOs

| ■ 2014 | ▨ 2015 | ■ 2016 | ▨ YTDSep 2017 |
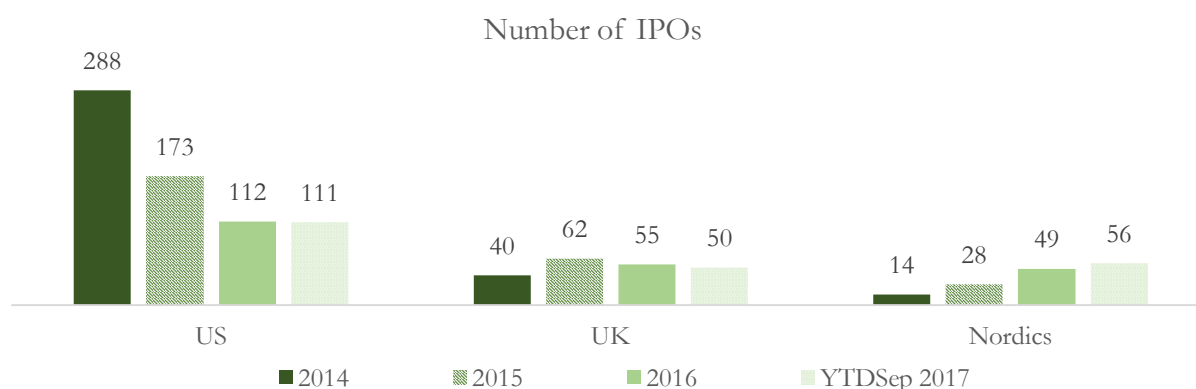
The figure illustrates the number of IPOs in the US, UK and Nordics (excluding Norway) from 2017 until year-to-date September 2017. The numbers are collected from the global IPO outlook provided by EY.

In addition, the Nordics surpassed the UK market in total proceeds during 2016, which it had not even been close to achieve historically. The Nordics is thus steadily becoming a capital market to count on and the increased activity and higher impact of the Nordics on the global IPO market increases the importance for studies of earnings management in the Nordics setting. Since the existing research on earnings management practices and the impact of third-parties in Nordic IPOs is limited, this study contributes to a greater understanding of the Nordic capital market, which can benefit investors, listing companies as well as third-parties. In addition, a study conducted in a Nordic setting can bridge the gap between small stock exchanges and the US and UK, specifically in Europe.

By conducting the study in a Nordic setting, I am able to contrast the IPO firms to private firms as opposed to other public companies since financial data for private companies is available in this region. Previous research has applied a set of public firms that have not currently been through an IPO in order to determine a normal level of accruals for the industry to subsequently examine whether the IPO firms deviate from that level. However, during the pre-IPO period, the IPO firm is in fact a private company and there are numerous differences between public and private firms that can affect earnings management. A public firm is subject to increased monitoring in terms of analyst coverage and the financial information is attainable for everyone allowing private individuals to scrutinize the reports as well. Moreover, there is increased regulation related to public firms and hence the enforcers of these regulatory requirements, e.g. auditors and authorities, are monitoring public firms to a higher extent than private firms. On the other hand, public firms are evaluated on, inter alia, bottom line, share price and earnings per share, which increases pressure to deliver high earnings. A private company with a higher concentration of owners is able to communicate the drivers of financial performance in a more efficient way and the owners can be

involved with the firm to a higher extent than for public firms, both due to the owner disparity and the regulations related to insider information that applies to public companies. The focus on bottom line and inability for the company to thoroughly explain decreases in earnings to shareholders can potentially intensify the extent of earnings manipulation.

1.3 Research question
In this study, I examine the following research question; Do companies in the Nordics manipulate earnings in connection to IPOs and if so do third-parties and financial sponsors in particular mitigate or increase the extent of earnings management?

1.4 Structure
The remainder of this paper is structured as follows; i) literature review of the main previous work within the field of earnings management in connection to IPOs and the impact by third-parties as well as the relevant theoretical framework, ii) hypotheses that elaborate on the connection between the theoretical framework and expectations of the outcome iii) empirical method that explains the statistical model applied and the included variables, iv) empirical results where the findings are presented, v) discussion of the findings and vi) conclusion.

2. Literature review
This study relates to the literature on earnings management in IPOs as well as the impact of third-parties and the following section will focus on three main areas relevant for this paper. First, earnings management in IPOs is reviewed to set the framework for the study as well as introduce relevant empirical methods. Secondly, the impact by third-parties is studied in order to form expectations of the impact from financial sponsors as well as the remaining third-parties. Third, the Nordic setting is assessed through a review of general earnings management among public firms across countries. This area examines whether the Nordic setting is subject to earnings management and what institutional factors that may impact the extent of earnings manipulation.

2.1 Earnings management in initial public offerings
In the context of IPOs, numerous studies have found evidence of earnings management, as presented below. There are clear incentives for several parties to try to increase the offering price for opportunistic reasons. Managers with stock options as well as owners are incentivized by the ability to maximize their financial gain when the shares are sold. In addition, advisors whom are reimbursed based on the offering price are incentivized by the ability to attain a higher compensation. Teoh et al. (1998) provide support of earnings management in connection to IPOs

as well as a significant negative impact on long-run performance in a study of 1,649 US IPOs through 1980-1992. The authors use the modified Jones model, applying discretional accruals as a proxy for earnings management. The firms were subsequently sorted into four quartiles that ranged from highest to lowest tendency to engage in earnings management and tested on long-run performance by both CAR and buy-and-hold returns. As investors are anchoring the offering price and expectations on future performance to the inflated earnings in the listing document, there is a negative stock market reaction when the post-IPO earnings do not meet the expectations. This is referred to as the disappointment hypothesis. The results were significant and of high magnitude, implying that the most aggressive firms, in terms of earnings management, attain a three-year after-market stock return of 20% less than the firms with the least window-dressing. The result is robust to controls for size, market, book-to-market, expected return benchmark, holding period and cumulating method effects. Moreover, they found that conservative firms return to the capital markets for a seasoned equity offering ("SEO") around 20% more frequently over a five-year period than the aggressive firms. Hence, there seems to be a benefit to conservatism as these firms are able to conduct SEOs.

The paper was met with critique from Ball and Shivakumar (2008) who argue that the magnitude is too large and that it is unreasonable that the entire effect is related to earnings management and if that in fact is the case, it should be detected by auditors or analysts. They state that, contrary to popular belief, IPO firms report more conservatively. It is argued that the increased demands on public firms in terms of quality of financial reporting in combination with increased monitoring by third-parties, e.g. analysts, results in conservative applications of the accounting standards. They question the hypothesis posed by Teoh et al. (1998) as a listed environment attracts enhanced scrutiny and therefore the probability for earnings management to be detected and followed by litigation and regulatory action increases. They further argue that poor accounting quality can increase the cost of capital, which has a negative impact on the ability to satisfy future financing needs.

Ball and Shivakumar (2008) further question the method to proxy earnings management through discretionally current accruals ("DCA"). They argue that the increases in accounts receivable for the average firm is too large to be in accordance with GAAP if they cannot be explained by other factors than over-valuation. Moreover, they argue that the time period should not include the IPO year since any manipulation in that year occurs too late to inflate the offering price and hence it does not relate to the hypothesis that managers inflate accruals to increase the IPO price. They

further argue that there is an unusually high growth among IPO firms and the usage of the IPO proceeds makes the DCA estimates biased. The firm is argued to be under resource constraints as it is listing its shares in order to gain access to capital and therefore the pre-IPO levels of accruals are claimed to be non-optimal and the difference post-IPO to merely be a reflection of the investments made as new financing is attained. Lastly, they state that the Jones model of non-discretionary accruals is miss-specified, ignoring that accruals reduce noise in earnings as well as timely loss recognition and that extreme values of DCA are partly generated by low values in pre-IPO assets, i.e. firms with small balance sheets get a large impact since the metrics are divided by assets as a control for size.

The authors study a UK sample of 720 IPOs on the London Stock Exchange through 1992-1999. In the UK, there are two sets of financial data for the same firm and fiscal year prepared under different market and regulatory environments. One set prepared in the act of a private company and one restated set that is to be included in the prospectus. The sets are compared and the adjustments examined. The authors find that UK firms start reporting more conservatively several years pre-IPO. Moreover, the results show that IPO firms tend to have higher current accruals regardless of sales development and the authors argue that this supports both earnings management and investments of the IPO proceeds. Furthermore, events that can be triggered by detection of earnings management are examined including forced senior management turnover or resignation, press releases regarding earnings disappointments, financial restatements and litigation against the firm connected to financial reporting. It is concluded that the frequency of these events among the most aggressive and conservative firms does not differ, which would support the null hypothesis of no earnings management. (Ball and Shivakumar, 2008.) To follow this paper, Premti (2013) tested, inter alia, whether the discretionary accruals could be used as a reasonable proxy for earnings management, taking the aforementioned critique into account. He concluded that the modified Jones model was an appropriate proxy, although it was agreed that the estimate was biased in line with the arguments of Ball and Shivakumar (2008), thereby confirming two opposing, although not mutually exclusive views.

DuCharme et al. (2000) also examine the role of earnings management by issuers in connection to listings. Their study is conducted on US manufacturing firms listed through 1982-1987. The paper examines two hypotheses; i) the value relevance hypothesis and ii) the disappointment hypothesis. The first relates to the notion that valuations are generally set by multiples and that the firm's ability to impact the valuation is limited to the metric upon which the multiple is applied. Therefore,

management is incentivized to boost these metrics by earnings management. The value relevance hypothesis states that pre-IPO earnings management by issuers is positively related to initial firm value. The authors present two proxies for earnings management; i) choice of accounting method and ii) management of accruals. They argue that the second captures subtle earnings management techniques and therefore focus on this proxy. Managed earnings components are estimated through estimating expected, i.e. unmanaged, total and working capital accruals and subsequently earnings in terms of operating cash flow, expected accruals and unexpected, i.e. managed, accruals. The authors find a positive and significant coefficient for managed earnings on value, supporting the hypothesis. The disappointment hypothesis revolves around the impact of earnings management for investors, namely that manipulated earnings will create a positive outlook for the company that will not be met in the long run, in accordance with Teoh et al. (1998). Since earnings management merely borrows earnings from the future, either by recognizing revenue early or postponing costs, the effect is not permanent and will be neutralized over time and when this occurs, investors will be disappointed and the share price will decrease accordingly. The disappointment hypothesis hence stipulates that pre-IPO earnings management by issuers is negatively related to subsequent firm performance. In accordance with the findings of Teoh et al. (1998), managed earnings were found to have a negative coefficient for post-IPO performance, insignificant for industry-adjusted ROE but significant for market adjusted stock return. As only one industry is examined and a relatively small sample size is tested, the results might be clearer. The homogenous sample can reduce noise caused by different industries and variation in firm specific characteristics outside the sample and contribute to their findings.

There are arguably other numbers in the IPO prospectus that can inflate the offering price as well, e.g. proforma or forecast numbers that give an indication of future performance. Buschner et al. (2017) examine the relationship between forecasts in the prospectus and earnings management. As a favorable forecast can support the price as well as the reported earnings, firms that manipulate earnings could benefit from including a forecast in the listing document. They study a sample of 368 London Stock Exchange IPOs through 1985-2012. The authors find that large firms as well as firms with highly reputable auditors tend to manage earnings less than other firms. In addition, firms that include forecasts were found less likely to manipulate earnings and they conclude that firms which voluntarily disclose forecasts in the prospectus present a conservative view of the future and the forecast is presented in order to signal quality to the investors. Moreover, those firms are also found to outperform their counterparts in the long-run.

There are opposing views regarding whether window-dressing exists or not, although the majority of the research discussed above have found evidence of earnings manipulation. In addition, the modified Jones model is the most common empirical method, which will be applied in this study together with the Kothari model to include a control for profitability in the estimation of discretionary current accruals.

2.2 The impact of third-parties on earnings management in IPOs

The impact on earnings management by third-parties including underwriters, auditors, attorneys and venture capitalists has been studied by numerous authors, which will be presented in this section. Chang et al. (2010) introduced underwriter reputation as a mitigating factor for earnings management due to monitoring and certification provided during the process. Prestigious underwriters are claimed to engage reputable auditors and evaluate the business models to reduce the agency costs between the issuers and investors. The increases in accruals post-IPO for the firms they represent are argued to stem from normal operations. The authors argue that earnings management will only be found in firms that are represented by low-quality underwriters. They find that there are significant increases in discretionary earnings accruals for firms with both high- and low-quality underwriters in connection to IPOs, although when controlling for performance, the increase for high-quality underwritten companies becomes insignificant. It is proposed that managers with the intension to manipulate earnings could engage a low-quality underwriter and thereby attain less rigorous monitoring.

The study is conducted on a US sample ranging from 1989-2003 including 2,053 IPOs, excluding firms in the financial and utilities industry as they are subject to stricter regulation and specific disclosure requirements. Both the modified Jones model as well as the Kothari model are applied to estimate DCA. The latter matches IPO and other public firms with similar ROA, controlling for performance and DCA is then estimated through the difference between total accruals and the estimated normal level. Subsequently, the companies are divided into four categories based on underwriter reputation. The control variables for big six accounting firms and venture capital backing were found to have a negative relationship with earnings management. When comparing buy-and-hold abnormal returns, firms that are listed by low-quality underwriters and have high DCA perform significantly worse (-49%) compared to the firms with low DCA. Although, for the firms listed by high-quality underwriters, no significant difference between the high and low DCA firms is found.

Lee and Masulis (2011) elaborate on the aforementioned research by adding VC reputation. They do not find evidence that VCs as a group reduce earnings management ("EM") among firms, although more reputable VCs as well as more reputable investment banks ("IBs") are associated with significantly less EM in accordance with the findings of Chang et al. (2010). In addition, a stronger reduction in EM is found for firms with both a more reputable venture capitalist and investment bank. In previous studies, VC-backing has been argued to decrease EM as a result of increased monitoring and implementing corporate governance structures, but after controlling for underwriters' reputation, this is found insignificant. However, when VC reputation is included, there is a significant decrease of EM for high-reputable VCs and especially when a listing firm has both highly reputable VCs and IBs.

The authors argue that the due diligence conducted by investment banks is a factor limiting earnings management. Furthermore, they recognize that reputable auditors can have a limiting effect, indicating that underwriters want to engage high-reputational auditors. They further argue that the banks will incur significant reputational damage if the IPO is unsuccessful and investors are disappointed due to the fierce competition among banks and repeating business nature. VC-backed IPOs are found to apply higher levels of underpricing as they are provided with favorable earnings forecasts. Moreover, aftermarket support from the underwriter is found to be stronger for VC backed firms, indicating strong business relationships between IBs and VCs. The authors argue that omitting underwriter reputation can result in the VC variable capturing the joint effects due to their strong correlation and will not provide a fair representation given the importance of the due diligence role of the investment banks. The study is conducted on the US market with 1,346 IPOs through 1993-2004. Underwriter reputation is derived from the Carter-Manaster ranking in line with previous research. VC reputation is constructed through market size, i.e. share of total VC backed IPOs, where number 1-149 are deemed highly reputable. IPOs with more reputable IBs and VCs were more inclined to have a big six auditor. Moreover, VC-backed firms in the sample were also found to be younger than non VC-backed companies.

The results support a higher degree of earnings management among IPO firms. There are mixed results for VC-backing, but when controlling for reputation, EM is found to be reduced for highly reputable VCs as well as IBs and the combination of highly reputable IBs and VCs. The relationship between reputable VC's and earnings management is found to be non-linear as it is insignificant otherwise. Firms are argued to seek highly reputable IBs to signal quality and those IBs are in turn expected to choose the high-quality issuers to strengthen their reputation and proceeds.

The effect of venture capitalists on earnings management is also studied by Morsfield and Tan (2006) on a sample of 2,630 US IPOs through 1983-2001. Following the approach by Teoh et al. (1998) they find a negative relationship between VC-backing and the manipulation of earnings. The results are robust to the endogenous choice of partnering with a VC firm and the authors conclude that the impact is a result from monitoring efforts conducted by the VC. In contrast to the study by Lee and Masulis (2011), this study finds evidence of a negative relationship for VCs as a whole, i.e. irrespective of reputation and ranking.

Brau and Johnson (2009) further explore whether the relationship between decreased earnings manipulation and third-parties can be explained by signaling theory or if it is a result from increased monitoring related to agency theory. In addition to examining the relationship between earnings management and prestigious third-parties, they apply a two-stage multivariate model to test which of the explanations that is the driver for the negative correlation between highly reputable third-parties and earnings management. The third-parties constitute auditors, underwriters, attorneys and venture capitalists, where underwriters are ranked by the Ritter-ranking and the remaining parties are ranked through market size and frequency of deals in the IPO year. For VC's, there is a dummy variable that takes the value of one if the firm is VC-backed and 0 otherwise. The sample consists of 3,900 IPOs in the US through 1985-2005 and in line with Teoh et al. (1998), the modified Jones model is applied. The results indicate less earnings management for prestigious third-parties in line with studies presented above. Furthermore, the hypothesis of signaling as a driver for the negative correlation is supported, whereas no evidence can be found for third-party mitigation.

In contrast to the aforementioned studies that focus on VCs, Levis (2011) examines the difference between IPOs that are VC-backed, PE-backed or non-backed in the UK market. He finds that PE-backed IPOs outperform both VC and non-backed listings. PE sponsors are found to introduce companies at lower valuations than the remaining sample and it is argued that PE firms are more inclined to protect their reputation than their counterparts, including VCs. It is further argued that the market expects the PE-backed IPO to have an aggressive valuation and therefore are surprised by robust results, which translates into a positive long-run return. These findings indicate a lower tendency to engage in earnings manipulation since the disappointment hypothesis does not hold. The disappointment hypothesis was stated by Teoh et al. (1998), as described above, and implies that when a firm engages in earnings management, earnings are borrowed from the future, which is not sustainable in the long-run. Consequently, investors will be disappointed in the post-IPO period and the share price will decrease accordingly. He also finds that the valuations of PE-backed

firms are relatively lower. However, as for the previously presented studies, a difference might be detected if PE firms are divided by reputation, which is not conducted by Levis.

The research presented above propose incentives both to engage in and refrain from window-dressing. Underwriters have the incentive to keep the post-IPO price up by making favorable earnings projections prior to the IPO (Teoh et al., 1998), but underwriter reputation is argued to have a mitigating effect on earnings management. One argument for the underwriters' unwillingness to take on a listing assignment that has a high probability of a failed listing or poor post-IPO performance is the cost of potential reputational damage. Lee and Masulis (2011) argue that the fierce competition among underwriters and recurring customers, i.e. investors, implies that reputational damage could severely decrease future income. The results indicate a mitigating effect on earnings management related to prestigious third-parties and hence suggests that the impact by financial sponsors, should they be highly reputable, to be a decrease in window-dressing. These findings are attributable to mainly the US market and research conducted in the Nordics is limited.

Spohr (2002) studies earnings management in Finnish IPOs with a sample of 56 IPOs between 1994-2000. He finds evidence of earnings management and that firms mainly owned by entrepreneurs are more inclined to engage in earnings management than firms backed by institutions, e.g. venture capitalists, the government and public companies. This is in line with the findings from the US studies and indicates that the findings from the American market can be relevant for the Nordics as well. Since there is limited work related to window-dressing and third party impact conducted in the Nordic setting, the next section will focus on earnings management in public firms across countries to identify relevant institutional effects that can enable or mitigate earnings manipulation.

2.3 Earnings management in public firms across countries

As countries have different legislation, levels of enforcement and corruption, inter alia, it is reasonable to expect that the practice of earnings management differs across countries, which is examined by Leuz et al. (2003). Their sample contained 70,955 observations across 31 countries during 1990-1999, which are clustered according to institutional characteristics, e.g. level of investor protection, stock market development and ownership concentration. The three clusters analyzed ranged from the highest investor protection (Anglo-American countries) to medium (Northern Europe and Scandinavia) and least investor protection (Southern Europe and Asia). When examining the enforcement of accounting principles, it is argued that the Anglo-American countries have stricter rules in connection to explicit accounting choices than continental Europe.

The authors conclude that countries with strong investor protection, developed stock markets and disperse ownership are less inclined to engage in earnings management and suggest that the findings are important links between investor protection and accounting quality.

Enomoto et al. (2015) follows the aforementioned examination and conducts the analysis on 38 countries through 1991-2010, thereby increasing the sample size. The authors find that in countries with higher investor protection in terms of outside investor rights and law enforcement, companies are less inclined to engage in manipulations of accruals, which is in line with the findings by Leuz et al. (2003). The magnitude of managing real earnings, i.e. deviations from normal practices to increase earnings, is found to be mitigated by analyst coverage, indicating the importance of analysts' work for investor protection. They state that analyst following of European countries is high, for which one can expect a lower extent of real earnings management, ceteris paribus.

The aforementioned studies classify the investor protection in the Nordics between medium and high. Hence, the ability to engage in earnings manipulation is limited by law enforcement and other monitoring third-parties, e.g. analysts. As the American market is classified as high and previous studies presented above have found evidence that supports earnings management, this implies that the investor protection fails to eliminate window-dressing and we can expect manipulation in the Nordic countries.

2.4 Theoretical framework

There are two key theories that apply to this context where information asymmetry prevails; agency- and signaling theory. Agency theory emanates from relationships where one party (the principal) must give up control to another party (the agent) and trust that the agent conducts the relevant tasks in a satisfactory manner (Sevenius, 2007). In this setting, the shareholders have delegated running the firm to the management team and assigned the board of directors to supervise management. In order to further ensure that the agent acts in a manner that benefits the principal, law enforcements and alignment procedures are implemented. In addition to laws and authorities, e.g. the Swedish Financial Supervisory Authority responsible for the Swedish capital markets, third-parties constituting auditors and legal advisors act as enforcement for the companies to comply with the regulation related to investor protection and current GAAP. The main purpose of these procedures is to protect investors and therefore they are expected to mitigate earnings manipulation as it should be more difficult to manipulate earnings if there are numerous actors that review and question the financials in combination with a well-functioning legal system that discourages misconduct.

The signaling theory suggests that firms will select highly reputable advisors or voluntarily comply with more extensive regulation than the bare minimum in order to signal high quality of the firm (Brau and Johnson, 2009). Hence, by appointing a well-respected advisor, the company aims to gain credibility towards investors by demonstrating that it is a reliable company that has been provided with high quality advice and assistance by the third-party and thereby lower the threshold for the investor to acquire shares in the IPO through reducing the information asymmetry. Signaling does not impact the extent of window-dressing since both firms that do and do not manipulate earnings can select a highly reputable advisor, although the partnership must be agreed upon by the advisor, which provides an additional safeguard for investors as the advisor is arguably unlikely to assist a firm that could severely damage their reputation. For firms that do not intend to manipulate earnings the intent is to stand-out from the crowd and communicate their good intentions in a clear manner as well as attain high quality advise, whereas the aim for firms that manipulate earnings may be to attain the highest introduction price possible, which is reasonable to assume that a market leading advisor can get.

3. Hypotheses

A public company is bound to publish information and financial statements, allowing outsiders to scrutinize the performance and limit misconduct due to transparency. Before a firm goes public, such detailed information is however limited to insiders, which creates an increased information asymmetry compared to public companies. In a company that is to remain private, this is not a noteworthy issue as the owners are more concentrated and able to closely interact with management and the board of directors. However, in an IPO when a company transfers from private to public, the initial information asymmetry can create issues for new investors as the insiders can exploit the imbalance. In line with agency theory, insiders may act in self-interest to maximize their financial gain from divestment of their shares in the IPO at the expense of new investors. Since such opportunity does not prevail to the same extent in private firms, I predict hypothesis 1 as:

Hypothesis 1: IPO firms engage in window-dressing to a higher extent than private firms.

Agency theory suggests that monitoring is needed in order to align the interests of agents and principals, i.e. to limit earnings manipulation. Accordingly, the impact on earnings management from third-parties, i.e. auditors, legal advisors, financial sponsors and underwriters as well as whether the firm is listed on a main exchange should be negative as increased monitoring and

controls are conducted in order to limit exploitation and thereby decrease the extent of earnings management. Moreover, variables that capture monitoring effects, i.e. lock-up agreements and accounting principles are expected to limit earnings management. A lock-up agreement is a safeguard towards the investors, in which insiders are not allowed to divest their entire holding at once, but are tied to a "lock-up" period that normally lasts for 180 days (Krishnan et al., 2011). A lock-up should decrease the incentive to manipulate earnings as disappointing post-IPO results as a consequence from borrowing earnings from the future in the pre-IPO period will decrease the share price and thereby the wealth of the initial owners whom still hold shares in the company. The application of IFRS harmonizes the financials across companies and industries, which enables analysts and investors to evaluate the company and compare it to other investments to a higher extent. Insiders are thereby limited from conducting subjective estimates and adjustments without sufficient and credible arguments as deviations from common practice is more easily detected.

The aforementioned previous research (e.g. Brau and Johnson, 2009, Chang et al., 2010, Lee and Masulis, 2011) has not been able to find evidence that supports a clear monitoring effect from third-parties. Highly reputable advisors have been found to have a negative relationship to earnings management, but the result can be explained by both monitoring and signaling, as described below. Out of the aforementioned third-parties, auditors and financial sponsors have the highest ability to monitor the firms due to their detailed involvement in the financial reporting and generally more long-term relationship with the company. An auditor is the only third-party that is always involved and there is nothing to gain for auditors from allowing earnings management. On the contrary, a scandal related to the reporting can cause severe damages to the auditor's reputation and it is therefore crucial that the work conducted is of the highest possible standard. A difference in the quality among auditor firms would impact the firm's ability to manipulate earnings and thus a big 4 auditor[8] is expected to decrease the extent of earnings management. However, I propose the two following reasons for which this might not be the case; i) the manipulation is GAAP compliant and ii) most of the IPO firms in the Nordics have an auditor that belongs to the big 4, moreover the Nasdaq main list requires a stock exchange audit from a big 4 auditor different from the one of the company. Even though the manipulation is compliant, a high quality auditor may question the underlying assumptions and subjectivity and thereby decrease earnings management, but there is also a possibility that the auditor is satisfied with compliance and therefore the effect from the auditor's monitoring on manipulation will be insignificant. Moreover, since the majority of the listing firms have big 4 auditors the effect might be negligible. I expect the two latter arguments

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[8] PWC, EY, KPMG or Deloitte.

with high emphasis on the negligible effect to cause the impact of big 4 auditors to be small and insignificant, hence formulating hypothesis 2 as:

Hypothesis 2: There is no significant impact of big 4 auditors on the extent of earnings management.

The financial sponsors will typically engage in a partnership with the firm a few years prior to the IPO, which allows them to implement monitoring activities and thereby improve the quality of the reporting. The impact on earnings manipulation is however unclear and there can be both direct and indirect actions that affect the degree of window-dressing. Since the financial sponsor directly benefits from a higher valuation of the firm, there is an incentive to increase earnings. On the other hand, if earnings are manipulated and the stock market is disappointed with the post-IPO performance, the reputation is at stake as divesting companies is part of the business model and numerous listings with poor post-IPO performance will discourage investors from acquiring shares in IPOs conducted by the financial sponsor. These arguments constitute two contrasting hypotheses for the financial sponsor's direct effect on window-dressing. In addition, the owner can cause manipulation indirectly through pressuring management to reach certain earnings targets. The intent of the sponsor might not be manipulation, but if the management of the company tries to reach the set goals by any means necessary, the owner can contribute to manipulation. This can be mitigated by ethical actions and controls by the owners and the active involvement in the board of directors as well as financial reporting should enable the sponsor to detect deviations from normal practice. Surely, sponsors can be unfamiliar with certain accounting practices, but they should be able to examine earnings trends and underlying assumptions. Hence, I believe the extent of manipulation without the sponsor's knowledge to be limited and any indirect earnings manipulation that is generated will be either discouraged or accepted by the sponsor. As described above, previous research has not been able to provide clear evidence of the impact by financial sponsors as a whole. As such, there are two contrasting hypotheses that arise;

Hypothesis 3.a: Financial sponsors contribute to additional monitoring and thereby decrease earnings manipulation

or

Hypothesis 3.b: Financial sponsors increase earnings manipulation in order to maximize their return at exit.

When it comes to underwriters and legal advisors, they enter the process at a later stage to construct the listing document and engage relevant investors. Since the investors rely heavily on this document, the advisors have an opportunity to conduct monitoring and investor protection in

terms of how the information is presented and to some extent what is included. However, since the time spent with the company is fairly short, it is more difficult for the advisors to detect a shift in trends. Furthermore, they may trust auditors and financial sponsors to have gone through the numbers thoroughly and therefore accept adjustments or deviations to common practice. Underwriters have similar incentives as financial sponsors when it comes to earnings manipulation. On one hand their compensation is linked to the valuation of the firms and on the other hand, they need to maintain credibility towards investors in order to conduct successful IPOs. If the market was experiencing low activity, each IPO would get relatively more media attention and thereby monitoring in combination with higher investor interest due to the lack of investment opportunities. Since the opposite is the case, the underwriters might be less worried about the post-IPO performance as the individual attention per company decreases. However, increased activity contributes to higher competition among underwriters to find investors and therefore a solid track record can become more important in the current situation. Due to the need of maintaining a decent reputation to face the increased competition and the results from previous studies described above, I predict hypothesis 4 as;

Hypothesis 4: In accordance with previous research, reputable underwriters will have a negative impact on the amount of window-dressing, whereas legal advisors will not have an impact.

Regarding the remaining variables related to monitoring, research has found that countries with high investor protection in terms of law enforcement, audit quality and analyst coverage engage less in manipulation of earnings as it would be more easily detected. These results suggest that the variables that capture investor protection, lock-up and IFRS, will have a negative impact on window-dressing. In addition, the main stock exchanges are subject to increased regulation an analyst coverage, which is expected to decrease the ability to manipulate earnings. Although the level of investor protection is high in the Nordic area (Enomoto et al, 2015), evidence of window-dressing has been found in countries where it is considered to be of an even higher degree, hence implying that the investor protection is not sufficient to cease all manipulation. Consequently, as IPOs in the Nordics are subject to arguably less scrutiny than for firms listing in the US or UK, evidence of window-dressing in the US and UK suggest that it is also present in the Nordics, although the high degree of investor protection probably mitigates the extent of manipulation.

4. Empirical method

The next section describes the following areas; i) scope of work ii) sample selection process iii) the dependent and iv) independent variables as well as v) the specification of the regression models that will be tested.

4.1 Scope of work

The Nordics is chosen as it is a fairly homogenous market with similar regulatory environments as well as it allows for a larger sample for both IPOs and IPOs by financial sponsors compared to previous work conducted on individual Nordic countries (Spohr, 2002). Iceland is excluded due to their low IPO activity, hence the Nordics constitute Sweden, Norway, Denmark and Finland in this study. The selected time frame for IPOs is 2010-2014, starting a few years post the global financial crisis, which allows for some stock market recovery. The time span ends in 2014 in order to capture part of the IPO surge that has taken place during recent years (Steinbach, 2017), but to also enable examination of the post-IPO period. Since the Nordics is a relatively small market compared to the US and UK where the majority of previous work is conducted, the sample size of financial sponsors is too small to divide between high and low reputation as well as kind of firm, i.e. private equity, venture capital or family-owned investment firm in line with previous work (Brau and Johnson, 2009, Lee and Masulis, 2011, Levis, 2011). On the other hand, previous work is focused on venture capital and a more nuanced view that includes all active financial owners can shed light to a new perspective and similarly new findings.

4.1 Sample selection

The gross sample includes IPOs between 2010-2014 for the main stock exchanges in all Nordic countries retrieved from the Eikon database provided by Thomas Reuters. The list was further supplemented with IPOs stated on the Nasdaq and Oslo Børs website as well as IPOs classified as completed at Börsforum[9] for the relevant period and the following exchanges; Nasdaq, Nasdaq Stockholm, Nasdaq Copenhagen, Nasdaq Helsinki, First North, Oslo Børs and Oslo Access[10]. In order to list a company's shares in a regulated market in the Nordics, the company must comply with the regulations for that specific exchange. For Nasdaq, the Nordic lists are fairly harmonized and in line with EU regulations in order to facilitate the analysis for investors (Nasdaq, 2017). The Norwegian exchange has some differences to Nasdaq that are both stricter and more relaxed, e.g. it requires a financial- in addition to legal due diligence, but only half-year as opposed to quarterly

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[9] Nyemissioner.se.

[10] The remaining Nordic exchanges are deemed to lack significant regulation and therefore there is a lack of comparability between the firms listed on such exchange as well as limited access to relevant financial information.

reports and does not require a stock exchange audit as is required by Nasdaq (Oslo Børs, 2017). Moreover, Oslo Børs also complies with EU regulation. In addition to the listing regulations, companies are required to comply with each countries' code of conduct related to corporate governance, although the comply or explain principle allows for deviations, i.e. companies can deviate from the code if a satisfactory explanation is provided.

First North and Oslo Access are less regulated exchanges, but are included since they are under the same umbrella as the main markets. Even though the requirements are lower, there are still some rules that need to be followed. Two differences that can impact the ability to window-dress are the listing document and the pre-IPO monitoring. In order to conduct an IPO on First North, only a company description is needed and not a formal prospectus, which is required for the remaining lists. The company description is less extensive, but includes similar areas as a prospectus. As less information is given, the information asymmetry is larger and the ability to window-dress increases accordingly. Second, there is no stock exchange audit for firms listing on non-regulated markets. Instead, a certified advisor is chosen, typically a bank or corporate finance firm, to conduct the due diligence and provide assurance with regard to the financials. Furthermore, a listing on a non-regulated market does not require reporting according to international financial reporting standards ("IFRS"), enabling firms to keep the local GAAP. Firms are allowed to exceed the requirements, e.g. conduct a prospectus and convert to IFRS, on their own initiative, which can be relevant for firms intending to use the non-regulated market as a step towards the main list. In order to account for these differences, I control for whether the company is listed on the main exchange or not throughout the study.

Table 1. Overview of the listing requirements

List	Main	Stock exchange audit	Prospectus	Financial due diligence	IFRS
Nasdaq	Yes	Yes	Yes	No	Yes
Oslo Børs	Yes	No	Yes	Yes	Yes
First North	No	No	No	No	No
Oslo Access	No	No	Yes	Yes	No

The table illustrates the differences in listing requirements for the lists included in the sample. Main implies whether the stock exchange is the main list or not. Stock exchange audit, publishing a prospectus, financial due diligence and reporting in accordance with IFRS are different requirements by the stock exchanges included in the sample.

The relevant financial data has been retrieved from Factset, a global database for financial analysis, supplemented with manual inputs from the listing documents for some companies where the pre-IPO period is not fully captured in the database. In addition, financial and real estate companies have been excluded, in line with previous research (Teoh et al., 1998, Chang et al., 2010), as they are deemed to differ significantly from remaining industries when it comes to the composition of assets, nature of revenue and regulatory requirements, resulting in a net sample of 138 IPO firms. The information regarding which third-parties that were involved in the IPO has been retrieved from the listing documents.

Underwriter ranking is determined by market share of equity transactions in the Nordic market retrieved from the Eikon database provided by Thomas Reuters. When more than one underwriter is involved, the most prestigious underwriter has been used in line with the previous studies (e.g. Chang et al., 2010). In larger markets, e.g. the US or UK, it would be possible to include rankings for both financial sponsors and legal advisors as well. However, there is no official ranking or list of market shares for these third-parties in the Nordics and thus they are treated as one group respectively. In order to differentiate financial sponsors even though there is no ranking, I have included interaction variables between financial sponsors and other third-parties that can indicate whether the financial sponsor would be highly ranked or not. I expect a highly reputable sponsor to engage highly reputable underwriters and legal advisors as well as to list companies on the main exchange rather than the secondary list. The interaction variables can capture this potential effect and thereby imply whether there is a difference amongst financial sponsors as described in section 4.2 Statistical model.

In order to test hypothesis 1, a sample of private firms are included to allow for a less biased estimation of window-dressing compared to the previous studies, as public firms arguably have incentives to manipulate earnings as well. A sample of 2,000 private firms was retrieved from Valu8, including companies from Sweden, Denmark, Norway and Finland for the period 2008-2015, i.e. a time frame ranging from two years prior to the first IPOs to one year post the last IPOs. After removing firms with insufficient data, i.e. missing values for the line items required to calculate total accruals, 719 companies remained. Following previous research (e.g. Teoh et al., 1998, Chang et al., 2010), SIC codes are used for the industry classification and the matching of firms is conducted by single digit SIC codes. For the sample selection process, industry distribution of private firms and industry specification for IPO firms, refer to table A1, A2 and A3 in the Appendix.

Table 2. Sample overview

Industry	One digit SIC	IPO firms	Big 4 auditor	Financial sponsor	Top 10 under-writers	Top 25 under-writers	Lock up	Legal	Main list	IFRS	Country				IPO year				
											SE	NO	DK	FI	2010	2011	2012	2013	2014
Food and agriculture	0	4	3	2	2	3	3	3	4	4	2	2	0	0	2	1	0	0	1
Construction and mining	1	25	20	4	7	12	8	11	21	23	16	8	0	1	7	3	4	5	6
Manufacturing of chemicals and pharmaceutical	2	25	17	12	8	10	19	9	11	11	16	3	4	2	3	4	2	5	11
Manufacturing	3	27	19	9	7	10	13	13	15	19	22	2	1	2	1	7	3	2	14
Commercial Services, transport, media and utilities	4	14	9	5	6	6	6	6	12	12	8	5	1	0	5	3	0	0	6
Retail	5	12	9	7	3	3	9	5	5	5	8	0	2	2	1	0	1	2	8
Financial services	6	7	7	3	5	5	4	5	6	7	6	1	0	0	3	1	0	0	3
Professional, Scientific, and Technical Services	7	21	18	7	3	3	9	6	9	12	16	1	1	3	4	1	2	0	14
Health Care and Social Assistance	8	3	3	1	2	2	1	2	3	3	1	2	0	0	0	2	0	0	1
		138	105	50	43	54	72	60	86	96	95	24	9	10	26	22	12	14	64

The table illustrates the frequency of the variables related to the IPO firms; what industry the company is in, how many firms that have a Big 4 auditor, a financial sponsor, a top ten or top 25 underwriter, a lock-up agreement in connection to the IPO, if there is a legal advisor stated in the prospectus and if the firm is listed on the main list (Nasdaq or Oslo Børs). Underwriter ranking is based on market share in the Nordics, retrieved from Eikon.

The Swedish capital market is the largest in the Nordics and thus Sweden has the most IPOs out of the four countries in the sample as presented in table 2 above. 95 out of the 138 IPOs are listed in Sweden whereas 24, 9 and 10 are listed in Norway, Denmark and Finland respectively. The recent surge in IPOs are captured by the IPO year, where 64 out of 138 firms were listed in 2014. Moreover, 86 out of 138 firms are listed on a main exchange and 96 apply IFRS, which implies that approximately 20% of the firms listed on a secondary exchange have voluntarily adopted IFRS. 72 out of 138 IPOs had lock-up agreements in connection to the listing, and thus lock-ups were more common than not. Financial sponsors, top underwriters and legal advisors are included in approximately 40% of the IPOs, whereas big 4 auditors are involved in approximately 80%.

4.2 Dependent variable
In this study, I will follow the aforementioned previous research (e.g. Chang et al, 2010) and apply the modified Jones and Kothari models to estimate discretionary current accruals ("DCA") as a proxy for earnings management. As earnings management is intended to go by unnoticed, it is difficult to test its true existence. The field of study that examines earnings management has generally used accounting accruals as a proxy for earnings management, arguing that the accounting for accruals is subject to managerial discretion to a larger extent than items such as revenues and cash flows. The most commonly adopted model for investigating earnings management through accruals is the Jones (1991) model, estimating a normal accrual level, which constitutes the unmanaged accrual level, i.e. the non-discretionary accruals. Total accruals are then explained by discretionary and non-discretionary accruals as well as a set of control variables where the discretionary accruals are deemed to capture managerial discretion and thereby earnings management. Jones takes the variation in accruals due to changes in revenue and size into account, whereas previous work assumes that the average change in non-discretionary accruals is zero (Jones, 1991). The Jones model has been further adjusted to the modified Jones model (from hereon referred to as the Jones model) in order to test earnings management in an IPO context. Instead of estimating the normal accrual level based on previous periods, it is estimated based on a sample of other firms. The IPO firms are subsequently matched to the other companies by year and industry codes in order to attain a normal level of accruals for the industry and time period.

Ball and Shivakumar (2008) argue that the accruals increase as a consequence of investments of the IPO proceeds and that one should not assume that the IPO firms will behave similarly pre- and post-IPO since they are likely to be under resource constraints and therefore initiated the listing in the first place. Therefore, it is argued that a performance metric is vital in order to take this into account. This argument has been adopted by numerous authors whom complement the modified

Jones model with the Kothari model (e.g. Lee and Masulis, 2001 and Chang et al., 2010), matching firms by ROA and thereby including a control for performance, which is conducted in this study as well.

DCA is estimated for each firm during the pre-IPO period, which ranges from 1-3 years prior to the IPO year, depending on what financial information that is available, as well as the IPO year and the first year post-IPO for the IPO firms. In addition, the private firms are included, which all have observations for 2008-2014. The first step in estimating DCA is to calculate total accruals for the sample including both private and IPO firms as specified in equation 1. Total accruals are winsorized at a 1% level in line with previous research (e.g. Chang et al., 2010).

Equation 1. Calculation of total accruals

1. $Total\ accruals_{it} = (\Delta Current\ assets_{it} - \Delta Cash\ and\ cash\ equivalents_{it} - \Delta Current\ liabilities_{it} + \Delta Short\ debt_{it} - Depreciation_{it})/Assets_{it-1}$

Where $Total\ accruals_{it}$ are total accruals for firm i in year t
$\Delta Current\ assets_{it}$ is the difference in current assets for firm i between year t and t-1

$\Delta Cash\ and\ cash\ equivalents_{it}$ is the difference in cash and cash equivalents for firm i between year t and t-1

$\Delta Current\ liabilities_{it}$ is the difference in current liabilities for firm i between year t and t-1

$\Delta Short\ debt_{it}$ is the difference in short-term debt for firm i between year t and t-1
$Depreciation_{it}$ is the depreciation for firm i in year t
$Assets_{it-1}$ is the assets for firm i in year t-1

Subsequently, non-discretionary accruals are estimated by industry and year as described in Equation 2. Each industry is set to have at least 15 observations to be included in the estimation. The three variables applied in the regression are winsorized at a 1% level in line with previous research (e.g. Chang et al., 2010).

Equation 2. Estimation of non-discretionary current accruals

2. $NDCA_{it} = \hat{\beta}_1 \frac{1}{Assets_{it-1}} + \hat{\beta}_2 \frac{Sales_{it} - Sales_{it-1}}{Assets_{it-1}} + \hat{\beta}_3 \frac{PPE_{it}}{Assets_{it-1}} + \varepsilon_{it}$

Where $NDCA_{it}$ are non-discretionary accruals for firm i in year t
PPE_{it} is gross property, plant and equipment for firm i in year t
$Sales_{it}$ are total sales for firm i in year t

$Sales_{it-1}$ are total sales for firm i in year t-1

Finally, discretionary accruals are retrieved through subtracting non-discretionary accruals from total accruals in line with Equation 3, where the discretionary part is considered to capture earnings management. DCA is winsorized at a 1% level in line with previous research (e.g. Chang et al., 2010).

Equation 3. Estimation of discretionary current accruals through the Jones model
$$3. \quad DCA_{it} = Total\ accruals_{it} - NDCA_{it}$$
Where DCA_{it} are discretionary current accruals for firm i in year t

$Total\ accruals_{it}$ are total accruals for firm i in year t

$NDCA_{it}$ is non-discretionary accruals for firm i in year t

In addition to the Jones model, the Kothari model is applied, which adds the dimension of controlling for performance in the estimation of NDCA as described in Equation 4. As for the Jones model, NDCA and DCA are winsorized at a 1% level in line with previous research (e.g. Chang et al., 2010).

Equation 4. Estimation of discretionary current accruals through the Kothari model
$$4. \quad a)\ NDCA_{K,it} = \hat{\beta}_1 \frac{1}{Assets_{it-1}} + \hat{\beta}_2 \frac{Sales_{it} - Sales_{it-1}}{Assets_{it-1}} + \hat{\beta}_3 \frac{PPE_{it}}{Assets_{it-1}} + \hat{\beta}_4 ROA_{it-1} + \varepsilon_{it}$$
$$4. \quad b)\ DCA_{K,it} = TA_{it} - NDCA_{K,it}$$
Where $NDCA_{K,it}$ are non-discretionary accruals estimated from the Kothari model

ROA_{it-1} is net income divided by opening balance of assets for firm i in year t-1

$DCA_{K,it}$ are discretionary accruals estimated from the Kothari model

Remaining variables are described above

Ball and Shivakumar (2008) critique the use of assets as a deflator. However, alternative measures such as sales or number of employees can be even more problematic. They further argue that the inclusion of the IPO year is sub-optimal since the firm is likely to use the IPO proceeds to grow, which will increase the level of accruals. The growth argument states that accruals increase as a use of proceeds, but earnings management should have an opposite effect, i.e. a decrease of accruals post-IPO and therefore the growth argument rather supports that the manipulation can be understated as the investments can dilute decreasing accruals.

4.3 Independent variables

To test for hypothesis 1, I include a dummy variable that separates private and IPO firms that takes the value of 1 if the firm is an IPO firm and 0 otherwise. The remaining independent variables applied to test for hypotheses 2-4, can be categorized into two sub-sets; third-parties and monitoring variables. The third-party variables constitute the following dummy variables; Financial, Big4, Legal and UW10 (UW25), where financial equals one if there is a financial sponsor, Big4 equals 1 if the auditor is one of the Big 4 auditing firms, Legal equals 1 if a legal advisor is stated in the listing document and UW10 (UW25) takes the value of 1 if the underwriter is among the top 10 (25). The underwriter ranking is based on the market shares of underwriters in the Nordics related to equity transactions retrieved from Eikon. For a full list of top 25, refer to table A4 in the Appendix. Big4 and Legal are expected to constrain manipulation as there is no financial gain for these third-parties connected to a successful IPO and the reputation of the advisor is at stake if the work performed is unsatisfactory. As for underwriter ranking, the coefficient can both be negative due to increased monitoring or signaling effect, or positive since the underwriters can gain from a higher introduction price and initial trading if their compensation is tied to the outcome.

In order to ensure that the financial sponsor is able to influence the firm's financial reporting, I only include sponsors that practice active ownership through acquiring influential stakes and engaging in board work, hence any type of mutual funds with the sole purpose to hold the shares and not interfere with the company's operations have been excluded as they are not deemed to have enough influence nor an active dialogue with the company to influence manipulative behavior. The size of the ownership prior to IPO has been retrieved from the listing document and has been classified as influential if the financial sponsor is one of the major shareholders. Whether the sponsor engages in active ownership or not has been determined based on if they have a position in the board of directors as well as the description of the sponsor's business model from their respective websites.

Further, I argue that lock-up agreements and IFRS constitute monitoring variables. Lock-up agreements can potentially decrease incentives to manage earnings since they force the owner to keep the investment for a specified time period post-IPO, which aligns the pre-IPO actions with the interests of new investors to some extent as poor share performance during the lock-up period will cause financial damage to the initial owner as well as the new shareholders. Moreover, IFRS contributes to additional monitoring through enabling investors to compare the IPO firm to other companies and limits subjective estimates and adjustments. Both are dummy variables where

Lockup takes the value of 1 if the owners prior to the IPO were subject to a lock-up agreement and IFRS equals 1 if the company reports according to IFRS.

Whether the firm is listed on the main list is expected to have an impact on the extent of earnings manipulation since the regulated market has a higher degree of monitoring in terms of analyst coverage and media attention, as well as stricter regulation and more extensive requirements on the audit. However, this effect is captured in IFRS since all firms listed on the regulated exchange have to report in accordance to the standards. Hence, the IFRS variable captures i) whether the company is listed on the main list and ii) whether the company is listed on a secondary list, but has chosen to report in accordance with IFRS voluntarily, which signals commitment to high quality financial reporting. I propose that these factors have potential to constrain earnings management, e.g. if a company is listed on a secondary market where the requirements are less strict and has a non-big 4 auditor there is more room for manipulation, and thus I expect the coefficients to be below zero.

In order to better understand the interplay between financial sponsors and other third-parties, as well as separate the group of financial sponsors and examine patterns similar to what could be identified if the sponsors were divided by reputation, interaction variables are constructed between Financial and the following variables; IFRS, underwriter ranking, legal and lock-up, allowing for interactive effects between the parameters. For example, I expect financial sponsors that would place high in a reputational ranking to engage more reputable underwriters as well as list more firms on the main list and interactive variables allow for that relationship to be analyzed further. For a list of the variable definitions, refer to table 3 below.

4.3.1. Pre-IPO period

The study by Teoh et al. includes the IPO year as a manipulative period, which is criticized by Ball and Shivakumar (2008). They argue that the period ends after the introduction price is set and therefore any manipulative behavior conducted in that year would not have any impact on the price. However, that assumes that everyone is able to sell their shares on the first day of trading which is not the case since more than half of the IPOs in the sample are subject to lock-up agreements. Hence, it makes sense to continue the manipulation until after the first day of trading, in order to postpone disappointment until the lock-up period is terminated and the IPO year is classified as part of the pre-IPO period in this study.

4.3.2. Control variables

A set of control variables are included, which constitutes the logarithm of assets (LogAssets) and return on assets in the previous year (ROA_{t-1}) to control for size and profitability. In addition, fixed effect regressions are run to control for fixed effects related to year, country and industry.

Table 3. Overview of the independent and control variables

Variables	Classification	Description
IPOfirm	N.A.	Takes the value of 1 if the company is an IPO firm and 0 otherwise
Financial	Third-party	Takes the value of 1 if the company is owned by a financial sponsor pre-IPO and 0 otherwise
UW10	Third-party	Takes the value of 1 if the underwriter in the IPO process is among top 10 and 0 otherwise
UW25	Third-party	Takes the value of 1 if the underwriter in the IPO process is among top 25 and 0 otherwise
Legal	Third-party	Takes the value of 1 if there is a legal advisor stated in the listing document and 0 otherwise
Big 4	Third-party	Takes the value of 1 if the auditor of the company is amongst the big 4 and 0 otherwise
Lockup	Monitoring	Takes the value of 1 if there is a lock-up agreement in connection to the IPO and 0 otherwise
IFRS	Monitoring	Takes the value of 1 if the company reports according to IFRS and 0 otherwise
UF10	Interaction	Interaction variable between UW10 and Financial
FL	Interaction	Interaction variable between Legal and Financial
FLock	Interaction	Interaction variable between Lockup and Financial
FIFRS	Interaction	Interaction variable between IFRS and Financial
LogAssets	Control	Logarithm of lagged assets
ROA_{t-1}	Control	Return on assets for the previous period

The table describes the independent and control variables, which are divided into four sub-groups; monitoring, third-party, interactive and control, where the monitoring and third-party variables constitute dummy variables.

4.4 Specifying the model

To test for hypothesis 1, DCA is regressed on the dummy variable IPOfirm as well as a set of control variables. In addition, time-invariant effects are controlled for through year, country and industry. I expect IPO firms to window-dress to a higher extent than private firms and thus that $\beta_1 > 0$ and significant.

Equation 5. Difference in earnings manipulation between IPO and private firms to examine hypothesis 1

$$5. \quad DCA_t = \beta_0 + \beta_1 IPOfirm + \beta_2 LogAssets_{it} + \beta_3 ROA_{it-1} + \varepsilon$$

Where IPOfirm is a dummy that takes the value of 1 if the company is an IPO firm and 0 otherwise

LogAssets is the logarithm of assets for firm i in year t

ROA_{it-1} is the return on assets firm i in year t

In order to test for hypotheses 2-4, DCA is regressed on the independent, interactive and control variables. As for the test of hypothesis 1, time-invariant effects are controlled for through year, country and industry.

Equation 6. Estimation of earnings manipulation including third parties and investor protection to examine hypotheses 2 and 3

$$6. \quad DCA_t = \beta_0 + \beta_1 Big4 + \beta_2 UW10 + \beta_3 Legal + \beta_4 Financial + \beta_5 IFRS +$$
$$\beta_6 Lockup + \beta_7 UF10 + \beta_8 FIFRS + \beta_9 FL + \beta_{10} FLock + \beta_{11} LogAssets_{it} +$$
$$\beta_{12} ROA_{it-1} + \varepsilon$$

Where Big 4 is a dummy variable that takes the value of 1 if the auditor of the company is amongst the big 4 and 0 otherwise

UW10 is a dummy variable that takes the value of 1 if the underwriter in the IPO process is among top 10 and 0 otherwise

Legal is a dummy variable that takes the value of 1 if there is a legal advisor stated in the listing document and 0 otherwise

Financial is a dummy variable that takes the value of 1 if the company is owned by a financial sponsor pre-IPO and 0 otherwise

IFRS is a dummy variable that takes the value of 1 if the company reports according to IFRS and 0 otherwise

Lockup is a dummy variable that takes the value of 1 if there is a lock-up agreement in connection to the IPO and 0 otherwise

UF10 is an interactive variable between financial sponsor and top 10 underwriter

FIFRS is an interactive variable between financial sponsor and IFRS

FL is an interaction variable between financial sponsor and legal advisor

FLock is an interaction variable between financial sponsor and lock-up agreement

The remaining variables are equivalent to those of equation 5 above

Hypothesis 2 predicts that there is no impact from big 4 auditors and thus that β_1 is insignificant. The two contrasting hypotheses that constitute hypothesis 3 regarding the impact by financial sponsors implies that either $\beta_4 < 0$ and significant as a result from increased monitoring or $\beta_4 > 0$ and significant due to opportunistic behavior. For hypothesis 4, I expect underwriter ranking to have a decreasing relationship to earnings management and thus that $\beta_2 < 0$ and significant, whereas legal are not expected to have an impact and thus β_3 is expected to be insignificant. The monitoring variables are expected to have a coefficient below zero as they are in place to decrease manipulation, hence significant results of $\beta_5 < 0$ and $\beta_6 < 0$. In addition, interaction variables between financial sponsor and the remaining third-parties and monitor variables are included to further examine the interplay between the variables. As a robustness test, two models of the Jones as well as the Kothari estimations of DCA are applied; the absolute value of DCA and the signed measure, with focus on the absolute value. Since the Kothari model uses ROA_{t-1}, it requires one additional year of data compared to the Jones model, which results in less observations for the Kothari model. A Breusch-Pagan test is conducted to test for heteroscedasticity as presented in table A20 in the Appendix and the results indicate that we can reject the null hypothesis of homoscedasticity for the absolute values of both the Jones and Kothari models. In order to adjust for this, all standard errors are robust.

5. Empirical results

This section is divided into three parts; i) descriptive statistics that provides an overview of the sample for the dependent and independent variables, ii) regression models to test for hypothesis 1; whether IPO firms tend to manipulate earnings to a higher extent than private firms and iii) regression models to test for hypothesis 2-4; whether the financial sponsor and other third-parties impact the extent of window-dressing.

5.1 Descriptive statistics

About 75.7% of the IPO firms have a big 4 auditor and 70.5% apply IFRS. This is in line with expectations and the frequencies illustrated in table 2 above, as more companies list on the main exchange, which requires IFRS. 50.3% of the firms have committed to lock-up agreements in connection to the IPOs. Since the amount of IPO firms that engage top underwriters is below 40%, this implies that it is not only the highly reputable underwriters whom include lock-up agreements in the IPO process. This is also true for the legal advisors, where 44.2% of the observations have a legal advisor's name in the listing document and only 30.6% (38.7%) have top 10 (25) underwriters.

Table 4. Summary of third-party and monitoring variables

Variable	Observations	No. of firms	Mean	Std. Dev.	Min	Max
Financial	604	50	.3559603	.4792001	0	1
UW10	604	43	.3062914	.4613343	0	1
UW25	604	54	.3874172	.487564	0	1
Legal	604	60	.442053	.4970424	0	1
Big4	604	105	.7566225	.4294767	0	1
Lockup	604	72	.5033113	.5004034	0	1
IFRS	604	95	.705298	.4562866	0	1

The table displays a summary of the third-party dummy variables that indicated if the IPO firm is backed by a financial sponsor, has a top 10 or top 25 underwriter engaged in the process, a legal advisor stated in the listing document and a big 4 auditor. The monitoring dummy variables indicate whether the IPO firm has committed to a lock-up agreement in the prospectus and if IFRS is applied. Underwriter ranking is based on market share in the Nordics, retrieved from Eikon.

Table 5. Correlation of independent, dependent and control variables

	Absolute value ("AV") Jones	Jones	Absolute value ("AV") Kothari	Kothari	AV Jones t-1	Jones t-1	AV Kothari t-1	Kothari t-1	Financial	Legal	UW10	UW25	IFRS	Main
AV Jones	1.0000													
Jones	**0.5040**	1.0000												
AV Kothari	**0.9817**	0.4609	1.0000											
Kothari	0.4973	**0.9905**	0.4524	1.0000										
AV Jones t-1	0.2425	0.1511	0.2363	0.1615	1.0000									
Jones t-1	0.1395	0.1248	0.1299	0.1325	**0.5449**	1.0000								
AV Kothari t-1	0.2186	0.1218	0.2198	0.1330	**0.9687**	**0.5166**	1.0000							
Kothari t-1	0.1389	0.1087	0.1328	0.1163	**0.5361**	**0.9795**	**0.5077**	1.0000						
Financial	0.0428	0.1078	0.0500	0.1109	0.0213	0.0767	0.0191	0.0923	1.0000					
Legal	-0.1202	-0.0712	-0.1047	-0.0659	-0.1881	-0.0612	-0.1735	-0.0516	0.0920	1.0000				
UW10	-0.1287	-0.0124	-0.1250	-0.0003	-0.1363	-0.0070	-0.1296	0.0115	0.2276	**0.6698**	1.0000			
UW25	-0.1685	-0.0735	-0.1532	-0.0733	-0.1892	-0.0699	-0.1733	-0.0649	0.2057	**0.8115**	**0.8042**	1.0000		
IFRS	-0.2078	-0.1039	-0.1837	-0.1067	-0.1077	-0.0351	-0.0805	-0.0534	-0.0165	0.3864	0.2862	0.3511	1.0000	
Main	-0.1969	-0.0640	-0.1843	-0.0710	-0.1381	0.0535	-0.1193	0.0320	0.0216	0.4403	0.3099	0.3928	**0.8727**	1.0000
Big4	0.0335	0.0292	0.0482	0.0300	0.0878	0.0494	0.1089	0.0519	0.1766	0.3934	0.2937	0.3287	0.2279	0.1825
Lockup	-0.0140	0.0988	-0.0167	0.1114	-0.0167	0.0900	-0.0350	0.0872	0.2570	0.1005	0.2451	0.1525	-0.0360	0.0414
logAssets	-0.0215	0.0714	-0.0313	0.0784	-0.0252	-0.0480	-0.0220	-0.0433	0.0966	0.0820	0.0358	0.0319	0.0766	0.0644
ROA	0.2247	-0.0877	0.2075	-0.0824	0.1493	-0.0540	0.1226	-0.0642	-0.0523	-0.1784	-0.1743	-0.1897	-0.2862	-0.3205
ROA_{t-1}	0.2247	-0.0877	0.2075	-0.0824	0.1493	-0.0540	0.1226	-0.0642	-0.0523	-0.1784	-0.1743	-0.1897	-0.2862	-0.3205
ROA_{t-2}	0.0780	-0.0355	0.0527	-0.0427	0.1368	-0.0551	0.0781	-0.0477	-0.0171	-0.1467	-0.1262	-0.1307	-0.2308	-0.2618
Sweden	0.0227	-0.0404	0.0112	-0.0561	0.0052	-0.1016	0.0076	-0.1000	-0.0595	-0.1993	-0.3837	-0.2501	-0.1834	-0.2149
Norway	-0.0220	0.0605	-0.0089	0.0633	0.0462	0.1204	0.0358	0.1065	-0.1171	0.1071	0.2911	0.2101	0.2637	0.2559
Denmark	-0.1001	-0.0298	-0.0990	-0.0159	-0.1390	-0.0440	-0.1279	-0.0348	0.3024	0.2463	0.3683	0.2878	0.1684	0.1930
Finland	0.0904	0.0164	0.0916	0.0268	0.0636	0.0556	0.0631	0.0632	-0.0279	-0.0393	-0.0913	-0.1362	-0.2138	-0.1703
IPO10	-0.0453	-0.0927	-0.0424	-0.0842	0.0143	-0.0117	0.0294	-0.0102	-0.0245	0.1731	0.2366	0.1726	0.1960	0.1989
IPO12	-0.0679	-0.0216	-0.0560	-0.0198	-0.0513	0.0268	-0.0470	0.0247	0.2067	0.0404	0.0435	0.1415	0.0203	0.0708
IPO13	-0.0344	-0.0862	-0.0050	-0.0914	0.0229	-0.0268	0.0451	-0.0165	-0.0694	-0.0529	-0.1452	-0.1305	-0.0309	-0.0203
IPO14	0.1809	0.1362	0.1495	0.1316	0.0501	-0.0422	0.0315	-0.0484	-0.0209	-0.0493	-0.0208	-0.0311	-0.2525	-0.3492

Ind0	-0.0368	0.0136	-0.0350	0.0245	-0.0112	0.0467	-0.0314	0.0148	0.0405	0.1359	0.1230	0.1645	0.1206	0.1382
Ind1	-0.1264	-0.1018	-0.1177	-0.1559	-0.1267	-0.0741	-0.0926	-0.1059	-0.2117	0.0561	-0.0298	0.1685	0.2517	0.2311
Ind2	-0.0378	-0.0352	-0.0372	-0.0215	-0.0554	-0.0662	-0.0747	-0.0636	0.1287	-0.0575	0.0177	-0.0165	-0.2645	-0.1914
Ind3	-0.0314	-0.0056	-0.0305	0.0035	0.0200	-0.0260	0.0169	0.0020	-0.0184	0.0058	-0.0343	-0.0790	-0.0302	-0.0798
Ind4	-0.0925	-0.0753	-0.0986	-0.0618	-0.1179	-0.0683	-0.1275	-0.0568	-0.0255	-0.0018	0.1163	0.0418	0.1264	0.1617
Ind5	0.2009	0.2444	0.1898	0.2445	0.0919	0.1021	0.0885	0.1070	0.1373	0.0242	0.0148	-0.0384	-0.1790	-0.1373
Ind6	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ind7	0.1914	0.0544	0.1912	0.0768	0.2364	0.1585	0.2417	0.1641	0.0384	-0.0984	-0.1191	-0.1887	-0.0183	-0.0858
Ind8	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Big4	Lockup	logAssets	ROA	ROA_{t-1}	ROA_{t-2}	Sweden	Norway	Denmark	Finland	IPO10	IPO12	IPO13	IPO14
Big4	1.0000													
Lockup	0.0441	1.0000												
logAssets	0.1607	0.1148	1.0000											
ROA	-0.0872	0.0279	-0.1685	1.0000										
ROA_{t-1}	-0.0872	0.0279	-0.1685	1.0000	1.0000									
ROA_{t-2}	-0.0347	0.0587	0.0057	0.3936	0.3936	1.0000								
Sweden	-0.0256	-0.3765	0.0199	0.1238	0.1238	0.1431	1.0000							
Norway	-0.0594	0.2298	-0.0316	-0.1212	-0.1212	-0.1037	-0.6674	1.0000						
Denmark	0.1556	0.3024	0.0708	-0.0310	-0.0310	-0.0126	-0.4264	-0.1113	1.0000					
Finland	-0.0246	0.0494	-0.0616	-0.0195	-0.0195	-0.0977	-0.4264	-0.1113	-0.0711	1.0000				
IPO10	0.1230	-0.0678	-0.0321	-0.1396	-0.1396	-0.0754	-0.1295	0.1010	0.2112	-0.1215	1.0000			
IPO12	0.0416	-0.0581	0.0567	-0.1002	-0.1002	-0.1002	-0.0321	-0.0507	0.0652	0.0652	-0.1902	1.0000		
IPO13	-0.0634	0.0013	-0.1295	-0.0315	-0.0315	-0.0163	-0.1296	0.0274	0.0119	0.1830	-0.1989	-0.1823	1.0000	
IPO14	-0.0804	0.1371	0.0977	0.2173	0.2173	0.0723	0.1501	-0.1218	-0.1158	0.0187	-0.3127	-0.2866	-0.2998	1.0000
Ind0	0.0139	0.1309	-0.0141	-0.0692	-0.0692	-0.0585	-0.1165	0.2186	-0.0509	-0.0509	0.1379	-0.0797	-0.0834	-0.0401
Ind1	0.0735	-0.1791	-0.0218	-0.1307	-0.1307	-0.1368	-0.0376	0.2049	-0.1492	-0.0755	0.0611	0.1275	0.0808	-0.1285
Ind2	-0.0812	0.2514	-0.0216	0.1418	0.1418	0.1649	-0.0711	-0.0635	0.1893	0.0298	-0.0637	-0.0356	0.2478	-0.0786
Ind3	-0.0487	-0.0635	-0.0306	-0.0336	-0.0336	0.0481	0.2140	-0.1735	-0.0694	-0.0694	-0.1971	0.0365	-0.0837	0.0284
Ind4	-0.1010	-0.1140	0.0028	-0.1052	-0.1052	-0.1015	-0.0773	0.1506	0.0142	-0.0897	0.1896	-0.1404	-0.1468	-0.0368
Ind5	0.0114	0.2075	0.0754	0.0171	0.0171	-0.0507	-0.0774	-0.1113	0.1179	0.1809	-0.0799	-0.0231	0.0974	0.1195
Ind6	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ind7	0.1327	-0.1076	0.0389	0.1560	0.1560	0.0786	0.0531	-0.1373	-0.0176	0.1178	0.0540	0.0207	-0.1766	0.1799
Ind8	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Ind0	Ind1	Ind2	Ind3	Ind4	Ind5	Ind6	Ind7	Ind8
Ind0	1.0000								
Ind1	-0.1068	1.0000							
Ind2	-0.0929	-0.2721	1.0000						
Ind3	-0.1033	-0.3027	-0.2633	1.0000					
Ind4	-0.0642	-0.1880	-0.1636	-0.1820	1.0000				
Ind5	-0.0509	-0.1492	-0.1298	-0.1443	-0.0897	1.0000			
Ind6	.	.	.	.	.	.	.		
Ind7	-0.0772	-0.2262	-0.1968	-0.2189	-0.1360	-0.1079	.	1.0000	
Ind8	.	.	.	.	.	.	.	. .	

Table 5 shows the correlation between all dependent and independent variables. Correlations are highlighted for relevant variables with a correlation above (below) 0.5 (-0.5). The variables AV Jones, Jones, AV Kothari and Kothari are estimates for earnings management for the pre-IPO period as well as the first year post-IPO, whereas the same variables indicated as t-1 only include the pre-IPO period. LogAssets is the logarithm of lagged assets. ROA, ROA_{t-1} and ROA_{t-2} are the return on assets for year t, t-1 and t-2 respectively. Financial, UW10, Legal and Big 4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. IPO10-IPO14 are dummy variables that indicate the year of the IPO between 2012-2014, e.g. IPO10 equals 1 if the IPO was conducted in 2010 and 0 otherwise. Ind0-8 are dummy variables that indicate in which industry the company is in, e.g. Ind0 equals 1 if the company is in industry 0. For the distribution of companies per industry refer to table 2 above for IPO firms and table A2 in the Appendix for private firms.

High correlations among the included variables (above 0.5 or below -0.5) are limited as presented in table 5 above. Naturally, variables that capture the same effect, i.e. the four variables that measure earnings management, have a high positive correlation. As does the top 10 and top 25 underwriters since the top 10 is part of top 25. Furthermore, ROA in the current year has a very strong positive correlation to ROA in the previous year, which is expected. Whether the company reports according to IFRS has a positive correlation of 0.87 to main list, due to the requirement of IFRS reporting for such listings. Although, since it is possible for companies on secondary lists to voluntarily adopt IFRS, it is not a perfect correlation. Since none of these variables will be included in the same model, the high correlation is not a problem. However, there is a high positive correlation of 0.67 (0.81) between legal advisors and top 10 (25) underwriters. This can have an effect on the regression outcome and cause an issue of multicollinearity, which is addressed below.

Looking at the means between IPO and private firms, as presented in table 6 below, there are some differences. First, IPO firms are smaller than the private companies with a difference in the mean of Log(Assets) of 0.22. Furthermore, IPO firms are more profitable than private firms in terms of ROA during the pre-IPO period with a mean of 0.33% compared to 0.26% for private firms, although this is a very small difference of 0.07%. IPO firms have a higher mean than private companies for the absolute values of the Jones model, which indicates that we can expect a higher extent of window-dressing in IPO firms, in line with hypothesis 1. The result is robust for the remaining three estimations of earnings management. Regarding the third-parties, firms backed by a financial sponsor as well as firms audited by a big 4 company have higher means of earnings management than comparable firms. On the contrary, IPO firms that have engaged top 10 underwriters and legal advisors have lower means of earnings management. The results are robust for all of the remaining estimations of earnings management, except for the signed measure of the Kothari model related to top 10 underwriters where the mean is higher for companies with a top 10 underwriter than for comparable firms. The results indicate that hypothesis 3b and 4 are supported, whereas hypothesis 2 is not. The t-tests for the absolute value of the Kothari model is shown in table A5 in the Appendix.

Table 6. T-tests by IPO and private firms and third-parties

LogAssets	Obs	Mean	Std. Err.	Std.Dev.	[95% Conf.	Interval]
Private firm	4,925	7.613392	.0140543	.9863064	7.58584	7.640945
IPO firm	604	7.395592	.06362	1.563552	7.270648	7.520536
Combined	**5,529**	**7.589599**	**.0143453**	**1.066676**	**7.561477**	**7.617722**
Difference		.2178004	.0458977		.1278229	.3077778
ROA$_{t-1}$	**Obs**	**Mean**	**Std. Err.**	**Std.Dev.**	**[95% Conf.**	**Interval]**
Private firm	3,042	.258132	.0225396	1.243158	.2139376	.3023265
IPO firm	458	.3302214	.0477915	1.022783	.236303	.4241398
Combined	**3,5**	**.2675655**	**.0205661**	**1.216705**	**.2272428**	**.3078881**
Difference		-.0720894	.0609793		-.1916479	.0474692
AV Jones	**Obs**	**Mean**	**Std. Err.**	**Std.Dev.**	**[95% Conf.**	**Interval]**
Private firm	4,275	.0931857	.0016323	.1067251	.0899855	.0963858
IPO firm	379	.2209888	.0101404	.197413	.2010501	.2409275
Combined	**4,654**	**.1035934**	**.0017863**	**.1218628**	**.1000913**	**.1070954**
Difference		-.1278031	.0062574		-.1400706	-.1155356
AV Jones	**Obs**	**Mean**	**Std. Err.**	**Std.Dev.**	**[95% Conf.**	**Interval]**
Non-financial	244	.2152158	.0124544	.1945444	.1906834	.2397482
Financial	135	.2314228	.017455	.2028084	.1968999	.2659457
Combined	**379**	**.2209888**	**.0101404**	**.197413**	**.2010501**	**.2409275**
Difference		-.016207	.0211871		-.0578667	.0254527
AV Jones	**Obs**	**Mean**	**Std. Err.**	**Std.Dev.**	**[95% Conf.**	**Interval]**
Non-UW10	278	.234699	.0120794	.2014039	.2109199	.2584781
UW10	101	.1832517	.0180735	.1816364	.1473944	.219109
Combined	**379**	**.2209888**	**.0101404**	**.197413**	**.2010501**	**.2409275**
Difference		.0514473	.0228127		.0065911	.0963035
AV Jones	**Obs**	**Mean**	**Std. Err.**	**Std.Dev.**	**[95% Conf.**	**Interval]**
Non-Big4	98	.1958742	.0185558	.1836928	.1590461	.2327023
Big4	281	.2297476	.0120238	.2015558	.206079	.2534161
Combined	**379**	**.2209888**	**.0101404**	**.197413**	**.2010501**	**.2409275**
Difference		-.0338734	.0231245		-.0793425	.0115957
AV Jones	**Obs**	**Mean**	**Std. Err.**	**Std.Dev.**	**[95% Conf.**	**Interval]**
Non-legal	224	.2488488	.0139359	.2085729	.221386	.2763117
Legal	155	.1807265	.0138898	.1729264	.1532874	.2081656
Combined	**379**	**.2209888**	**.0101404**	**.197413**	**.2010501**	**.2409275**
Difference		.0681224	.0203527		.0281033	.1081414

The table shows the t-test for the control variables logarithm of lagged assets, and ROA for the previous year as well as the dependent variables for discretionary current accruals that capture earnings management during the pre-IPO period. The tests are conducted on IPO and private firms, where the value 0 indicates that the firm is private and 1 that it is an IPO firm.

5.2 Difference between IPO and private firms and test for hypothesis 1

To further test for hypothesis 1, a univariate analysis is conducted where DCA is regressed on the dummy variable IPOfirm, which takes the value of 1 if the company is an IPO firm and 0 if the firm is private. The results are positive and significant at the 1% level for all four estimations of earnings management. The positive coefficient is in line with expectations since IPO firms have a clear window of opportunity to gain from manipulating earnings, whereas private firms do not. The result implies that an IPO firm tends to manipulate earnings to a higher extent than a private firm with a level of approximately 8.0% for both the Jones and Kothari models, ceteris paribus. The absolute values indicate that irrespective of whether DCA is negative or positive, the average IPO firm tends to manage earnings to an extent that amounts to a 12.8% increase in DCA for the Jones model and 12.2% for the Kothari model. Hence, irrespective of if DCA is positive or negative, the IPO firms have a higher, i.e. more positive, value than the private firms.

Table 7. Univariate analysis to determine the difference in earnings management between public and private firms and test for hypothesis 1

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
IPOfirm	0.128***	0.0823***	0.122***	0.0769***
	(0.0103)	(0.0146)	(0.0110)	(0.0157)
Constant	0.0932***	0.0128***	0.0926***	0.0138***
	(0.00163)	(0.00216)	(0.00201)	(0.00268)
Observations	4,654	4,654	2,969	2,969
R-squared	0.082	0.020	0.095	0.022

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

The table shows the average earnings management conducted by IPO firms during the pre-IPO period where IPOfirm is a dummy variable equal to 1 if the company is an IPO firm and 0 if it is a private firm.

Next, I rerun the model with controls for size and profitability and the positive coefficient for IPOfirm is robust throughout the four estimates of earnings management and significant at the 1% level as illustrated in table 8. The results imply that an IPO firm has between 7.7-12.8% higher DCA than a private firm depending on the measure used, ceteris paribus. The results further remain robust when controlling for year, country and industry fixed effects as presented in tables A6-A8 in the Appendix. For the controls, size is found to be insignificant, except for when controlling for countries where the coefficient becomes negative and significant at the 10% level for the Jones model. This implies that large firms tend to manipulate earnings to a less extent than small firms, which is in line with expectations since private firms were larger than IPO firms on average as

presented in table 6 above, although it is weak support as it is only significant for one out of four measures. The coefficient for ROA in the previous year is found positive and significant at the 1% level for the absolute values of the estimates, whereas the coefficient is negative for the remaining two measures. This can be explained by that earnings management is intended to increase earnings and thereby ROA and a firm that engages in window-dressing to improve results during the current year is likely to have done so in the previous year as well, which is supported by a positive correlation of earnings management in the current and previous year as presented in table 5. Alternatively, a firm that was profitable in the previous year might be more pressured to engage in earnings management if they believe that the performance will not meet expectations in the current year in order to avoid disappointing the owners or miss out on a bonus. The result is robust when controlling for fixed effects. In addition, the coefficient becomes significant and negative for the signed measure in the Kothari model when controlling for year and industry, as illustrated in table A6 and A8 in the appendix, which implies that a firm that engages in window-dressing on average has lower ROA in the previous year. This suggests that less profitable firms engage in earnings management to increase their performance and therefore the absolute values are positive.

Table 8. The difference in earnings management between public and private firms and test for hypothesis 1

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
IPOfirm	0.123***	0.0865***	0.122***	0.0768***
	(0.0112)	(0.0157)	(0.0110)	(0.0157)
logAssets	-0.00229	-0.00252	-0.00242	-0.00162
	(0.00253)	(0.00363)	(0.00246)	(0.00358)
ROA_{t-1}	0.00849***	-0.00273	0.00722***	-0.00361
	(0.00231)	(0.00317)	(0.00197)	(0.00283)
Constant	0.108***	0.0337	0.109***	0.0272
	(0.0194)	(0.0279)	(0.0189)	(0.0274)
Observations	2,913	2,913	2,912	2,912
R-squared	0.102	0.028	0.102	0.023

<div align="center">

Robust standard errors in parentheses

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

</div>

The table shows the average earnings management conducted by IPO firms with positive and significant coefficients for all models. IPOfirm is a dummy variable that equals 1 if the firm is an IPO firm and 0 otherwise. ROA_{t-1} is the return on assets from the previous year and logAssets is the logarithm of lagged assets.

Since the rationale behind earnings management in connection to IPOs is to increase earnings prior to the IPO in order to attain a higher valuation, it would be interesting to see what happens to the level of DCA post-IPO. If the arguments for earnings manipulation in the pre-IPO period hold, the level of DCA should decrease post-IPO. To test this theory, I include the first year post-IPO in the estimation of DCA and regress dummy variables for the pre- and post-IPO period on the estimates of window-dressing, where IPO takes the value of 1 if it is the IPO year of the firm, IPO1 takes the value of 1 if it is 1 year prior to the IPO, IPO3 takes the value of 1 if it is 3 years prior to the IPO and IPOt1 takes the value of 1 if it is the first year post-IPO.

As illustrated in table 9, the coefficient for IPOt1 is negative and significant at the 1% level for all specifications, except for the absolute value of the Kothari model in which it is significant at a 10% level. This implies that the average IPO firm has a DCA amount of 15.1% (9.4%) less with an estimation of the Jones model (absolute value of Jones) or 12.6% (4.5%) less through an estimation with the Kothari model (absolute value of Kothari) in the first year post-IPO, ceteris paribus. The results are in line with expectations as there are significantly lower monetary gains in the post-IPO year. This relationship has not been discussed in the previous research that is presented in the literature review above. None of the remaining coefficients are significant, except for that of IPO year, which is positive and significant at the 5% level for the absolute value of the Kothari model. This indicates that the IPO firms have an 8.0% increase of DCA in the IPO year compared to private companies, ceteris paribus, albeit weak support as only one out of four models is significant. As none of the remaining coefficients are significant, we cannot reject the null hypothesis that there is no difference amongst the pre-IPO years[11]. Moreover, the constant is positive and highly significant for three out of four models, which indicates that throughout the pre-IPO period as well as in the first year post-IPO, IPO firms tend to have a higher level of DCA than private firms between 8-20%, depending on the measure.

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[11] The base year of the regression is IPO2, i.e. two years prior to IPO. The results imply that IPO firms manage earnings at least three years prior to IPO, with a reversal in the year post-IPO.

Table 9. The difference in earnings management between the pre- and post-IPO period

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
IPO	0.0491	0.0344	0.0802**	0.0632
	(0.0316)	(0.0462)	(0.0322)	(0.0455)
IPO1	0.0100	0.0109	0.0478	0.0276
	(0.0304)	(0.0436)	(0.0307)	(0.0434)
IPO3	-0.0318	0.00415		
	(0.0392)	(0.0535)		
IPOt1	-0.0935***	-0.151***	-0.0490*	-0.126***
	(0.0244)	(0.0351)	(0.0253)	(0.0348)
Constant	0.201***	0.0804**	0.161***	0.0465
	(0.0218)	(0.0320)	(0.0228)	(0.0316)
Observations	330	330	284	284
R-squared	0.076	0.070	0.080	0.082

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

The table illustrates the extent of earnings management in different years of the pre- and post-IPO period. IPO takes the value of 1 if it is the IPO year of the firm, IPO1 takes the value of 1 if it is 1 year prior to the IPO, IPO3 takes the value of 1 if it is 3 years prior to the IPO and IPOt1 takes the value of 1 if it is the first year post-IPO.

5.3 The impact on earnings management by third parties and test for hypotheses 2 - 4

To test for hypotheses 2-4, I start by testing a univariate model for each financial third-party. In the regression with financial sponsor, the coefficient is positive for all measures and significant to the 10% level for the Kothari model. This is in line with hypothesis 3bs as it indicates that IPOs backed by financial sponsors tend to window-dress to a higher extent than comparable firms. The outcome implies that a firm backed by a financial sponsor has a higher level of DCA that amounts to 5.6%, albeit weak support as only one out of four measures is significant. The coefficients for the remaining measures are insignificant and when including control variables, all coefficients for Financial are insignificant as presented in table 12.

Table 10. Univariate analysis of DCA to test for the impact by financial sponsors and hypothesis 3

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0162	0.0477	0.0195	0.0556*
	(0.0214)	(0.0301)	(0.0231)	(0.0324)
Constant	0.215***	0.0781***	0.208***	0.0713***
	(0.0125)	(0.0179)	(0.0133)	(0.0191)
Observations	379	379	313	313
R-squared	0.002	0.007	0.002	0.009

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

The table shows the average earnings management conducted by IPO firms that are backed by a financial sponsor. Financial is a dummy variable that equals 1 if the firm is backed by a financial sponsor and 0 otherwise.

I apply the same method to underwriters where DCA is regressed on top 10 (25) underwriters. The coefficient is negative and significant at the 5% (1%) level for both the absolute value of the Jones and Kothari models. This implies that a firm with a top 10 (25) underwriter will on average have a level of DCA that is between 5.1% (6.4%) and 5.2% (6.5%) lower than a comparable firm, ceteris paribus. This result is in line with previous research and indicates that highly ranked underwriters are associated with less window-dressing. Moreover, the univariate analysis for legal advisors implies a negative relationship to DCA that is significant to the 1% level. In line with the impact of underwriters, this suggests that firms with a legal advisor engaged in the IPO process manage earnings to a less extent than comparable firms. The univariate analysis for big 4 is insignificant throughout the four measures of window-dressing. The univariate regressions for legal advisors and big 4 auditors is presented in table A9 in the Appendix.

Table 11. Univariate analysis of DCA to test for the impact by top 10 (25) underwriters and hypothesis 4

Variables	Absolute value Jones	Absolute value Kothari	Absolute value Jones	Absolute value Kothari
UW10	-0.0514**	-0.0516**		
	(0.0217)	(0.0234)		
UW25			-0.0640***	-0.0650***
			(0.0200)	(0.0213)
Constant	0.235***	0.229***	0.244***	0.238***
	(0.0121)	(0.0129)	(0.0132)	(0.0142)
Observations	379	313	379	313
R-squared	0.013	0.014	0.024	0.026

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

The table shows the average earnings management conducted by IPO firms that have engaged a top 10 or top 25 underwriter. UW10 (UW25) is a dummy that takes the value of 1 if the underwriter is ranked as top 10 (25) and 0 otherwise. The underwriter ranking is based on Nordic market share for equity transactions.

Next, I combine the third-parties, the monitoring variables as well as two control variables, one for size and one for profitability, presented in table 12. In this model, both the coefficients for financial sponsors and underwriter reputation are insignificant, although the signs of the coefficients are consistent with the univariate analysis for all measures regarding financial sponsor and for the absolute values for top 10 underwriters. The coefficient of Legal is however negative and significant at the 10% level in line with the univariate analysis, implying that companies that engage a legal

advisor in the IPO process engage less in earning management. This result is robust when controlling for year, country and industry fixed effects. Since the legal advisor is not involved in the financial numbers, I propose that the effect is fully attributable to firms with lower earnings management signaling quality to investors by engaging a legal advisor. The Lockup coefficient is significant and positive for both the Jones and Kothari models at the 10% level. This is surprising as a lock-up agreement is intended to align the interests of agents and principals and thereby it should decrease manipulation. The positive coefficient implies that lock-up agreements are treated as a signaling rather than a monitoring tool. Firms that are more inclined to window-dress might commit to a lock-up agreement to signal quality and reliability, but it does not affect the extent of earnings manipulation and hence the coefficient below actually captures companies with higher extents of manipulation and thus the result is more consistent with signaling- rather than agency theory.

Table 12. The impact on DCA by third-parties and investor protection to test of hypotheses 2-4

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0171	0.0227	0.0190	0.0298
	(0.0239)	(0.0342)	(0.0237)	(0.0339)
UW10	-0.00948	0.0155	-0.00842	0.0342
	(0.0322)	(0.0443)	(0.0325)	(0.0449)
Legal	-0.0591*	-0.0657	-0.0598*	-0.0699
	(0.0311)	(0.0448)	(0.0315)	(0.0457)
Big4	0.0646**	0.0592	0.0696***	0.0577
	(0.0263)	(0.0391)	(0.0260)	(0.0389)
Lockup	0.00107	0.0629*	-0.00382	0.0563*
	(0.0228)	(0.0326)	(0.0225)	(0.0321)
IFRS	-0.0360	-0.0126	-0.0307	-0.0263
	(0.0272)	(0.0398)	(0.0268)	(0.0386)
logAssets	-0.00589	-0.00866	-0.00591	-0.00482
	(0.00893)	(0.0156)	(0.00873)	(0.0156)
ROA_{t-1}	0.0564***	-0.0403	0.0409**	-0.0445
	(0.0166)	(0.0422)	(0.0165)	(0.0381)
Constant	0.241***	0.128	0.239***	0.0989
	(0.0689)	(0.118)	(0.0666)	(0.118)
Observations	314	314	313	313
R-squared	0.094	0.037	0.077	0.041

<div align="center">Robust standard errors in parentheses</div>
<div align="center">*** p<0.01, ** p<0.05, * p<0.1</div>

The table shows the average impact on earnings management by third-parties and monitoring initiatives. Financial, UW10, Legal and Big4are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO

company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets.

As presented above, Big4 has a positive coefficient for all measures and is highly significant for the absolute values of both the Jones and Kothari model. The result for Big4 is equally surprising as that of lock-up and the interpretation is the same, the variable fails to align the interests of agents and principals. The IPO firm might have switched auditors in connection to the IPO to signal high quality in the financial reporting, which limits the time for the auditor to monitor the firm. Another explanation can be that the manipulation falls within accepted GAAP and the auditor is satisfied as long as the firm is compliant, hence no monitoring that mitigates manipulation is conducted by the auditor. The result is robust throughout the controls for fixed effects.

The coefficient for lagged ROA is positive and significant for the absolute values with negative coefficients for the remaining measures in line with the model for IPO and private firms presented in table 8 above. The result is robust throughout the controls for fixed effects and the interpretation remains that firms engaging in window-dressing during the previous year will continue to do so in the current year. Moreover, the coefficients related to the signed measures are negative and significant to the 5% level when controlling for year fixed effects, which is in line with the findings in table 8 above and indicates that less profitable firms engage in earnings management. For the regression output with controls for fixed effects, refer to table A10-A12 in the Appendix.

In order to further examine the interplay between the third-parties and the monitoring variables, I include interactive variables in the regressions as presented in table 13 below. The inclusion of interactive variables results in a different outcome. Here, the coefficient for top 10 underwriters is negative and significant at the 10% level for the absolute value of the Jones model. This is expected and in line with previous research. The coefficient for lock-up agreements is insignificant for the absolute values, but significant and positive for the signed measure as presented in table A13 in the Appendix, in line with the aforementioned findings. In accordance with the results above, the coefficients for Big4 and ROA_{t-1} remain positive and significant, with robust result throughout the controls for fixed effects. The coefficients for Legal is however insignificant in this model, although they remain negative. In addition, the coefficient of Financial is positive and significant at the 10% level for the absolute value of the Jones model, which supports hypothesis 3b.

The effect of financial sponsors is further captured in the interactive variables FIFRS and UF10. First, the coefficient for the interaction effect between Financial and IFRS is significant and negative. This suggests that a firm that applies IFRS and is backed by a financial sponsor has a lower level of DCA by between 11.5-12.2%, ceteris paribus. The result is robust to controls for year fixed effects. Second, the coefficients for the interaction variable between top 10 underwriters and financial sponsors is highly significant and positive. This implies that a financial sponsor with a top 10 underwriter engages in earnings manipulation to a higher extent than otherwise, which ranges between 15.6-17.3% depending on the measure applied, ceteris paribus. The result is robust to controls for year, country and industry fixed effects. The coefficients are larger than for top 10 underwriters in isolation, which implies that the net effect for firms backed by financial sponsors with top 10 underwriters is positive. This contradicts the previous research that have found either no significant relationship between investment firms and earnings management or a decrease in DCA.

In addition, highly ranked underwriters have consecutively been found to mitigate manipulation. However, an IPO company that is backed by a financial sponsor, but does not engage a top 10 underwriter has a net negative effect since the coefficients for FIFRS are larger than those of Financial. Moreover, the coefficient for the interaction variable between financial sponsors and legal advisors is significant and negative for the signed measure in both the Jones and Kothari model, which implies that firms backed by financial sponsors that also engage a legal advisor engage less in window-dressing. This is in line with the interpretation that firms with less manipulation in earnings engage legal advisors to signal quality. For the output that shows the regressions for the signed measure as well as fixed effect controls for the regressions below, refer to table A13-A16 in the Appendix.

Table 13. The impact on DCA by third-parties and investor protection including interaction variables to test of hypotheses 2-4

Variables	Absolute value Jones	Absolute value Kothari	Condensed model	
			Absolute value Jones	Absolute value Kothari
Financial	0.0819*	0.0758	0.0701*	0.0718*
	(0.0495)	(0.0500)	(0.0422)	(0.0419)
UW10	-0.0617*	-0.0579	-0.0446	-0.0471
	(0.0364)	(0.0374)	(0.0341)	(0.0348)
Legal	-0.0355	-0.0434	-0.0609**	-0.0613**
	(0.0356)	(0.0363)	(0.0300)	(0.0304)
Big4	0.0639**	0.0691***	0.0633**	0.0686***
	(0.0264)	(0.0261)	(0.0262)	(0.0259)
Lockup	0.00343	-0.00505		
	(0.0269)	(0.0264)		
IFRS	-0.00144	0.00519	0.000994	0.00778
	(0.0298)	(0.0293)	(0.0296)	(0.0290)
FIFRS	-0.115*	-0.122**	-0.132**	-0.136**
	(0.0601)	(0.0590)	(0.0551)	(0.0544)
UF10	0.173***	0.156**	0.108**	0.113**
	(0.0634)	(0.0649)	(0.0517)	(0.0509)
FLock	-0.00777	0.00299		
	(0.0505)	(0.0492)		
FL	-0.0898	-0.0617		
	(0.0622)	(0.0641)		
logAssets	-0.00612	-0.00571		
	(0.00966)	(0.00934)		
ROA_{t-1}	0.0573***	0.0407**	0.0541***	0.0382**
	(0.0168)	(0.0169)	(0.0164)	(0.0166)
Constant	0.219***	0.217***	0.181***	0.176***
	(0.0747)	(0.0720)	(0.0280)	(0.0271)
Observations	314	313	314	313
R-squared	0.122	0.104	0.115	0.101

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

The table shows the average impact on earnings management by third-parties and investor protection. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. FIFRS, UF10, FLock and FL are interactive variables between Financial and IFRS, UW10, Lockup and Legal respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets.

Lastly, variables are removed to attain a condensed model with the highest goodness of fit according to the absolute values as presented in the table above. Excluding the control for size as well as variables related to lock-up reduces noise and in this model and the coefficient for Financial is positive and significant at the 10% level for both the absolute value of the Jones and Kothari model and robust to controls for country fixed effects. The coefficients for Big4, UF10 and lagged ROA remain significant and positive as well as robust throughout the controls for fixed effects, whereas the coefficient for FIFRS remains negative and significant as well as robust to controls for year and industry fixed effects. In this model, the coefficient of legal is negative in line with previous results and significant to the 5% level with robust results throughout the fixed effects controls, whereas the coefficient of UW10 is negative and insignificant. Hence, a financial-backed firm that applies IFRS and has an underwriter among the top 10 has a net increase in earnings manipulation, ceteris paribus. For the fixed effect controls refer to table A17-A19 in the Appendix.

To test for multicollinearity, a variance inflation factor test is conducted. Since all scores are below 4.3, I conclude that there is no major issue with multicollinearity and the model can remain as is.

Table 14. Computation of variance inflation factors to test for multicollinearity for the condensed model as specified in table 13 above

	Jones			Kothari	
Variable	VIF	1/VIF	Variable	VIF	1/VIF
FIFRS	4.30	0.232811	FIFRS	4.29	0.232844
Financial	3.17	0.314968	Financial	3.17	0.315502
UF10	3.09	0.323876	UF10	3.09	0.323771
UW10	2.84	0.351930	UW10	2.87	0.348990
Legal	2.10	0.476763	Legal	2.11	0.473586
IFRS	1.75	0.570715	IFRS	1.75	0.571075
Big4	1.19	0.837891	Big4	1.19	0.838568
ROA_{t-1}	1.07	0.938490	ROA_{t-1}	1.07	0.938430
Mean VIF	**2.44**		**Mean VIF**	**2.44**	

The table illustrates the variance in inflation factors for the Jones and Kothari model to test for multicollinearity for the condensed model presented in table 13.

6. Discussion

The univariate analysis that tests the extent of earnings manipulation between private and IPO firms is highly significant and positive for all estimates of both the Jones and Kothari models. This indicates that IPO firms manipulate earnings to a higher extent than public firms, supporting hypothesis 1. The result is robust for the inclusion of controls for size and profitability as well as for year, country and industry fixed effects. This relationship has not been discussed in the aforementioned previous work as the estimation of DCA has previously been conducted on IPO firms and other public firms. The result is in line with expectation as there is a significant monetary gain for IPO firms due to the upcoming shift in ownership compared to private firms. The highly significant decrease in earnings management during the first post-IPO year further supports the underlying rationale that there is an opportunity to gain from manipulating earnings during the pre-IPO period. The finding suggests that agency theory is supported in terms of agents (previous owners) acting in self-interest that is not aligned with the best interest of the principal (new investors) and that the prevailing monitoring initiatives do not eliminate the ability to window-dress. Moreover, as public firms in general are subject to more pressure with regard to delivering a satisfactory bottom line than private firms this can indicate that public firms have higher incentives to window-dress in order to meet certain targets. Hence, there is a possibility that the previous work presented above provide understated results.

Ball and Shivakumar presented critique of the method and argued that there is no window-dressing among IPO firms. However, the remaining previous work that has been presented in combination with this study, suggests otherwise. Their lack of results can be attributable to the UK setting as well as the usage of public firms when estimating the level of DCA. Since the UK provides two sets of financial information, the ability to provide different numbers in the prospectus is limited as it is easily detectable and thereby can cause questions and objections from advisors and analysts. This provides an additional safeguard against manipulation for UK firms. Furthermore, they argue that accruals should increase post-IPO as a result from investments of the IPO proceeds. This argument neglects an increased focus on profitability and efficiency as a result from being a public firm with a larger number of shareholders, whom are arguably less involved in the operations and therefore evaluate the firm on less detailed information than a major shareholder in a private company with the ability to scrutinize the financials. They further state that firms go public as a result from resource constraints and that the post-IPO investments of the proceeds will affect the level of accruals. I find this argument weak since the IPO market is driven by financial sponsors that in general have high growth agendas and do not suffer from a noteworthy resource constraint. If this was the general case for companies that are not backed by investment firms, it should have

been captured in the Financial variable through a negative coefficient. In addition, the active ownership is expected to increase working capital efficiency to release cash, which further would decrease accruals for financial-backed companies. The operational arguments would support a negative relationship between financial sponsors and EM, but since the opposite is found, I claim that the arguments are irrelevant in this context.

In addition, they argue that manipulation should be detected by auditors and other third-parties, which in turn ought to result in connected events, e.g. that part of top management is replaced. However, the events connected to earnings management would only incur if manipulation is suspected or detected. Since earnings manipulation is within the acceptable GAAP, auditors and other third-parties might question the underlying assumptions, but they are unlikely to report it as misconduct. Furthermore, if earnings management is initiated by the owners in order to maximize their gain in the IPO, they are not likely to vote for a change in management prior to the expiration of the lock-up period and potentially convince any suspicion that the abnormal accruals are caused by unusual circumstances connected to the operations. Hence, I argue that the events that are sought for are expected to be limited and the lack thereof cannot be considered evidence of non-existing manipulation of earnings.

In summary, I claim that the critique provided against the method and structural existence of earnings management does not hold to dismiss the method. Moreover, the proxy of DCA for earnings manipulation has been accepted and adopted by numerous authors, as presented above and Premti (2013) concluded that the method is a valid approach even if the critique by Ball and Shivakumar (2008) was accounted for.

One can argue that reported earnings is only part of the valuation and that there are numerous variables that affect the offering price. Pricing is usually set by an adjusted earnings metric and a multiple derived from a benchmark group of listed companies. Hence, an overvaluation might as well come from choosing a high multiple or including adjustments that might increase earnings and deviate from a fair representation of the business. However, analysts evaluate the stock price based on the historical reported earnings and from that estimated forecasts. Even though the underwriter can provide analyst coverage as well, the analyst should conduct the work independent of the underwriter, in accordance with stock market legislation. In countries with high investor protection, this should not be a substantial issue and the analysts are expected to conduct independent reviews of the listing firms.

Moreover, other firms that do not have the same interest as the underwriter will probably provide a skeptical lens when assessing the stock. Hence, the level of earnings should have an impact on the recommendations from analysts regarding whether the stock is overvalued or not and thereby an impact on the share price development.

6.1 The impact from the monitoring variables IFRS and Lockup

The lack of significance for the IFRS coefficients is surprising. Since the variable captures both the companies listed on a secondary exchange that have voluntarily converted to IFRS (approximately 20%) and the companies that are listed on the main exchange, the coefficients were expected to be negative and significant due to increased monitoring. The lack of significance can be a result from the high investor protection in the Nordics (Enomoto et al., 2015) and thus the monitoring effects from law enforcers and analysts are equally strong for the main and secondary lists. Since the secondary lists included in this sample are under the brand of the main lists (Nasdaq and Oslo Børs) it seems like their monitoring practices are equally efficient for the main and secondary lists. However, it can also be an effect from that the majority of the companies are listed on the main exchange and apply IFRS, which makes the marginal effect from applying IFRS negligible. After including interaction variables in the regression, IFRS in isolation remains insignificant, although the interaction variable between IFRS and financial sponsors is highly significant and negative as discussed below.

The lock-up agreement is intended as a monitoring factor that aligns the intentions between previous and new owners. However, the impact of Lockup is significant and positive for both the Jones and Kothari models. This implies that the initiative fails to execute a monitoring effect and the impact is rather to be explained by signaling than agency theory. The positive correlation can be explained by that firms which do engage in earnings manipulation agree to lockup agreements to signal credibility, or alternatively that the lockup agreement is pushed by advisors. The latter might increase the extent of earnings manipulation since there is an increased opportunity to window-dress when investors are informed that there is a lock-up agreement in place and therefore may trust the presented financials. It can also be a result from that the number of shares subject to lock-up is not large enough for the owner to refrain from manipulation, or an indication that the lock-up period is too short and the owners do not expect the consequences of borrowing earnings from the future to backlash during the lock-up period. Although when variables are excluded to construct the condensed model with the highest goodness of fit, lockup becomes insignificant.

6.2 The impact on earnings manipulation by third-parties
The impact from big 4 auditors is surprising as the coefficients are significant and positive. Auditors should be the third-party with the highest capability to mitigate earnings manipulation as they are most knowledgeable in accounting and thus a negative correlation was expected. The positive coefficient can be explained by that the earnings manipulation is GAAP compliant. The auditors may be satisfied with GAAP compliance and do not engage further regarding whether the reporting is deviating from a previous trend or if all estimates are truly the best representation of the firm and hence the manipulation goes unnoticed. Another potential explanation is that the advisors whom review the listing company are stricter towards firms that do not have a big 4 auditor, assuming that the quality of their financials are lacking and thereby conduct a more scrutinized review, this is supported by that the stock exchange review on Nasdaq are conducted by big 4 auditors only. Moreover, the effect can also be a result from that non-big 4 auditors are more thorough in their review to compensate for the perceived lack of quality. Hence from the perspective of agency theory, there is no significant alignment between the interests of agents and principals through the monitoring conducted by big 4 auditors. The positive coefficient could also be an indication of firms with higher earnings manipulation signaling quality through appointing a big 4 auditor. Although, due to the high market shares of the big 4, it is likely that the auditor is in place before the IPO is decided upon. Previous work has had mixed results in terms of auditors' impact, both a significant negative relationship to DCA (Brau and Johnson, 2009) and lack of significance (Lee and Masulis, 2001). The lack of significance in previous studies can be an indication of a negligible difference in audit quality between the top and the remaining auditors in the sample, whereas the negative effect is potentially a result from a vaster range of audit quality in the US. The evidence contradicts my initial expectations and hypothesis 2 is not supported.

The univariate analysis supports a positive correlation between DCA and financial sponsors and a negative correlation between DCA and prestigious underwriters. The mitigating effect from underwriters is in line with previous research (Chang et al, 2010) and implies that a highly reputable underwriter is associated with less window-dressing. The positive effect for financial sponsors does however not resemble previous findings, which have found either an insignificant or significant and negative relationship between VCs as a group and earnings management (Lee and Masulis, 2011, Morsfield and Tan, 2006). When including additional variables in a multivariate analysis, the coefficient for financial sponsors remains positive and significant, whereas top 10 underwriters turns insignificant. Since a company has to pass through a thorough screening process before commencing a partnership with a financial sponsor, it cannot choose a sponsor only to signal quality. In addition, since the exit alternative, i.e. IPO or divestment to a private party, is typically

not decided upon acquisition, it seems unlikely that a company would engage with the financial sponsor to signal quality for future investors. Consequently, as a good firm cannot simply pick a highly reputable financial sponsor, although the firm can decline a partnership, the selection process is considered part of the monitoring effect. Moreover, the sponsor is involved with the company through active ownership for several years and thereby has an extensive ability to impact the reporting. Therefore, I suggest that the entire effect is attributable to agency theory. The positive and significant coefficient thus indicates that companies backed by financial sponsors exploit the information asymmetry and manages earnings to a higher extent than comparable firms, which supports hypothesis 3b.

Since the variable IFRS captures both companies listed on the main list[12] as well as companies that voluntarily have adopted IFRS, the variable FIFRS is deemed to divide the financial sponsors in a way that resembles highly reputable firms from the remaining firms. To convert local GAAP to IFRS without a requirement can be viewed as ambitious and indicate an intention for the company's future success and development, parameters that a credible owner would engage in. In addition, to list a firm on the main list is considered to represent higher quality than listing on a secondary list since the main list have higher regulatory requirements as well as increased analyst coverage. I interpret the result as that more credible financial sponsors conduct mitigating monitoring, which decreases the amount of window-dressing, in line with previous research that examines third-parties (Lee and Masulis, 2011, Morsfield and Tan,2006). I argue that signaling is not a relevant explanation for the impact by financial sponsors due to the reasons stated above. Since the coefficients for FIFRS are larger than those for Financial, the net effect from financial backing without engaging a top 10 underwriter is negative. Hence, the result provides evidence that a more credible financial sponsor decreases the level of earnings management, which is in line with previous findings (Lee and Masulis, 2011) and in part supports hypothesis 3a.

Previous research presented above argues that the underwriters practice additional monitoring, which decreases the level of earnings management. The main argument for the underwriter to engage in monitoring evolves around maintaining a good reputation to secure future business. In order to examine the monitoring process, I divide it into the following steps; i) accepting a partnership with the listing firm and ii) the listing process. During the selection process, a highly reputable underwriter has the opportunity to turn down projects, especially in the current market

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[12] Reporting under IFRS is a requirement to be listed on the main exchanges (Nasdaq and Oslo Børs).

when there are many firms that want to conduct IPOs. Hence, firms that seem unethical or lack significant quality in terms of financial reporting will probably not be undertaken, which provides a safeguard for investors, i.e. the underwriters' clients. During the listing process, the underwriter has an opportunity to ask questions, analyze trends in the financial line items as well as communicate with the remaining third-parties. In this stage, questions can be posed regarding assumptions and the underwriter has the ability to recommend adjustments. However, the underwriters work with the company for a relatively short time period and therefore the ability to execute any major changes to the firm's reporting is limited. In addition, I find it unlikely that an underwriter should question the level of accruals that has been signed off by an auditor. Hence, the monitoring effect on earnings manipulation is deemed most effective in the first step. However, the impact of the first step is arguably also small since it only eliminates worst cases and in the current times with high IPO activity, even banks that are not ranked particularly high can afford to be selective in projects without the risk of losing business. The lack of significance supports the arguments that underwriters do not engage in any substantial monitoring.

The insignificance can further be explained by a negligible difference in monitoring quality between the top 10 and other underwriters in the Nordics, whereas the US and UK have a much vaster range in quality and therefore a larger difference between the banks that are ranked the highest and those that are not. The insignificance can also be explained by signaling. In this setting, it seems that firms with less window-dressing do not engage top underwriters to a higher extent than comparable firms, ceteris paribus. This can partly be due to the high level of investor protection in the Nordics (Enomoto et al, 2015). Since the investor protection is high, the firm might assume that the marginal signaling effect towards investors will not result in a noticeable difference for their investment decision since they have faith in that the legal system as well as the remaining advisors and auditors will capture any misconduct. Alternatively, if both firms that do and do not engage in extensive earnings management select a top 10 underwriter to signal quality and the underwriter does not conduct any notable monitoring, the effect of a top 10 underwriter is negligible. The evidence contradicts the expectations and hypothesis 4 is not supported.

The interaction between top underwriters and financial sponsor gives an interesting result as the coefficient is significant and positive. Looking at the variables in isolation, the coefficients have been insignificant for top underwriters, whereas the coefficients for financial sponsors have been positive. Combining the two results in a positive correlation and implies additional window-dressing to that of each of the parties in isolation. This contradicts the findings of Lee and Masulis

(2011) whom found that the impact on earnings management decreased. However, their results relate to highly reputable VCs and not financial sponsors as a whole. One explanation could be that financial sponsors, irrespective of their level of reputation or intent to manipulate, tend to pick highly reputational underwriters, but the correlations between Financial and both top 10 and top 25 underwriters are low. It could be that the underwriters trust financial sponsors to have the company's financials under control as a result from the monitoring initiatives as well as the experience in transactions and company valuations. The argument that financial sponsors want to attain a good reputation to secure future investments by limited partners and institutions can provide further assurance for the underwriter and lead to a limited involvement from their part. Thereby letting the financial sponsor take lead on the numbers, which would explain the positive rather than negative and insignificant coefficient for top underwriters in isolation. In addition, financial sponsors could have more generous compensation schemes for the underwriters related to the outcome of the IPO and thus incentivize underwriters to increase earnings management.

Furthermore, I argue that the reputation for underwriters is mainly built on volume. Perceived high quality will drive new business, but as long as the bank conducts the most IPOs, they can use it as a selling point and thereby convince the IPO firm that they are of the highest standard and have the ability to achieve the best outcome, even though some of their introductions might have been unsuccessful. Moreover, as it is a business built on profitability like any other, it is key to be on good terms with the clients. This is an important aspect for analyzing the result of the interaction variable UF10. Since financial sponsors drive the IPO market and the banks attain recurring revenue from the sponsor, as opposed to if the firm was listed by entrepreneurs whom will conduct much fewer IPOs, it is important for the banks to have a good relationship with the sponsors in order to maintain their market share. Hence, in accordance with signaling theory, financial sponsors that engage in earnings manipulation to a higher extent might select top underwriters to signal quality. The underwriters in turn, accept the project without any considerable selection process in order to secure future revenue from the sponsor and refrains from additional monitoring due to trust in the sponsor. The interaction results further support hypothesis 3b, whereas hypothesis 4 is contradicted.

Legal is found to have a negative and significant impact on DCA, which is in line with previous research (Brau and Johnson, 2009). Since the attorneys are not involved in the financial numbers, I propose that this effect is fully attributable to signaling, either by the IPO firm or the engaged underwriter. Hence, companies that engage less in earnings management engage legal advisors or

underwriters that in turn engage legal advisors with the purpose to signal high quality towards investors. Even though the attorneys do not provide any assurance of the financial numbers per se, they provide assurance around the operations as a whole. To include a legal advisor in the listing document in addition to an underwriter and auditor thus indicates that all relevant areas have been covered and a legal advisor can potentially have a higher perceived marginal signaling effect than whether the underwriter is among the highest ranked or not. Accordingly, the inclusion of a legal advisor can be a mean for underwriters which are not highly ranked to compensate for the potentially perceived lower quality that follows a lower rank.

There is a high correlation between top underwriters and legal advisors (0.7) and hence, it is likely that both a top underwriter and a legal advisor is engaged in the same process. The difference in significance can highlight an interesting aspect of the underwriter ranking. As the ranking is conducted based on market share, it is not necessarily a proxy for quality in line with the aforementioned argument related to the importance of volume. Even though quality is expected to result in recurring business as well as attract new clients, a bank might engage in less monitoring in order to use the resources for additional assignments instead. This is further in line with the grandstand theory related to VC firms (Morsfield and Tan, 2006). The bank that conducts the most IPOs is perceived by firms that consider an IPO to either be of the highest quality or to be able to generate the best IPO outcome and as a result, that banks attains the most assignments. Albeit, the quality cannot be severely sub-par, it does not have to be of the highest standard. Consequently, the variable Legal captures high quality underwriters, both out of the top 10 and 25 as well as the banks that do not make the top 25 list, that provide noteworthy monitoring. The negative impact by legal advisors as such does not support hypothesis 4, but the aforementioned reasoning would suggest that hypothesis 4 could be supported, although that the use of market share as ranking is flawed and therefore the coefficient for Legal is significant, whereas the coefficient for UW10 is not.

7. Conclusion

In conclusion, I find that IPO firms tend to window-dress to a higher extent than private firms and that the relationship between earnings manipulations and the first year post-IPO is negative and highly significant. This is expected since IPO firms have additional monetary gains to attain from manipulating earnings compared to private firms. This analysis adds to the current field of earnings management research since previous work has compared IPO firms to other public companies as opposed to private firms.

Contrary to previous studies, I find that there is a significant positive relationship between earnings management and financial sponsors as a whole. This supports the hypothesis that financial sponsors exploit the information asymmetry and manipulate earnings to increase their financial gains in the IPO. I argue that this effect is fully attributable to agency theory since a company cannot simply choose to engage in a partnership with a financial sponsor. However, when separating the group in a way that can resemble highly reputable sponsors and not, there is a significant negative effect for the group that is considered to resemble highly reputable, which is consistent with previous research (Lee and Masulis, 2011). I argue that the negative relationship is attributable to increased monitoring effects by the financial sponsor and thereby agency theory as argued above. In addition, the sponsor is involved with the company for several years and part of the board of directors, which enables extensive monitoring of the financials. Furthermore, I find a positive and significant relationship between the interaction of highly reputable underwriters and financial sponsors and the level of earnings manipulation. I propose that this is a result from signaling, where firms backed by financial sponsors that manipulate earnings to a higher extent select highly reputable underwriters. The underwriters in turn accept the projects to maintain a good business relationship with the financial sponsor and refrains from additional monitoring due to trust in the sponsor's ability to analyze the financials themselves. Alternatively, it could be a result from a more generous compensation scheme for the underwriter from financial sponsors connected to the IPO outcome.

Contrary to previous studies (e.g. Chang et al., 2010), the impact of highly ranked underwriters is found to be insignificant, although negative. I claim that the effect is mostly attributable to signaling, where both firms that do and do not window-dress to a high extent pick highly reputable underwriters to communicate quality towards investors. In addition, since the underwriter is less knowledgeable in accounting as well as involved with the listing firm for a shorter time than auditors, I find it unlikely that an underwriter would question the level of accruals that has been approved by an auditor and the monitoring from underwriters is limited, which also supports the

insignificant impact. Furthermore, the impact from legal advisors is significant and negative. I claim that this is a result from signaling by either the IPO firm or the underwriter since the legal advisor is not involved in the financials. As the variable Legal is highly correlated with top underwriters, the effect is considered to reflect the monitoring quality to a higher extent than top 10 underwriters alone as it is insignificant in the regressions. Consequently, the market shares might not be a decent proxy to capture the quality of underwriters in this setting.

No robust significant relationship is found for lock-up agreements or IFRS. I propose that the lock-up fails to align the intentions of agents and principals due to signaling and the structure of the agreement. Hence, firms with both high and low levels of window-dressing commit to lock-up agreements to signal quality and the number of shares as well as the time period are insufficient to constrain manipulation. I further suggest that the insignificance of IFRS, which captures the difference between companies listed on a main and secondary list, is a reflection of equal monitoring from the stock exchange as the secondary lists in the sample are run by the same exchanges as the main lists. On the contrary, the coefficient for big 4 auditors is positive and significant, contradicting previous research (Brau and Johnson 2009). I suggest that this is a result from increased monitoring conducted on firms that do not have a big 4 auditor as they are expected to have lower quality in the financial reporting.

Since there are harmonized stock exchange regulations in the EU, I propose that this study can be applied in a European setting, although preferably in a setting with similar investor protection as this can have an impact on the monitoring effectiveness as well as the motivation to signal high quality.

7.1 Limitations
Since the study is conducted in a Nordic setting, the sample size is relatively small, which limits the depth of the analysis. In addition, there are potential endogeneity issues in the models in terms of the selection of third-parties. In order for a highly reputable underwriter to maintain their reputation and market position it is likely that they select firms with a high probability to conduct a successful IPO. Therefore, the companies introduced by top underwriters could be more mature since a solid track-record is better received by investors and as a result those firms are able to conduct an IPO on the main stock exchange as it is less challenging to fulfill the requirements compared to a less mature company. Hence, an endogeneity issue arises between underwriter reputation and IFRS. In addition, financial sponsors are likely to have established business relationships with underwriters since they frequently take firms public as well as a willingness to

engage top advisors that are well-connected to investors and thus the selection process is not random. Moreover, the selection process for companies to invest in by financial sponsors is not random either as it is subject to a thorough investment process. The endogeneity issue and its effects on the presented results can be further explored in future research.

7.2 Future research

Future research can further explore the interactions between the third-parties as well as the impact of monitoring initiatives on earnings management in connection to IPOs. Regarding the positive relationship between window-dressing and lock-up agreements, future research can study the prerequisites of lock-ups to examine whether the number of shares under lock-up or the length of the lock-up period has an impact on pre-IPO earnings management as well as post-IPO performance. In addition, the interplay between financial sponsors and top underwriters can be further assessed to examine whether the positive association to earnings manipulation is a result from a mutual impact or if it can be solely attributable to one party. The effects when controlling for endogeneity issues can also be further examined, as discussed above. Moreover, future studies can be conducted on both private and public firms in addition to IPO firms to examine whether public companies in general tend to window-dress to a higher extent than private firms.

9. Appendix

Table A1. IPO sample selection

Data source	Number of IPOs
Eikon	116
Börsforum	66
Nasdaq	79
Oslo Børs	10
Removal of irrelevant stock exchanges and firms with unattainable listing documents	-83
Removal of financial companies, real estate, non-IPOs and delisted firms	-50
Net total	**138**

The table illustrates the sample selection process for the IPO firms. A list of all IPOs conducted in the Nordics was first retrieved from the Eikon database, provided by Thomson Reuters. Subsequently, the list was supplemented with IPOs listed at Börsforum, a website following all Nordic IPOs, and the IPOs announced on the respective websites for the stock exchanges included in the sample, i.e. Oslo Børs and Nasdaq. IPOs conducted on secondary lists other than First North and Oslo Access, e.g. Aktietorget were excluded due to lack of comparability. As information related to the independent variables, e.g. underwriter, financial sponsor, legal advisor, auditor, lock-up agreement and accounting principles are provided in the listing document (either prospectus or company description), companies were removed if the listing document could not be attained. Financial companies such as banks and real estate companies were removed as they are subject to additional legal requirements and are deemed to have a different nature of accruals. Furthermore, transactions that were not to be considered IPOs, e.g. a merger where no shares were distributed to the public, were removed. Firms that were de-listed after a short time, i.e. taken off the stock exchange due to e.g. an acquisition, have also been removed.

Table A2. Industry distribution of private firms

Industry	One digit SIC	Private firms
Food / Tobacco and agriculture	0	50
Construction and mining	1	30
Manufacturing of chemicals and pharmaceutical	2	13
Manufacturing	3	131
Commercial Services, transport, media and utilities	4	81
Retail	5	188
Financial services	6	0
Professional, Scientific, and Technical Services	7	221
Health Care and Social Assistance	8	5
		719

The table illustrates the number of private firms in each industry that have been included in the data sample. The sample has been retrieved from the Value8 database, which collects financial information from annual reports for private firms in the Nordics. A gross sample of 2,000 firms was retrieved with financial data from 2008-2015, i.e. two years prior to the first IPO in the sample and one year post the last, for companies in Sweden, Norway, Denmark and Finland. After excluding companies with insufficient data, 719 firms remained and are included in the sample.

Table A3. Industry overview for IPO firms

Overall industry	Detailed industry	SIC code	One digit SIC
Agriculture, Forestry, Fishing and Hunting	Oilseed and Grain Farming	0119	0
Food / Tobacco	Poultry and Egg Production	0251	0
Food / Tobacco	Aquaculture	0273	0
Mining, Quarrying, and Oil and Gas Extraction	Metal Ore Mining	1041, 1099	1
Mining, Quarrying, and Oil and Gas Extraction	Oil and Gas Extraction	1311	1
Mining, Quarrying, and Oil and Gas Extraction	Support Activities for Mining	1381	1
Construction	Utility System Construction	1382	1
Mining, Quarrying, and Oil and Gas Extraction	Support Activities for Mining	1389	1
Mining, Quarrying, and Oil and Gas Extraction	Metal Ore Mining	1499	1
Construction	Residential Building Construction	1521-1522	1
Construction	Building Equipment Contractors	1711, 1796	1
Pharmaceuticals	Animal Slaughtering and Processing	2077	2
Manufacturing	Other Food Manufacturing	2099	2
Retailers - Specialty	Apparel, Piece Goods, and Notions Merchant Wholesalers	2326	2
Homebuilding / Construction Supplies	Other Wood Product Manufacturing	2431	2
Manufacturing	Pulp, Paper, and Paperboard Mills	2621	2
Manufacturing	Printing and Related Support Activities	2759	2
Chemicals	Basic Chemical Manufacturing	2819	2
Manufacturing	Pharmaceutical and Medicine Manufacturing	2833-2836	2
Manufacturing	Basic Chemical Manufacturing	2869, 2895	2
Manufacturing	Other Chemical Product and Preparation Manufacturing	3087	3
Metal / Mining	Alumina and Aluminum Production and Processing	3334	3
Manufacturing	Boiler, Tank, and Shipping Container Manufacturing	3443	3
Manufacturing	Iron and Steel Mills and Ferroalloy Manufacturing	3541	3
Commercial Services / Supplies	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	3564	3
Manufacturing	Other General Purpose Machinery Manufacturing	3594	3
Manufacturing	Electrical Equipment Manufacturing	3612	3
Manufacturing	Electric Lighting Equipment Manufacturing	3641	3
Manufacturing	Semiconductor and Other Electronic Component Manufacturing	3679	3
Manufacturing	Other Electrical Equipment and Component Manufacturing	3691	3
Automobiles / Auto Parts	Commercial and Service Industry Machinery Manufacturing	3714	3
Construction / Engineering / Materials	Ship and Boat Building	3731	3
Manufacturing	Navigational, Measuring, Electrometrical, and Control Instruments Manufacturing	3812, 3829, 3845	3
Manufacturing	Medical Equipment and Supplies Manufacturing	3841	3
Manufacturing	Other Miscellaneous Manufacturing	3911, 3944, 3993,	3
Manufacturing	Other Fabricated Metal Product Manufacturing	3999	3
Commercial Services / Supplies	Waste Collection	4212	4
Transportation and Warehousing	Deep Sea, Coastal, and Great Lakes Water Transportation	4481	4
Marine Services	Support Activities for Water Transportation	4491,4499	4

Transportation and Warehousing	Pipeline Transportation of Crude Oil	4612	4
Professional, Scientific, and Technical Services	Management, Scientific, and Technical Consulting Services	4731	4
Information	Wireless Telecommunications Carriers (except Satellite)	4812	4
Information	Radio and Television Broadcasting	4832	4
Media / Publishing	Cable and Other Subscription Programming	4841	4
Utilities	Electric Power Generation, Transmission and Distribution	4911, 4939	4
Retail Trade	Automotive Parts, Accessories, and Tire Stores	5013	5
Wholesale Trade	Lumber and Other Construction Materials Merchant Wholesalers	5039	5
Healthcare Equipment / Supplies	Professional and Commercial Equipment and Supplies Merchant Wholesalers	5047	5
Wholesale Trade	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	5063-5065	5
Wholesale Trade	Miscellaneous Durable Goods Merchant Wholesalers	5091	5
Wholesale Trade	Apparel, Piece Goods, and Notions Merchant Wholesalers	5137	5
Hotels / Entertainment Services	Restaurants and Other Eating Places	5812	5
Retailers - Specialty	Health and Personal Care Stores	5912	5
Oil / Gas	Direct Selling Establishments	5989	5
Finance and Insurance	Securities and Commodity Contracts Intermediation and Brokerage	6211	6
Insurance	Insurance Carriers	6399	6
Household Goods	Management of Companies and Enterprises	6719	6
Finance and Insurance	Other Financial Investment Activities	6799	6
Professional, Scientific, and Technical Services	Advertising, Public Relations, and Related Services	7319	7
Commercial Services / Supplies	Services to Buildings and Dwellings	7349	7
Information	Other Telecommunications	7371	7
Manufacturing	Manufacturing and Reproducing Magnetic and Optical Media	7372	7
Professional, Scientific, and Technical Services	Computer Systems Design and Related Services	7373, 7376, 7379	7
Administrative and Support and Waste Management and Remediation Services	Investigation and Security Services	7382	7
Finance and Insurance	Activities Related to Credit Intermediation	7389	7
Information	Motion Picture and Video Industries	7822	7
Arts, Entertainment, and Recreation	Promoters of Performing Arts, Sports, and Similar Events	7999	7
Health Care and Social Assistance	Nursing Care Facilities (Skilled Nursing Facilities)	8059	8
Professional, Scientific, and Technical Services	Architectural, Engineering, and Related Services	8711	8
Commercial Services / Supplies	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	8721	8

The table illustrates the detailed industry information and classification for the IPO firms included in the data sample. Industry classification is conducted according to one digit SIC codes retrieved from Factset, a database containing financial information intended for investment companies.

Table A4. Market shares for underwriters in the Nordics as at October 2017

Rank	Underwriter	Proceeds USDm	Market share
1	Carnegie	2449	16 %
2	Goldman Sachs & Co	1762	11 %
3	Nordea	1724	11 %
4	Morgan Stanley	1698	11 %
5	SEB	1163	8 %
6	JP Morgan	973	6 %
7	Danske Bank	879	6 %
8	ABG Sundal Collier	720	5 %
9	DNB ASA	599	4 %
10	Deutsche Bank	452	3 %
11	OP-Pohjola Group Central Coop	418	3 %
12	Arctic Securities ASA	408	3 %
13	Pareto AS	363	2 %
14	Jefferies LLC	351	2 %
15	Swedbank	281	2 %
16	UBS	245	2 %
17	Sparebank 1 SMN	141	1 %
18	Handelsbanken Capital Markets	126	1 %
19	Credit Suisse	126	1 %
20	Bank of America Merrill Lynch	92	1 %
21	Commerzbank AG	91	1 %
22	Fearnley Fonds A/S	82	1 %
23	Berenberg Bank	71	0 %
24	Kempen and Co NV	62	0 %
25	Cowen & Co	37	0 %

The equity league table is a ranking of underwriters by proceeds for all equity transactions, i.e. transactions in the public market such as IPOs and not mergers and acquisitions conducted by private companies. The underwriters are ranked by the total amount that they have issued, hence the top firms have conducted the most and/or largest transactions and the ranking corresponds to market share.

Table A5. T-tests for the absolute value of the Kothari model

AV Kothari	Obs	Mean	Std. Err.	Std.Dev.	[95% Conf.	Interval]
Private firm	2,656	.0925507	.0020114	.1036601	.0886066	.0964947
IPO firm	313	.2149747	.0108585	.1921061	.1936096	.2363398
Combined	**2,969**	**.1054569**	**.0022406**	**.1220887**	**.1010636**	**.1098503**
Difference		-.122424	.0069427		-.1360369	-.1088111
AV Kothari	Obs	Mean	Std. Err.	Std.Dev.	[95% Conf.	Interval]
Non-financial	204	.2081712	.0132462	.1891929	.1820535	.2342889
Financial	109	.2277078	.0189357	.1976949	.1901739	.2652417
Combined	**313**	**.2149747**	**.0108585**	**.1921061**	**.1936096**	**.2363398**
Difference		-.0195366	.0228019		-.064402	.0253288
AV Kothari	Obs	Mean	Std. Err.	Std.Dev.	[95% Conf.	Interval]
Non-UW10	230	.2286451	.0128739	.1952421	.2032787	.2540115
UW10	83	.1770927	.0196308	.1788456	.1380407	.2161448
Combined	**313**	**.2149747**	**.0108585**	**.1921061**	**.1936096**	**.2363398**
Difference		.0515524	.0244641		.0034163	.0996884
AV Kothari	Obs	Mean	Std. Err.	Std.Dev.	[95% Conf.	Interval]
Non-Big4	82	.1892247	.0198146	.1794291	.1497998	.2286496
Big4	231	.2241153	.0128938	.1959684	.1987103	.2495204
Combined	**313**	**.2149747**	**.0108585**	**.1921061**	**.1936096**	**.2363398**
Difference		-.0348906	.0246549		-.0834022	.0136209
AV Kothari	Obs	Mean	Std. Err.	Std.Dev.	[95% Conf.	Interval]
Non-legal	183	.2410252	.0149164	.201786	.2115938	.2704566
Legal	130	.1783035	.0150623	.1717371	.1485023	.2081047
Combined	**313**	**.2149747**	**.0108585**	**.1921061**	**.1936096**	**.2363398**
Difference		.0627217	.0217821		.0198628	.1055806

The table shows t-tests of earnings management estimated by the absolute value of the Kothari model. The groups are constructed based on whether the firm is an IPO firm or private, if the IPO is backed by a Financial sponsor or not, whether a top 10 underwriter is engaged in the IPO, if the IPO company has a big 4 auditor and if a legal advisor is stated in the prospectus.

Table A6. Window-dressing by IPO firms controlled for year fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
IPOfirm	0.130***	0.0859***	0.131***	0.0748***
	(0.0108)	(0.0121)	(0.00906)	(0.0132)
logAssets	-0.00223	-0.00249	-0.00236	-0.00157
	(0.00216)	(0.00317)	(0.00244)	(0.00308)
ROA_{t-1}	0.00847**	-0.00269	0.00713**	-0.00352*
	(0.00291)	(0.00259)	(0.00206)	(0.00150)
Constant	0.107***	0.0335	0.107***	0.0270
	(0.0160)	(0.0245)	(0.0181)	(0.0239)
Observations	2,913	2,913	2,912	2,912
R-squared	0.100	0.024	0.103	0.019
Years	6	6	6	6

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

The table demonstrates the extent of earnings management for IPO firms. IPOfirm is a dummy variable that equals 1 if the firm is an IPO firm and 0 otherwise. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The results are controlled for year fixed effects.

Table A7. Window-dressing by IPO firms controlled for country fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
IPOfirm	0.120***	0.0870**	0.119***	0.0767**
	(0.00896)	(0.0212)	(0.00853)	(0.0204)
logAssets	-0.00225	-0.00242*	-0.00238	-0.00152
	(0.00175)	(0.000885)	(0.00160)	(0.00100)
ROA_{t-1}	0.00840*	-0.00287	0.00713**	-0.00375
	(0.00284)	(0.00305)	(0.00213)	(0.00304)
Constant	0.108***	0.0330**	0.109***	0.0265**
	(0.0141)	(0.00653)	(0.0128)	(0.00710)
Observations	2,913	2,913	2,912	2,912
R-squared	0.091	0.026	0.091	0.021
Number of Countries	4	4	4	4

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

The table demonstrates the extent of earnings management for IPO firms. IPOfirm is a dummy variable that equals 1 if the firm is an IPO firm and 0 otherwise. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The results are controlled for country fixed effects.

Table A8. Window-dressing by IPO firms controlled for industry fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
IPOfirm	0.122**	0.0956**	0.121***	0.0884**
	(0.0330)	(0.0265)	(0.0322)	(0.0267)
logAssets	-0.00227	-0.00274	-0.00247	-0.00193
	(0.00301)	(0.00306)	(0.00279)	(0.00298)
ROA_{t-1}	0.00809**	-0.00298	0.00682**	-0.00377*
	(0.00325)	(0.00253)	(0.00208)	(0.00193)
Constant	0.108***	0.0348	0.110***	0.0285
	(0.0240)	(0.0246)	(0.0223)	(0.0236)
Observations	2,861	2,861	2,860	2,860
R-squared	0.087	0.029	0.087	0.026
Industries	7	7	7	7

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

The table demonstrates the extent of earnings management for IPO firms. IPOfirm is a dummy variable that equals 1 if the firm is an IPO firm and 0 otherwise. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The results are controlled for industry fixed effects.

Table A9. Univariate analysis of legal advisors and big 4 auditors

Variables	Absolute value Jones	Absolute value Kothari Jones	Absolute value Jones	Absolute value Kothari Jones
Legal	-0.0681***	-0.0627***		
	(0.0197)	(0.0212)		
Big4			0.0339	0.0349
			(0.0221)	(0.0236)
Constant	0.249***	0.241***	0.196***	0.189***
	(0.0139)	(0.0149)	(0.0185)	(0.0198)
Observations	379	313	379	313
R-squared	0.029	0.026	0.006	0.006

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

The table shows the univariate analysis of the impact on earnings management from legal advisors and big 4 auditors. Legal is a dummy variable equal to 1 if there is a legal advisor stated in the listing document. Big4 is a dummy variable that is equal to 1 if the company has an auditor that is among the big 4.

Table A10. Impact on window-dressing by third-parties and monitoring initiatives controlled for year fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0179	0.0207	0.0201	0.0273
	(0.0370)	(0.0540)	(0.0367)	(0.0518)
UW10	-0.00719	0.0152	-0.00472	0.0334
	(0.0178)	(0.0355)	(0.0169)	(0.0402)
Legal	-0.0600*	-0.0649*	-0.0618**	-0.0686*
	(0.0248)	(0.0307)	(0.0230)	(0.0277)
Big4	0.0661	0.0604	0.0711*	0.0591
	(0.0333)	(0.0454)	(0.0315)	(0.0452)
Lockup	-0.00289	0.0622*	-0.00673	0.0553
	(0.0170)	(0.0270)	(0.0194)	(0.0352)
IFRS	-0.0307	-0.0112	-0.0262	-0.0248
	(0.0276)	(0.0440)	(0.0294)	(0.0376)
logAssets	-0.00591	-0.00898	-0.00595	-0.00513
	(0.00655)	(0.0133)	(0.00598)	(0.0146)
ROA_{t-1}	0.0553**	-0.0437**	0.0398*	-0.0476***
	(0.0141)	(0.0118)	(0.0168)	(0.0116)
Constant	0.238***	0.131	0.236***	0.101
	(0.0470)	(0.105)	(0.0447)	(0.115)
Observations	314	314	313	313
R-squared	0.086	0.038	0.072	0.041
Years	6	6	6	6

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

The table demonstrates the impact of third-parties on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO

company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The regressions are controlled for year fixed effects.

Table A11. Impact on window-dressing by third-parties and monitoring initiatives controlled for country fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0334	0.0389	0.0340	0.0456
	(0.0331)	(0.0316)	(0.0333)	(0.0286)
UW10	-0.0180	-0.0144	-0.0153	0.00677
	(0.0290)	(0.0549)	(0.0286)	(0.0523)
Legal	-0.0560*	-0.0540	-0.0577**	-0.0596
	(0.0211)	(0.0521)	(0.0166)	(0.0483)
Big4	0.0713	0.0701*	0.0756*	0.0680*
	(0.0317)	(0.0256)	(0.0270)	(0.0278)
Lockup	-0.00909	0.0431*	-0.0132	0.0372*
	(0.0102)	(0.0138)	(0.00925)	(0.0137)
IFRS	-0.0389**	-0.0330	-0.0323**	-0.0445
	(0.00991)	(0.0219)	(0.00923)	(0.0192)
logAssets	-0.00467	-0.00717	-0.00475	-0.00333
	(0.00430)	(0.00415)	(0.00480)	(0.00415)
ROA_{t-1}	0.0634**	-0.0363	0.0475**	-0.0402
	(0.0121)	(0.0465)	(0.0105)	(0.0404)
Constant	0.227**	0.129*	0.225**	0.0977*
	(0.0606)	(0.0464)	(0.0621)	(0.0375)
Observations	314	314	313	313
R-squared	0.106	0.037	0.087	0.041
Countries	4	4	4	4

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

The table demonstrates the impact of third-parties on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets The regressions are controlled for country fixed effects.

Table A12. Impact on window-dressing by third-parties and monitoring initiatives controlled for industry fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.00611	0.0111	0.00928	0.0162
	(0.0134)	(0.0172)	(0.0130)	(0.0177)
UW10	0.00323	0.0294	0.00420	0.0449
	(0.0296)	(0.0325)	(0.0244)	(0.0336)
Legal	-0.0616*	-0.0699	-0.0596**	-0.0684
	(0.0274)	(0.0475)	(0.0219)	(0.0432)
Big4	0.0501**	0.0428	0.0527**	0.0418
	(0.0191)	(0.0381)	(0.0202)	(0.0320)
Lockup	-0.00848	0.0520	-0.0116	0.0474
	(0.0302)	(0.0367)	(0.0279)	(0.0377)
IFRS	-0.0150	0.00800	-0.01000	-0.00355
	(0.0436)	(0.0566)	(0.0467)	(0.0527)
logAssets	-0.00710	-0.00947	-0.00750	-0.00654
	(0.0103)	(0.00840)	(0.01000)	(0.00886)
ROA_{t-1}	0.0523**	-0.0415	0.0363**	-0.0470
	(0.0165)	(0.0386)	(0.0116)	(0.0342)
Constant	0.254**	0.140*	0.254**	0.114
	(0.0730)	(0.0663)	(0.0760)	(0.0668)
Observations	314	314	313	313
R-squared	0.067	0.029	0.050	0.031
Industries	7	7	7	7

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

The table demonstrates the impact of third-parties on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The regressions are controlled for industry fixed effects.

Table A13. Impact on window-dressing by third-parties and monitoring initiatives including interactive variables for the Jones and Kothari models

Variables	Jones	Kothari	Condensed model Jones	Condensed model Kothari
Financial	0.103	0.115	0.0497	0.0581
	(0.0761)	(0.0724)	(0.0668)	(0.0649)
UW10	-0.0739	-0.0559	-0.0305	-0.0101
	(0.0519)	(0.0533)	(0.0492)	(0.0502)
Legal	-0.0213	-0.0206	-0.0683	-0.0715
	(0.0506)	(0.0524)	(0.0443)	(0.0452)
Big4	0.0591	0.0576	0.0542	0.0541
	(0.0389)	(0.0386)	(0.0391)	(0.0387)
Lockup	0.0834**	0.0781**		
	(0.0385)	(0.0381)		
IFRS	0.0140	-0.000141	0.00474	-0.00708
	(0.0454)	(0.0443)	(0.0455)	(0.0446)
FIFRS	-0.0863	-0.0825	-0.103	-0.102
	(0.0867)	(0.0844)	(0.0810)	(0.0795)
UF10	0.292***	0.296***	0.168**	0.158**
	(0.0903)	(0.0908)	(0.0682)	(0.0682)
FLock	-0.0799	-0.0836		
	(0.0734)	(0.0717)		
FL	-0.164*	-0.178**		
	(0.0894)	(0.0899)		
logAssets	-0.0112	-0.00760		
	(0.0158)	(0.0159)		
ROA_{t-1}	-0.0364	-0.0399	-0.0397	-0.0439
	(0.0405)	(0.0361)	(0.0436)	(0.0392)
Constant	0.120	0.0902	0.0892*	0.0829*
	(0.122)	(0.121)	(0.0453)	(0.0432)
Observations	314	313	314	313
R-squared	0.063	0.068	0.040	0.045

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

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management measured by the Jones and Kothari model for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. FIFRS, UF10, FLock and FL are interactive variables between Financial and IFRS, UW10, Lockup and Legal respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets.

Table A14. Impact on window-dressing by third-parties and investor protection including interactive variables controlled for year fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0832	0.101	0.0784	0.111
	(0.0767)	(0.131)	(0.0786)	(0.127)
UW10	-0.0575	-0.0763	-0.0518	-0.0595
	(0.0414)	(0.0500)	(0.0342)	(0.0547)
Legal	-0.0355	-0.0232	-0.0449	-0.0219
	(0.0305)	(0.0241)	(0.0291)	(0.0273)
Big4	0.0649	0.0599	0.0701*	0.0586
	(0.0326)	(0.0459)	(0.0305)	(0.0458)
Lockup	0.000471	0.0847	-0.00638	0.0788
	(0.0240)	(0.0588)	(0.0268)	(0.0641)
IFRS	0.00226	0.0148	0.00830	0.000563
	(0.0287)	(0.0565)	(0.0282)	(0.0503)
FIFRS	-0.112**	-0.0914	-0.120**	-0.0875
	(0.0429)	(0.0731)	(0.0422)	(0.0739)
UF10	0.167	0.294*	0.149	0.299**
	(0.0838)	(0.125)	(0.0854)	(0.115)
FLock	-0.00671	-0.0820	0.00256	-0.0852
	(0.0553)	(0.111)	(0.0526)	(0.111)
FL	-0.0925	-0.153	-0.0630	-0.168
	(0.0772)	(0.104)	(0.0762)	(0.120)
logAssets	-0.00618	-0.0115	-0.00583	-0.00791
	(0.00685)	(0.0113)	(0.00646)	(0.0126)
ROA_{t-1}	0.0566***	-0.0398**	0.0400**	-0.0430**
	(0.0117)	(0.0132)	(0.0152)	(0.0121)
Constant	0.217***	0.123	0.214***	0.0940
	(0.0436)	(0.114)	(0.0407)	(0.123)
Observations	314	314	313	313
R-squared	0.112	0.064	0.099	0.068
Years	6	6	6	6

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

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. FIFRS, UF10, FLock and FL are interactive variables between Financial and IFRS, UW10, Lockup and Legal respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The regressions are controlled for year fixed effects.

Table A15. Impact on window-dressing by third-parties and monitoring initiatives including interactive variables controlled for country fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0658	0.0886	0.0604	0.100
	(0.0446)	(0.0689)	(0.0445)	(0.0646)
UW10	-0.0847*	-0.115**	-0.0790*	-0.0938*
	(0.0282)	(0.0317)	(0.0253)	(0.0299)
Legal	-0.0317	-0.0116	-0.0402*	-0.0117
	(0.0214)	(0.0285)	(0.0163)	(0.0260)
Big4	0.0714	0.0711*	0.0762*	0.0687*
	(0.0306)	(0.0254)	(0.0254)	(0.0276)
Lockup	-0.0121	0.0586**	-0.0193*	0.0541*
	(0.00735)	(0.0161)	(0.00712)	(0.0184)
IFRS	-0.0150	-0.0143	-0.00700	-0.0264
	(0.0234)	(0.0314)	(0.0207)	(0.0297)
FIFRS	-0.0908	-0.0677	-0.0995	-0.0618
	(0.0839)	(0.0837)	(0.0786)	(0.0799)
UF10	0.206**	0.320*	0.188**	0.322*
	(0.0426)	(0.127)	(0.0359)	(0.112)
FLock	0.00851	-0.0615	0.0184	-0.0659
	(0.0144)	(0.0329)	(0.0138)	(0.0304)
FL	-0.0869*	-0.152*	-0.0590	-0.170**
	(0.0317)	(0.0540)	(0.0276)	(0.0474)
logAssets	-0.00469	-0.00932**	-0.00436	-0.00581
	(0.00399)	(0.00212)	(0.00450)	(0.00249)
ROA_{t-1}	0.0652**	-0.0312	0.0482**	-0.0344
	(0.0129)	(0.0485)	(0.0108)	(0.0416)
Constant	0.213**	0.124*	0.210**	0.0938
	(0.0618)	(0.0485)	(0.0625)	(0.0410)
Observations	314	314	313	313
R-squared	0.135	0.065	0.116	0.069
Number of Countries	4	4	4	4

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. FIFRS, UF10, FLock and FL are interactive variables between Financial and IFRS, UW10, Lockup and Legal respectively. ROA_{t-1} corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The regressions are controlled for country fixed effects.

Table A16. Impact on window-dressing by third-parties and monitoring initiatives including interactive variables controlled for industry fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0582	0.0682	0.0560	0.0820
	(0.0714)	(0.0555)	(0.0559)	(0.0636)
UW10	-0.0412	-0.0525	-0.0351	-0.0365
	(0.0305)	(0.0365)	(0.0284)	(0.0306)
Legal	-0.0421	-0.0275	-0.0487*	-0.0249
	(0.0264)	(0.0474)	(0.0225)	(0.0371)
Big4	0.0515**	0.0457	0.0542**	0.0447
	(0.0160)	(0.0356)	(0.0176)	(0.0297)
Lockup	-0.00961	0.0662*	-0.0150	0.0637
	(0.0338)	(0.0321)	(0.0341)	(0.0360)
IFRS	0.0111	0.0193	0.0184	0.0107
	(0.0488)	(0.0254)	(0.0479)	(0.0199)
FIFRS	-0.106	-0.0585	-0.116*	-0.0661
	(0.0700)	(0.109)	(0.0588)	(0.119)
UF10	0.139*	0.254**	0.117	0.256**
	(0.0612)	(0.0954)	(0.0638)	(0.0782)
FLock	0.0131	-0.0530	0.0214	-0.0582
	(0.0557)	(0.0845)	(0.0473)	(0.0767)
FL	-0.0720*	-0.154	-0.0401	-0.157
	(0.0361)	(0.105)	(0.0352)	(0.0894)
logAssets	-0.00711	-0.0115	-0.00712	-0.00872
	(0.00976)	(0.00649)	(0.00942)	(0.00708)
ROA$_{t-1}$	0.0528**	-0.0371	0.0354**	-0.0425
	(0.0161)	(0.0420)	(0.0113)	(0.0374)
Constant	0.236**	0.137**	0.235**	0.109*
	(0.0831)	(0.0516)	(0.0840)	(0.0489)
Observations	314	314	313	313
R-squared	0.088	0.047	0.072	0.050
Industries	7	7	7	7

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

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS and Lockup are dummy variables that take the value of 1 if the IPO company applies IFRS and if there was a lock-up agreement in connection to the IPO respectively. FIFRS, UF10, FLock and FL are interactive variables between Financial and IFRS, UW10, Lockup and Legal respectively. ROA$_{t-1}$ corresponds to return on assets during the previous year and logAssets is the logarithm of lagged assets. The regressions are controlled for industry fixed effects.

Table A17. Condensed model of impact on window-dressing by third-parties and monitoring initiatives for the model with the highest goodness of fit of the model controlled for year fixed

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0698	0.0860	0.0874	0.0905
	(0.0552)	(0.0921)	(0.0614)	(0.110)
UW10	-0.0288	-0.0626**	-0.0419	-0.0156
	(0.0350)	(0.0234)	(0.0292)	(0.0412)
Legal	-0.0664**	-0.0428	-0.0645**	-0.0689*
	(0.0204)	(0.0271)	(0.0225)	(0.0315)
Big4	0.0707**	0.0693**	0.0694*	0.0593
	(0.0261)	(0.0246)	(0.0319)	(0.0434)
IFRS	0.00516	0.00844	0.0182	0.00218
	(0.0237)	(0.0471)	(0.0293)	(0.0542)
FIFRS	-0.137**	-0.141*	-0.150**	-0.136
	(0.0490)	(0.0589)	(0.0465)	(0.0788)
UF10	0.101	0.164*	0.105	0.160*
	(0.0680)	(0.0788)	(0.0700)	(0.0777)
ROA_{t-1}	0.0442***	-0.0268	0.0207	-0.0521
	(0.0108)	(0.0502)	(0.0168)	(0.0364)
Constant	0.177***	0.0576**	0.172***	0.0712*
	(0.0224)	(0.0219)	(0.0268)	(0.0343)
Observations	374	374	308	308
R-squared	0.097	0.043	0.085	0.054
Years	6	6	6	6

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

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS is a dummy variable that take the value of 1 if the IPO company applies IFRS. FIFRS and UF10 are interactive variables between Financial and IFRS and UW10 respectively. ROA_{t-1} corresponds to return on assets during the previous year. The regressions are controlled for year fixed effects.

Table A18. Condensed model of impact on window-dressing by third-parties and monitoring initiatives for the model with the highest goodness of fit of the model controlled for country fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0624	0.0783	0.0787	0.0892**
	(0.0398)	(0.0373)	(0.0500)	(0.0278)
UW10	-0.0574	-0.0791**	-0.0718*	-0.0679
	(0.0275)	(0.0240)	(0.0267)	(0.0337)
Legal	-0.0617*	-0.0410	-0.0586**	-0.0556
	(0.0214)	(0.0269)	(0.0152)	(0.0386)
Big4	0.0752*	0.0729**	0.0755*	0.0728**
	(0.0316)	(0.0149)	(0.0270)	(0.0222)
IFRS	-0.0149	-0.00695	0.00421	-0.0278
	(0.0218)	(0.0284)	(0.0168)	(0.0177)
FIFRS	-0.116	-0.117	-0.135	-0.119
	(0.0779)	(0.0831)	(0.0720)	(0.0652)
UF10	0.127	0.151	0.147*	0.197*
	(0.0731)	(0.0719)	(0.0543)	(0.0709)
ROA_{t-1}	0.0488**	-0.0235	0.0243	-0.0513
	(0.00939)	(0.0337)	(0.0112)	(0.0270)
Constant	0.186***	0.0672*	0.175***	0.0812***
	(0.0310)	(0.0238)	(0.0270)	(0.00629)
Observations	374	374	308	308
R-squared	0.112	0.040	0.095	0.065
Countries	4	4	4	4

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

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS is a dummy variable that take the value of 1 if the IPO company applies IFRS. FIFRS and UF10 are interactive variables between Financial and IFRS and UW10 respectively. ROA_{t-1} corresponds to return on assets during the previous year. The regressions are controlled for country fixed effects.

Table A19. Condensed model of impact on window-dressing by third-parties and monitoring initiatives for the model with the highest goodness of fit of the model controlled for industry fixed effects

Variables	Absolute value Jones	Jones	Absolute value Kothari	Kothari
Financial	0.0608	0.0605	0.0774	0.0715
	(0.0672)	(0.0775)	(0.0479)	(0.0778)
UW10	-0.0227	-0.0503	-0.0306	0.00163
	(0.0295)	(0.0422)	(0.0238)	(0.0342)
Legal	-0.0652**	-0.0450	-0.0610***	-0.0698
	(0.0201)	(0.0308)	(0.0154)	(0.0382)
Big4	0.0564**	0.0573*	0.0530**	0.0468
	(0.0198)	(0.0254)	(0.0184)	(0.0280)
IFRS	0.0143	0.0228	0.0271	0.0147
	(0.0494)	(0.0365)	(0.0466)	(0.0203)
FIFRS	-0.133	-0.113	-0.145*	-0.115
	(0.0863)	(0.103)	(0.0688)	(0.0990)
UF10	0.0960*	0.136**	0.0965*	0.131**
	(0.0444)	(0.0432)	(0.0432)	(0.0438)
ROA_{t-1}	0.0408***	-0.0263	0.0165	-0.0565
	(0.00852)	(0.0330)	(0.0108)	(0.0675)
Constant	0.184***	0.0610**	0.178***	0.0744*
	(0.0411)	(0.0223)	(0.0317)	(0.0377)
Observations	374	374	308	308
R-squared	0.074	0.026	0.059	0.041
Industries	7	7	7	7

Robust standard errors in parentheses

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

The table demonstrates the impact of third-parties and interactive variables on the extent of earnings management for IPO firms. Financial, UW10, Legal and Big4 are dummy variables that take the value of 1 if the relevant third-party was involved in the IPO and 0 otherwise. IFRS is a dummy variable that take the value of 1 if the IPO company applies IFRS. FIFRS and UF10 are interactive variables between Financial and IFRS and UW10 respectively. ROA_{t-1} corresponds to return on assets during the previous year. The regressions are controlled for industry fixed effects.

A20. Heteroscedasticity tests for the condensed model

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity Ho: Constant variance			
Fitted values of absolute values Jones model	Fitted values of Jones model	Fitted values of absolute values Kothari model	Fitted values of Kothari model
chi2(1) = 7.31	chi2(1) = 0.00	chi2(1) = 7.87	chi2(1) = 0.01
Prob > chi2 = 0.0069	Prob > chi2 = 0.9995	Prob > chi2 = 0.0050	Prob > chi2 = 0.9434

The table shows the Breusch-Pagan test for heteroscedasticity applied to the condensed model. The result indicates that we can reject the null hypothesis of homoscedasticity for the absolute values of the Jones and Kothari models, although not for the signed measure. As the regressions in the study are run with robust standard errors, this is taken care of for the regression models.

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