The effects of Chief Financial Officers' stock holdings and options on earnings management

A quantitative study examining the association between executives' equity incentives and earnings management in Swedish listed firms

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Abstract

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Title: The effects of Chief Financial Officers' stock holdings and options on earnings management – a quantitative study examining the association between executives' equity incentives and earnings management in Swedish listed firms.

Background and purpose: In recent years, the literature for executives' impact on earnings management has been widened to CFOs since researchers have found that they wield a significant influence on the outcome of the financial reports. Concurrently, some studies imply that CFOs use their influence opportunistically by altering the financial reports for their private gain. Consequently, an association between the amount of equity incentives that the CFO owns in the firm and the amount of earnings management that is exercised has been distinguished. The purpose of our thesis is to examine if there is a similar association in Swedish listed firms from year 2005 to 2009.

Methodology: To test our hypothesis, a quantitative study has been conducted where we use a multivariate regression. We define equity incentives as the number of stock holdings and stock options that the CFO owns in the employing firm. By cause of CFOs' tendency to manage earnings through accounting decisions, this study will solely examine the effects on accruals management and ignore other forms of earnings management. We measure these effects by estimating the sum of discretionary accruals using the modified Jones model as used by Dechow et al. (1995). We also develop a robustness test using the model as used by Kothari et al. (2005) to increase the statistical resilience of our tests.

Results and Conclusions: The results from our sample of 130 Swedish listed firms and 492 observations did not yield a significant association between CFOs equity incentives and earnings management, meaning that we reject our hypothesis. This is contradictory to most of the findings presented in our literature review. However, the research is not unanimous whether there is a significant relationship or not, considering the respectable amount of studies with conflicting findings. We encourage other scholars to conduct similar studies, primarily with larger sample sizes, to further examine the impact that CFOs' stock holdings and options has on the degree of earnings management in Swedish listed firms.

Keywords: CFO, Equity Incentives, Stock Holdings, Stock Options, Earnings Management

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1 Introduction

Discussions on earnings management that originate from the private gain of firm's executives has grown over the last decades, where particularly the Chief Executive Officer (CEO) has been acknowledged as a key factor that affects the outcome of financial reports (Healy, 1985; Watts and Zimmerman, 1986; Bergstresser and Philippon, 2006). However, after the passage of the Sarbanes-Oxley Act in 2002[1], the literature has been extended to Chief Financial Officers (CFO) (Barua, Davidson, Rama and Thiruvadi, 2010) since it is now clear that they also have a considerable ability to manage earnings (Graham and Harvey, 2001; Geiger and North, 2006; Dejong and Ling, 2013). In fact, several researchers argue that CFOs does not only have an impact on accounting decisions, but the most severe one of all executives (Geiger and North, 2006; Chava and Purnanandam, 2010; Jiang, Petroni, and Wang, 2010).

The underlying causes of earnings management vary greatly, where some claim that executives manage earnings to beat analyst's earnings forecasts (Cheng and Warfield, 2005), report income smoothed results (Tucker and Zarowin, 2005) or simply because their personal characteristics drive them to (Barua et al., 2010; Ge, Matsumoto and Zhang, 2011). Earnings management is also conducted because of factor beyond the boundaries of executives. For example, shareholders prefer firms that manage earnings because they can distinguish healthy from poorly run firms based on the firm's ability to skew its performance. However, the literature shows that executives are often proven to act as agents, meaning that they will influence the outcome of the financial reports opportunistically for their own individual gain. Particularly equity incentives, referred to as stock holdings and options that the executive holds in the firm, has proven to be a critical incentive that prompts this behaviour. For instance, Bergstresser and Philippon (2006) show that CEOs with a considerable amount of equity incentives result in more earnings management in the firm. Furthermore, several researchers show that equity incentives cause any executive, CFO or not, to engage in earnings management (Bolton, Scheinkman and Xiong, 2006; Benmelech, Kandel and Veronesi, 2010).

The fact that CFOs does wield significant influence on the financial reports, while the value of the stock holdings and options depend on the reported performance of the firm, makes it intriguing to review how their equity incentives affect firms' degree of earnings management (Francis, Huang, Rajgopal and Zang, 2008). Unsurprisingly, several researchers conclude that equity incentives do, in fact, cause the CFO to boost individual benefits by managing earnings (Cheng and Warfield, 2005; Burns and Kedia, 2006; Bolton et al., 2006; Benmelech et al., 2010; Hossain and Monroe, 2015).

However, it is important to mention that there are also a number of contradicting findings about the association between CFOs' equity incentives and earnings management. Other than the fact that some researchers have shown that other underlying motives are more critical, there are certain findings that completely contravene the impact of equity incentives on executive's

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[1] The Sarbanes-Oxley Act of 2002 was enacted in the US to protect investors by improving the accuracy and reliability of the financial reports and other firm disclosures (Abrams and Yelling, 2003).

severity of managing earnings. For instance, Wang and Wang (2007), as well as Luo and Chen (2010), demonstrate that there is no significant association between these variables. Since the academic literature on the subject is so diverse, it is difficult to predict what result a similar study would generate on other markets, which is the onset to the purpose of our study.

Therefore, the purpose of this study is to examine if equity incentives affect CFO's tendency to exercise earnings management, specifically in Swedish listed firms from year 2005 to 2009. As already mentioned, equity incentives refer to stock holdings, the amount of company shares, and stock options, the amount of rights to buy or sell shares at a specific price. By doing so, the thesis strives to evaluate if a CFO with a larger stake in the employing company are more prone to take accounting actions that skew results in a favourable direction for their individual gain, ultimately increasing earnings management for the firm as a whole.

The study is conducted by developing a regression model, using a sample of 130 firms and 492 observations. We use the absolute value of discretionary accruals through the modified Jones model, as used by Dechow, Sloan and Sweeney (1995), to estimate the degree of earnings management. This is fitting with our purpose considering that CFOs exercise their impact through accruals management rather than real activities management. The results fail to show a significant correlation between the ownership of the CFO and the amount of earnings management, meaning that our hypothesis is rejected. We have also conducted a robustness test, by estimating the absolute value of discretionary accruals as used in Kothari, Leone and Wasley (2005), that supports these findings.

The thesis's contribution lies in extending the research on earnings management by examining the behaviour of CFOs in Swedish companies. As a result of the large impact that a CEO has on the level of earnings management, there has been a deficit of research on CFOs corresponding impact (Hossain and Monroe, 2015). More information about CFOs behaviour and their tendency to conduct accruals management actions is also encouraged since some scholars have suggested that their actions work together with the actions of CEOs (Jiang et al., 2010). Earnings management is also, by itself, a complicated mix of measures and regularly toned down since it might be regarded as unethical to deliberately alter a company's financial reports for individual benefits (Walker, 2013). That is why it is so important that the research is continuously extended, so that it is able to keep up with the more complex earnings management techniques that permeate the businesses of today. When examining these two features together – the complexity of earnings management as a subject coupled with CFOs relatively unexplored influence on earnings quality – we not only expect this to bring the academic research forward, but also to be of benefit to practitioners and regulators by improving their understanding of earnings management's capabilities.

Lastly, we want to point out that the majority of the existing research is conducted on US firms, which have been greatly influenced by corporate scandals such as Enron, Worldcom, Qwest, etc. and the introduction of the Sarbanes-Oxley Act of 2002. In the same timeframe, Swedish markets have also endured financial crisis's, such as the one in 2008-2009, and major accounting-related bankruptcies e.g. the Swedish tech-company Prosolvia AB. This is not, by any means, a

comparative study between Swedish and US firms, but we do think that it contributes to the collective research by reviewing effects from other regions.

The remaining thesis will be structured as follows: Chapter 2 contains a thorough literature review of articles related to our subject. Chapter 3 presents the methodology that is used to conduct our testing. Chapter 4 displays the sample selection and the descriptive statistics of the data that we have collected. Chapter 5 presents the results of our regression analysis, hypothesis testing and robustness test. Finally, chapter 6 provides a summary and the main conclusions of our study.

2 Literature Review

2.1 Principles of Earnings Management

Earnings management does not have a single universally accepted definition. However, research show that it is primarily used for two types of benefits: individual gain and altering firm performance. Healy and Wahlen (1999) defines it as managers using judgment when establishing financial reports and structuring transactions with the intention of misleading stakeholders about the company's underlying economic value and contractual outcomes. There is also the definition of Schipper (1989), stating that earnings management are measures to deliberately manipulate the financial reports for individual gain. The latter definition is the most relevant one for the purpose of this study.

The academic discussions about earnings management originated during the 1960's when Beaver (1968) found that it was used to reach the performance goal thresholds that had been stated prior to the fiscal year. During the 1980's, Healy (1985) disclosed earnings management as a consequence of bonus schemes and performance plans. The latter means that managers are awarded with cash or stock depending on firm performance, regularly in spans of about 3-5 years. In other words, these two types of compensations are highly dependent on accounting earnings, giving managers incentives to select accounting methods increasing the value of their pay checks (Watts and Zimmerman, 1978).

There are principally two types of earnings management, real activities management and accruals management. The former is applied through policy decisions, e.g. decreasing costs of research and development (Baber, Fairfield and Haggard, 1991; Dechow and Sloan, 1991; Bushee, 1998), minimizing marketing costs (Cohen, Mashruwala and Zach, 2010), selling fixed assets (Herrmann, Inoue and Thomas, 2003) and/or through sales price reductions (Jackson and Wilcox, 2000). Accruals management, however, is used entirely through the accruals of reported earnings (Zang, 2012). Since the earnings management literature assumes that free cash flows are not affected by accruals choices, the following formula explains how accruals can be detected (Walker, 2013):

$$Operating\ Income = Free\ Cash\ Flow + Accruals$$

Walker (2013) emphasizes that multiple forms of earnings management often co-exist within companies and that all types of earnings management are not necessarily bad. The reason for this is that the academic literature separates non-discretionary (normal) and discretionary (abnormal) accruals. Non-discretionary is, according to Geiger and North (2006), nothing more than expected types of accruals based on e.g. revenue growth, industry and the size of the company. Discretionary accruals on the other hand, are an unexpected component that companies present in its' financial reports, which is the residual between the actual levels reported and the levels that are expected of the company to be reported. The discretionary accruals are subjected to more manipulation and is seen as a more unfair influence on the financial reports.

2.2 Methods and Consequences of Earnings Management

Earnings management tend to be exercised because it makes the firm appear more appealing to outside investors. For example, by continuously reporting income smoothed results the future earnings are easier to predict for investors (Barth, Elliott and Finn, 1999; Tucker and Zarowin, 2005). Furthermore, firms apply Big Bath Accounting to manage earnings, meaning that companies deliberately increase costs and reduce earnings during unprofitable fiscal years (Henry and Schmitt, 2001). This has been used by firms because a single, particularly bad year is often better than facing these costs incrementally during more fruitful times (Hope and Wang, 2018).

Moreover, Burgstahler and Dichev (1997) find that firms on the verge of reaching the zero-earnings benchmark are also known for managing their earnings to avoid reporting a loss. Their study presents that in 30-44 % of the cases where a firm reached one of these thresholds by a close margin, it was made possible because of executives' abilities to manage earnings accordingly. Graham, Harvey and Rajgopal (2005) explains that it is of severe importance that firms hit their earnings thresholds. Shareholders assume that healthy firms always have the ability to "find the cash" to reach these benchmarks and, if not, that may be a legitimate indication of hidden problems in the firm.

Although Walker (2013) claim that some forms earnings management can be of benefit for the market, such as investors preference to income smoothed results, it does cause complications when firms' earnings are too far stretched. After all, referring to the definition of earnings management, the purpose is mainly to mislead shareholders from the actual economic events (Healy and Wahlen, 1999). Earnings management provides opportunities for firms to appear more profitable than they are as well as hiding serious problems from outside investors (Leuz, Nanda and Wysocki., 2003). Sloan (1996) find that earnings management can be so powerful that it can inflate the share price without improving the true underlying performance by any means. When these techniques are unduly entrenched into accounting decisions and financial reports, the markets are put up to severe risks that may result in devastating busts, such as the aftermath of Enron, due to firms being severely overvalued for prolonged periods of time (Kim, Li and Zhang, 2011).

2.3 Executives' Influences on Earnings Management

Referring to agency theory, a firm can be described as a nexus of contracts where contracts between the firm and its management executives is one of the more important ones (Walker 2013). Given that executives that run the firm are agents, the agency theory states that they will take advantage of the existing asymmetrical information by negotiating these contracts opportunistically (Watts & Zimmerman, 1986). This results in conflicts between management executives and shareholders, since the risk of moral hazard and adverse selection that comes with a lack of transparency is off-putting for outside investors. To neutralize these conflicts of interest and reduce agency costs, compensation through equity incentives is a measure to align the interests of executives and shareholders (Jensen & Meckling, 1976). Executives often have a great deal of information that is not accessible by the average shareholder, meaning that publicizing this information is important to reduce asymmetrical information (Walker, 2013). However, Kim et al. (2011) pinpoint that the solutions to yesterday's problem may have sown the seeds of today's problems. They argue that managers still have room for discretion in the information that they communicate, which inevitably leads to a continuous usage of earnings management for their private gain (Walker, 2013).

Historically, the basis of the agency theory has mainly been applied to CEOs, which is reasonable considering that they are often carefully, rather than randomly, selected by firms depending on their current needs (Rosen, 1990). For instance, if a firm is performing poorly a more reputed CEO will be requested by the firm. Francis et al. (2008) find that CEOs appointed under such circumstances are associated with lower levels of earnings quality, meaning that the degree of earnings management is greater. Also, CEOs are often the one executive with the largest control over the firm, and their portfolio of earnings management techniques are usually more diversified compared to CFOs (Dejong and Ling, 2013).

After scandals such as Enron and the introduction of the Sarbanes-Oxley Act of 2002 (Hossain and Monroe, 2015) the debate about executives' impact on earnings management has been extended to CFOs even if they are, unlike CEOs, restricted to accounting decisions (Zhou, Wang, Zhang and An, 2018). While CEOs do have the largest control over the firm, researchers have acknowledged that CFOs are often have the largest impact on the financial reports (Hoitash et al., 2007; Gore et al., 2008; Jiang et al., 2010). They also have more knowledge on accounting and finance than their superiors creating an information asymmetry between them and e.g. the CEO and board of directors (Gore et al., 2008). The large influence that CFOs have combined with the information asymmetry allows them to manage the firm's earnings for their private gain. According to Hossain and Monroe (2015), equity incentives may boost their willingness to do this.

It is, however, difficult for researchers to determine if CFOs mainly manage earnings to satisfy their own conditions or because they are pressured by a more powerful CEO to do so. Feng, Ge, Luo and Shevlin (2011) argues that CEOs tend to set the tone from the top corresponding with their own equity incentives and that they have the authority to replace the CFO if he or she refuse to follow their preferences. On the other hand, consistent with Chava and Purnanandam (2010), contradicting findings of Jiang et al. (2010) show that CEOs' pressure is less exercised

due to them being able to resort to other forms of earnings management, meaning that they do not have to rely solely on accruals management.

2.4 CFOs and Equity Incentives

A CFO may be paid partially with a base salary and partially by equity in the firm, i.e. stock holdings and options issued by the employer (Joskow and Rose, 1994). Assuming once again that CFOs are agents in accordance to agency theory, they will use their ownership in the firm opportunistically to boost their short-term profits at the expense of long-term values (Fuller and Jensen, 2002). This made the Internal Revenue Service (IRS) Commissioner Mark Everson voice his concerns and demand that executives in charge of "minding the cookie jars" should not have performance-based salaries rather than fixed income (Katz, 2006). Similarly, the Chairman of the Security and Exchange Commission (SEC) in 1998, Arthur Levitt, also expressed his disappointment over giving CFOs incentives to manipulate reported earnings (Levitt, 1998). The literature agrees with Everson and Levitt, since a CFO payroll depending on the outcome of the financial reports provides obvious incentives to manage earnings. Pre-managed earnings that are just below the bonus thresholds stated in their contract encourages them to manage earnings upwards. If the goals have already been met, they may manage earnings downwards to make bonuses in the future more accessible (Walker, 2013).

Chava and Purnandam (2010) find that CFOs with higher incentives to take risks are less likely to report income smoothed results, since it is not rewarded by their equity incentives. Furthermore, Hossain and Monroe (2015) show that their study on Australian firms yield a positive relationship between the CFOs' short-term incentives and the discretionary accruals of the firm. These findings indicate that there is an association between the compensation structure issued to the CFO and the extent of exercised earnings management. It has also been found that the likelihood of a firm reaching the analysts' earnings forecast is significantly higher if the CFO has equity incentives (Cheng and Warfield, 2005).

Benmelech et al. (2010) and Bolton et al. (2006) also claim that equity incentives cause executives, such as CFOs, to engage in earnings management and that individual managers has a direct impact on firms' accounting decisions (Bertrand and Schoar, 2003) and that they exercise discretion while doing so (Ge et al. 2011). It is also worthwhile to point out that the level of discretionary accruals tends to drop significantly when a new CFO is appointed[2] (Geiger and North, 2006), which indicates that CFOs exercise an individual impact on earnings quality (Jiang et al., 2011). Moreover, Burns and Kedia (2006) allege that managers with equity-based compensation have larger incentives to take aggressive accounting actions to affect the stock price, consequently maximizing their compensation through their accounting choices.

It is, however, important to emphasise that the literature is not unanimous whether equity incentives have a significant impact on earnings management for any executive, let alone CFOs (Kim et al., 2011). For instance, Erickson, Hanlon, and Maydew (2006) were not able to find any relationships between equity incentives and irregularities in the reported earnings. While, for

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[2] Geiger and North (2006) also demonstrate that their finding is not driven by concurrent appointments of CEOs.

example, Healy (1985), Holthausen, Larcker and Sloan (1995), Lu and Zhao (2008) find that equity incentives are one of the main drivers of earnings management, other researchers allege that no significant positive relationship exist between them (Wang and Wang, 2007; Luo and Chen, 2010). According to Zhou et al. (2018), these conflicting results are not surprising since executives also must consider the direct costs of managing earnings, as well as taking the potential loss of long-term earnings into account. Earnings management through accruals is also easy to detect, making it more costly for executives to practice.

There are also other factors that play a part, such as personal attributes (Ge et al, 2011; Barua et al., 2010) and that the CEO set the tone from the top (Feng et al., 2011), which influence the behaviour of CFOs regardless of their ownership in the firm. Dejong & Ling (2013) discovered that the absolute value of total accruals is smaller for CFOs compared to CEOs, because the former tend to report more solid earnings by pushing accruals to zero. Moreover, Graham et al. (2005) claim that CFOs engage in earnings management to beat earnings benchmarks to maintain the reputation of the firm, rather than a measure to influence their compensation, where 80.7 % of the interviewed CFOs in the study admitted of using some form of earnings management to reach these thresholds.

2.5 Hypothesis Development

The research may be divided regarding to what extent CFO's equity incentives affect the degree of earnings management, but there is still a consensus that they are in a key position to wield significant influence on the financial reports and are able to alter them to their personal preferences (Zhou et al., 2018). While it is claimed that e.g. pressure from the CEO (Feng et al., 2011) and hitting earnings benchmarks (Graham et al., 2005) is more influent, there are still several findings showing that equity incentives have a large impact on CFO's degree of earnings management. In reference to agency theory, we are assuming that CFOs are agents and we expect them to cease this opportunity by exercising earnings management to manipulate the financial reports. We also predict that the behaviour will be more evident the larger the equity stakes are. This has resulted in the following hypothesis:

Hypothesis:
CFOs with larger equity incentives lead to higher levels of earnings management

Since CFOs mainly wield their influence through reported earnings, this study does solely focus on earnings management through accruals management, meaning that other forms of earnings management are ignored. Also, CFOs have historically been involved in some of the most aggressive, or fraud, cases of earnings management[3]. These forms of illegal earnings management approaches are not taken in to account in this study.

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[3] 53 CFOs were convicted for accounting related fraud between 2002 and 2007 in the US according to the Department of Justice (2007)

3 Methodology

In order to test the hypothesis of the study as efficiently as possible, a quantitative method is conducted. Quantitative methods are characterized by compiling the empirical base into tablets and charts, as well as using the data in a custom-made model best fitted with the purpose of the thesis. To find a relationship between CFOs' equity incentives and earnings management a large sample size is necessary to able to draw any substantial conclusions and test our hypothesis. To ensure that the validity of the study is as high as possible, we started by critically reviewing the theories on the subject before determining the research design and then stood firm to the purpose that was developed according to said review. To raise the reliability of the test a multivariate panel-regression analysis is developed. We conclude that this is more suitable for us than e.g. t-tests, because it includes components that has already been proven by reviewed papers to have an impact on the dependent variable.

Our sources are collected through The University of Gothenburg's feature *Supersök (Eng: Super search)*, which is a platform for published academic articles. We exclusively select our scientific reviews labelled as "peer reviewed" to strengthen the reliability of the findings that our study is based on. While the literature review was developed, we realised that some researchers use the term earnings management and some use earnings quality. However, they are both derived from the same formula by most researchers, specifically the modified Jones model (1995). Hence, in this paper we do not make a specific distinction between them and, thus, use them in the same way. Since the two variables are the inverse of each other, where high degrees of earnings management lead to lower earnings quality and vice versa, we use the term ABS_DACC to make it as clear as possible. This is further explained in section 3.1.2 and table 1.

The data is mainly collected through the Compustat (Wharton Research Data Services, WRDS) and Datastream databases, however, the CFO variables for stock holdings and stock options, as well as tenure, gender and age had to be collected by hand because they were not provided by the database. The data collection process is further explained in chapter 4. Table 1 disclose the database that variables have been collected from.

We conduct and interpret our tests by using Stata: Software for Statistics and Data Science, version 15.

3.1 Choice of Models

We use discretionary accruals, explained in section 2.1, as our measurement for earnings management as used by Dechow et al. (1995), namely the modified Jones model. The model is presented in section 3.1.1. We use this estimation as our dependent variable in the regression model presented in 3.1.2. Lastly, we conduct a robustness test using the model as used by Kothari et al. (2005), explained in section 3.1.3.

3.1.1 The Modified Jones Model

The modified Jones model (Dechow et al., 1995) is formulated as the following (model 1):

$$TA_{it}/A_{i,t-1} = \beta_1/A_{i,t-1} + \beta_2(\Delta REV_t - \Delta REC_t)/A_{i,t-1} + \beta_3 PPE_t/A_{i,t-1} \qquad (1)$$

where:

TA_{it} = total accruals for firm i in year t calculated as total current accruals (i.e., $\Delta CurrentAssets_{it} - \Delta CurrentLiabilities_{it} - \Delta Cash\&ShortTermInvestment_{it} + \Delta DebtCurrentLiabilities_{it}) - Depreciation\&Amortization_{it}$.

$\quad \Delta CurrentAssets_{it}$ = the change in current assets for firm i from year t-1 to year t,

$\quad \Delta CurrentLiabilities_{it}$ = the change in current liabilities for firm i from year, t-1 to year, t,

$\quad \Delta Cash\&ShortTermInvestment_{it}$ = the change in cash for firm i from year t-1 to year t,

$\quad \Delta DebtCurrentLiabilities_{it_{it}}$ = the change in short term debt for firm i from year t-1 to year t and

$\quad Depreciation\&Amortization_{it}$ is depreciation and amortization of assets for firm i in year t.

A_{it-1} = total assets in the end of year t-1,

ΔREV_{it} = the change in revenues for firm i from year t-1 to year t,

ΔREC_{it} = the change in accounts receivables for firm i from year t-1 to year t, and

PPE_{it} = gross property plant and equipment in year t scaled by total assets at t-1

According to Walker (2013), the modified Jones model became the standard model for measuring earnings management through revenue management after it was released by Dechow et al. (1995). The purpose of implementing the modified Jones model is to estimate the residual between the right and left side of the equation. The left side displays the sum of total accruals and the right side the sum of non-discretionary accruals. Every firm that exercise any kind of accruals management has a differential between the two sides of the equal sign. This residual is the sum of discretionary accruals. We use the absolute value of this residual as our measurement for earnings management and label it as J_ABS_DACC.

3.1.2 The Regression Model

The absolute value of discretionary accruals (J_ABS_DACC), our proxy for earnings management, is used as our dependent variable in our regression analysis. The CFOshare, i.e. stock holdings and options owned by the CFO, divided by the firm's shares outstanding is our independent variable. We also add a number of control variables to control for other relationships that was found in the academic literature. Our regression model is formulated as the following (model 2):

$$\begin{aligned} J\_ABS\_DACC_{it} \\ = \alpha_0 + \beta_1 CFOshare_{it} + \beta_2 MTB_{it} + \beta_3 \Delta REV\_TA_{it} + \beta_4 ROA_{it} \\ + \beta_5 OCF_{it} + \beta_6 OCF^2{}_{it} + \beta_7 LEV_{it} + \beta_8 CFOtenure_{it} \\ + \beta_9 CFOgender_{it} + \beta_{10} CFOage_{it} + \epsilon_{it} \end{aligned} \qquad (2)$$

where:

J_ABS_DACC$_{it}$ = the absolute value of discretionary accruals, our measurement for earnings management, firm i in year t, estimated as specified in section 3.1.1,

CFO_share$_{it}$ = the sum of CFO-owned stock holdings and options divided by total shares outstanding in firm i in year t

MTB$_{it}$ = ratio of market-value of equity to book-value for firm i in year t,

ΔREV_TA$_{it}$ = the change in revenues for firm i from year t-1 to year t scaled by total assets,

ROA$_{it}$ = return on assets measured as earnings before extraordinary items, divided by total assets for firm i in year t,

OCF$_{it}$ = operating cash flow for firm divided by lagged total assets for firm i in year t,

OCF$^2{}_{it}$ = the quadrant of the operating cash flow divided by lagged total assets for firm i in year t,

LEV$_{it}$ = the sum of long-term debt and debt in current liabilities divided by total assets for firm i in year t,

CFOtenure$_{it}$ = the number of years that the CFO has been at the current firm i in year t,

CFOgender = a dummy variable that takes the value 1 if the CFO is male and 0 if the CFO is female for firm i in year t,

CFOage$_{it}$ = the age of the CFO for firm i in year t and

ϵ_{it} = error term for firm i in year t.

Variable definitions are presented in table 1.

CFOSHARE is the independent variable of the regression that is developed to test the hypothesis of this study and it is determined as the number of shares that the CFO owns in relation to the total number of shares outstanding in the firm. We compute this as a fraction in order to determine the size of the CFO-ownership in relation to the total shares of the firm. For instance, 100,000 shares might be a lot in one firm, but it may just as well be a negligible amount in another. Considering that the CFO is just one shareholder and the firms are listed with usually millions of shares outstanding, the value for the CFOSHARE is always a very small number for our sample size.

We control for the change in revenue (ΔREV), as our measurement for growth, because discretionary accruals are positively correlated with sales growth according to Menon and Williams, 2004. This variable is scaled to normalise it and bring to a comparable form. We also control for the market-to-book (MTB) ratio, seeing as Skinner & Sloan (2002) find that an inability to meet earnings benchmarks for growth firms result in large price reactions when financials are announced.

We add Return on Assets (ROA) because of the findings that poorly performing firms tend to have a lower quality of earnings (Dechow and Dichev, 2002). We also include OCF as our second performance variable, since Subramanyam (1996) were able to find a significant relationship between OCF and the firm's discretionary accruals. Affiliated with the research of

Barua et al., (2010) a quadratic variable (OCF^2) is interpreted because the relationship between discretionary accruals and OCF is presumed to be U-shaped.

Leverage (LEV) is also included as a control variable, due to several findings indicating that it has a significant impact on the degree of earnings management. Hand and Skantz (1998) argues that leverage is a good proxy for debt covenant effects. Firms with higher leverage are more prone to manage their earnings upwards to avoid or limit violations of debt covenants (Sweeney 1994).

We control for the time that the CFOs has held its current position in the firm (CFOtenure) because Geiger and North (2006) find that the sum of discretionary accruals significantly drops when a new CFO is appointed and that it is not driven by concurrent CEO appointments. CFOgender is controlled for in affiliation with the findings of Barua et al. (2010), that earnings management decrease when a female CFO is appointed. There are also several studies stating that women are more risk-averse in their investment choices (Byrnes, Miller, Schafer and Eisenberg., 1999), more in compliance with rules and regulation (Baldry, 1987), and more cautious when issuing debt and evaluating acquisitions (Huang and Kisgen, 2008). This ultimately has an impact on the firm financials. Lastly, we control for age (CFOage), influenced by Ge et al. (2011). Although their findings show limited evidence supporting the impact of age as a variable, it adds to the overall understanding of firms' accounting choices.

3.1.3 Robustness Test (The Kothari Model)

Finally, as a complement to the regression analysis, a robustness test is conducted to ensure that the results of the regression hold. A robustness test is commonly used as a safety precaution in statistical testing to deal with omitted variable bias, self-selections bias, and empirical issues (Francis, Hasan, Park and Wu, 2015).

By adding a performance-indicator, ROA, Kothari et al., (2005) further developed the modified Jones model. Kothari et al., (2005) elaborate that the benefits of including such an indicator is twofold. First, in reference to Dechow, Kothari and Watts (1998), a performance-indicator controls for how discretionary accruals is affected by performance of the firm and, second, it is aligned with the findings of Barber and Lyon (1996) that ROA is a well-suited variable of detecting abnormal accruals[4]. Kothari et al. (2005) conclude that using the modified Jones model (1995) and adjusting it with a performance-indicator is the best method to estimate the discretionary accruals in the firm. The model, which is our robustness test, is modelled as the following (model 3):

$$TA_{it}/A_{i,t-1} = \beta_1/A_{i,t-1} + \beta_2(\Delta REV_t - \Delta REC_t)/A_{i,t-1} + \beta_3 PPE_{it}/A_{i,t-1} + \beta_4 ROA_{it}$$

(3)

where:
TA_{it} = total accruals estimated as above for firm *i* in year *t*,

---

[4] Kothari et al (2005) admissions a caveat of controlling for a performance variable by saying that it cannot solve all the problems of limited discretionary accruals models. ROA, for instance, will be less effective when firms have abnormally high levels of earnings management since their degree of discretionary accruals then will exceed the expectation of the firm's performance.

A_{it-1} = total assets in the end of year *t-1*,

ΔREV_{it} = revenues for firm i in year *t* compared to revenues in year *t-1*,

ΔREC_{it}= net receivables in year *t* minus net receivables in year *t-1,*

PPE_{it}= gross property plant and equipment for firm *i* in year *t* scaled by total assets *t-1* and

ROA_{it} = return on assets for firm *i* in year *t*.

Equal to the modified Jones model (Dechow et al., 1995), we use the model as used in Kothari et al. (2005) to estimate the residual between the sum of total accruals and non-discretionary accruals which is the sum of discretionary accruals. This residual, labelled K_ABS_DACC, replace our dependent variable in the regression model presented in 3.1.2 when conducting our robustness test. The new regression model is presented as the following (model 4):

$$K\_ABS\_DACC_{it}$$
$$= \alpha_0 + \beta_1 CFOshare_{it} + \beta_2 MTB_{it} + \beta_3 \Delta REV\_TA_{it} + \beta_4 ROA_{it} + \beta_5 OCF_{it}$$
$$+ \beta_6 OCF^2{}_{it} + \beta_7 LEV_{it} + \beta_8 CFOtenure_{it} + \beta_9 CFOgender_{it}$$
$$+ \beta_{10} CFOage_{it} + \epsilon_{it}$$

(4)

Where:

$K\_ABS\_DACC_{it}$ = the absolute value of discretionary accruals, our measurement for earnings management for firm *i* in year *t,* estimated as specified above and

CFO_share_{it} = the sum of CFO-owned stock holdings and options divided by total shares outstanding in firm *i* in year *t*

MTB_{it} = ratio of market-value of equity to book-value for firm i in year t,

ΔREV_TA_{it} = the change in revenues for firm i from year t-1 to year t scaled by total assets,

ROA_{it} = return on assets measured as earnings before extraordinary items, divided by total assets for firm i in year t,

OCF_{it} = operating cash flow for firm divided by lagged total assets for firm *i* in year *t*,

$OCF^2{}_{it}$ = the quadrant of the operating cash flow divided by lagged total assets for firm *i* in year *t,*

LEV_{it} = the sum of long-term debt and debt in current liabilities divided by total assets for firm *i* in year *t,*

$CFOtenure_{it}$ = the number of years that the CFO has been at the current firm *i* in year *t,*

$CFOgender_{it}$ = a dummy variable that takes the value 1 if the CFO is male and 0 if the CFO is female for firm *i* in year *t,*

$CFOage_{it}$ = the age of the CFO for firm *i* in year *t* and

ϵ_{it} = error term for firm *i* in year *t*.

Variable definitions are presented in table 1.

Table 1 Variable Definitions

Variable	Variable label	Definition
J_ABS_DACC	Absolute value of discretionary accruals (Jones)	Absolute value of discretionary accruals measured with the modified Jones model (1995) for firm i in year t. More details are presented in section 3.1.1.
K_ABS_DACC	Absolute value of discretionary accruals (Kothari)	Absolute value of discretionary accruals measured with the Kothari model (2005) for firm i in year t. More details are presented in section 3.1.3.
TA †	Total accruals	Total accruals for firm i in year t calculated as total current accruals (i.e , $(\Delta CurrentAssets_{it} - \Delta CurrentLiabilities_{it} - \Delta Cash\&ShortTermInvestment_{it} + \Delta DebtCurrentLiabilities_{it}) - Depreciation\&Amortization_{it})$ *[Compustat: ACT, LCT, CHE, DLC and DP]*
A	Total assets	Total assets of firm i in year t
ΔREV_TA	Change in revenue scaled by total assets	Change in revenue from year t to t-1 for firm i in year t scaled by total assets *[Compustat: REVT]*
ΔREV	Change in revenue	Change in revenue from year t to t-1 for firm i in year t *Compustat: REVT]*
ΔREC	Change in receivables	Change in accounts receivable from year t to t-1 for firm i in year t *[Compustat: RECT]*
PPE	Property, plant, and equipment	Net value of property, plant and equipment of firm i in year t *[Compustat: PPENT]*
MTB	Market-to-book ratio	Ratio of market-value of equity to book-value for firm i in year t *[Datastream: MTBV]*
ROA	Return on assets	Return of assets measured as earnings before extraordinary items, divided by total assets for firm i in year t *[Compustat: NICON and AT]*
OCF †	Operating cash flow	Operating cash flow for firm divided by lagged total assets for firm i in year t *[Compustat: OANCF]*
OCF² †	Quadrant of operating cash flow	The quadrant of the operating cash flow for firm i in year t
LEV	Leverage	Leverage for the firm calculated as Long-term debt + Debt in current

		liabilities / Total Assets [*Compustat: DLTT, DLC and AT*]
CFOshare	CFO stock holdings and options	The sum of stock- holdings and options of the CFO for firm i in year t in relation to total shares outstanding for firm i in year t
CFOdummy	Dummy variable for CFOs stock holdings and options	Dummy variable that equals 1 if the CFO has any either stock holdings and/or stock options for firm i in year t and 0 otherwise
CFOgender	The gender of the CFO	Dummy variable equals 1 if the CFO is male for firm i in year t, and 0 if female.
CFOtenure	Years appointed in current position	Number of years appointed as CFO for the firm i in year t
CFOage	The age of the CFO	The age of the CFO for the firm i in year t

Table 1 presents detailed definitions for all variables. The table also provides information on the sources, as well the data code for each variable in Compustat (WRDS) and Datastream. All the data has been collected from Compustat (WRDS), Datastream or manually by hand. More details on the data selection process can be found in section 4.1.

† = scaled by lagged total assets

3.2 Model Interpretation

When estimating the sum of discretionary accruals, it is common in existing studies to group firms by year and their industry segments. We choose to group by year and size instead. This is done in affiliation with Ecker, Francis, Olsson and Schipper (2013) findings that that a group of larger firms are more similar to each other compared to a mixed group of larger and smaller firms. Ecker et al. (2013) argue that using size-based rather than industry-based groups often yield a higher detection rate for discretionary accruals because it stabilizes the modified Jones model. Therefore, we use lagged total assets as our measurement for size, both in alignment with Ecker et al. (2013) but also because it is the size measurement that is used in the modified Jones model and the model by Kothari et al. (2005). The results are presented in table 3. Due to issues with rounding, the last category, *Size 10*, has a frequency of 51 instead of 49 like the remaining groups.

To limit the impact of extreme values in the dataset, a winsorization at the 1 and 99 % level respectively is conducted for the dataset. Important to add is that we do not winsorise the variables collected by hand (CFOshare, CFOgender, CFOtenure and CFOage).

The descriptive statistics in chapter 4 present the values of the variables used in the statistical testing, the correlation between them and their VIF (Variation Inflation Factor). To describe the dataset we use count, mean, standard deviation, min-value, 25th percentile, median, 75th percentile and max-value. We also include a correlation table to determine the correlation between our variables. According to Hair, Black, Babin and Anderson (2014) a correlation above 0.9 between any variables indicates a significant risk of multicollinearity, meaning that the correlation between

the variables are high enough to interfere with the test. The correlation between our variables are presented in table 6.

We conduct and present the VIF (Variance Inflation Factor) of our model in table 5 to test for multicollinearity between variables (Hair et al., 2014). Salmerón, Garcia and Garcia conclude that variables between 0.1 and 10 requires further investigation, whereas Hair et al. (2014) allege that for smaller sample sizes the square root of 10 is used as the upper limit to ensure that multicollinearity and non-random patterns are not present. We initially controlled for size, which we measured as the natural logarithm of total assets, since larger firms tend to report more predictable earnings because of excessive pressure from shareholders (Pincus and Rajgopal, 2002) and to evade unwanted political visibility (Watts and Zimmerman, 1990). However, due to the high VIF value for size, we removed this variable.

In chapter 5 we present the results of regression analysis, which is our model for testing our hypothesis. The regression analysis uses the modified Jones model by Dechow et al. (1995) as our proxy for earnings management. The results of the robustness test, which is the regression analysis using the Kothari et al. (2005) as a proxy for earnings management, is also presented in chapter 5. Both regression models is conducted with robust standard errors, which is done by adding ",r" at the end of the Stata code.

When presenting the descriptive statistics of the dataset, we add the dummy variable CFOdummy, that takes the value 1 if the CFO owns any stock holdings and/or stock options, and 0 if they do not. This merely included to illustrate the distribution between CFOs with and without stock holdings and options. The CFOdummy variable is not used in the regression analysis and hypothesis testing.

4 Sample and Descriptive Statistics

4.1 Sample Selection

The dataset consists of Swedish listed companies that has an appointed CFO within the year span of 2005-2009. As mentioned above the necessary data for conducting the regression analysis is collected from the databases Compustat (Wharton Research Data Services, WRDS) and Datastream except for information on CFOs that has been collected by hand. Table 1 disclose that the variables collected from the databases are all provided by Compustat (WRDS), except for the market to book-ratio that was provided by Datastream. Our CFO variables (CFOshare, CFOage, CFOtenure and CFOgender) are not available in any of the available databases, which makes hand collection necessary.

We collect the CFO data manually by accessing each and every one of the firm year-observations in our original sample (1494) and then gaining the information needed from the presented group management synopsis. After the collection, a removal of 560 observations was made due to

insufficient or missing information about the CFO. We define CFO as the following: CFO, Chief Financial Officer, Director of Finance (SWE: Finansiell Direktör) or Head of Economics (SWE: Ekonomichef).

Furthermore, the value of each share owned by the CFO is not stated in the annual review, only the number of shares, making it more challenging for us to determine the equity incentives impact. In chapter 3 we mentioned that this issue is solved by dividing them with the firm's shares outstanding.

Next, we remove additional data due to insufficient or missing datapoints provided by the database. We also remove firms that are not listed during the entire time frame (2005-2009). The final sample is presented in table 2.

Table 2 Sample Selection

Selection Criteria	Firms	Observations
Original sample, containing Swedish listed firms (observations) from 2005-2009	302	1494
Insufficient or missing CFO information	(73)	(560)
Insufficient or missing Database information or non-public annual review	(99)	(442)
Final Sample	130	492

Table 2 present the sum of data removals of firms and observations for the original sample set. Negative values are within parenthesis.

The removal has always been made depending on missing or insufficient observations, rather than firms, meaning that the number of firms does not necessarily reflect the amount of annual reviews in the dataset. We strive to include five observations (2005-2009) per firm whenever possible.

As mentioned in section 3.2, we group the sample selection by size rather than industries in affiliation with Ecker et al. (2013). Table 3 illustrates the categorizations of firms based on their lagged total assets. Firms within category Size 1 are the firms with the lowest value for lagged total assets and Size 10 are the firms with the highest value for lagged total assets. Size 10, which is the final group of the sample has a frequency of 51 instead of 49, due to the final sample being uneven. Table 3 also illustrate the frequency and percentage of CFOs with/without equity incentives and how they are distributed through the dataset. The table show that there are 421 observation where the CFO has equity incentives, and 71 where the CFO does not own any equity incentives.

Table 3 Size distribution

Sample composition by Size (lagged total assets)

Size Category	All		Equity Incentives		No Equity incentives	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Size 1	49	9.96	43	87.76	6	12.24
Size 2	49	9.96	39	79.59	10	24.41
Size 3	49	9.96	42	85.71	7	14.29
Size 4	49	9.96	41	83.67	8	16.33
Size 5	49	9.96	41	83.67	8	16.33
Size 6	49	9.96	37	75.51	12	24.49
Size 7	49	9.96	37	75.51	12	24.49
Size 8	49	9.96	47	95.92	2	4.08
Size 9	49	9.96	47	95.92	2	4.08
Size 10	51	10,37	47	92,16	4	7,84
Total	492		421		71	

Table 3 illustrates the categorization of firms based on the size of their lagged total assets. Size 1 represents the smallest 49 observations of the dataset and so forth. In the "All" column, the observations have been divided into equally large categories except for category 10 due to uneven number of observations. The "Equity incentives" column show the frequency and percentage of CFOs who own stock holdings and/or options. The "No equity incentives" column show the frequency and percentage of CFOs who do not own any stock holding- and/or options. Table 3 is further explained in section 3.2.

4.2 Descriptive Statistics

Table 4 shows a full representation of the descriptive statistics collected in STATA. The statistics we have chosen to display are N (the number of observations), Mean (mean values), Std. Dev. (standard deviation), Min (minimum values), Median (Median values), Max (maximum values) as well as the 25th- and 75th Pctl (Percentile distribution).

Table 4 displays a difference between the measurements for earnings management depending on which model we use. J_ABS_DACC provides a mean of 0.088 while K_ABS_DACC provides a mean of 0.077. The difference may, however, be small enough to be negligible when conducting our hypothesis testing in chapter 5. Notably the min- and max-value are identical for both models, but the percentiles differ, meaning that results are unevenly distributed for the sample while their extreme values are approximately the same.

The vast difference in extreme values (-1.347;0.913) regarding the ΔREV-variable, which is our measurement for growth, is also expected since it is a variable that can take negative values. Note that the variable is scaled by total assets, meaning that it is as small as it is. The same principals can also be applied to our performance-indicators which are ROA and OCF. These variables all have large values for the standard deviation compared to the mean. Once more, this means that the distribution within the dataset varies greatly.

We also included a quadratic variable of the OCF, OCF2, because other studies have shown that the relationship between OCF and ABS_DACC is U-shaped. We do not find it necessary to analyse the outcome of the descriptive statistics of this variable. LEV is the sum of long-term debt + debt in current liabilities divided by total assets meaning that it is measured in fractions. Hence the presented numbers are all $0 \leq$ and ≤ 1.

Table 4 Descriptive Statistics

		Panel A: Dependent and Independent variables							
Variable	*N*	*Mean*	*Std. Dev.*	*Min*	*25th Pctl*	*Median*	*75th Pctl*	*Max*
J_ABS_DACC	491	0.088	0.129	$2.78e^{-17}$	0.019	0.044	0.105	1.430
K_ABS_DACC	491	0.077	0.111	$1.73e^{-18}$	0.016	0.039	0.092	1.315
CFOshare	492	0.750*	3.188*	0	0.001*	0.028*	0.202*	45*
MTB	492	6.649	22.930	0.260	1.330	2.370	4.155	212.300
ΔREV	492	0.079	0.288	-1.347	-0.021	0.082	0.203	0.913
ROA	492	1.443	14.897	-67.080	-0.163	4.858	8.903	25.404
OCF	491	0.066	0.151	-0.546	0.026	0.083	0.138	0.434
OCF2	491	0.028	0.055	0.000	0.004	0.010	0.026	0.365
LEV	492	0.195	0.156	0	0.047	0.175	0.315	0.566
CFOgender	492	0.859	0.348	0	1	1	1	1
CFOtenure	492	5.289	6.179	0	1	3	7	28
CFOage	492	52.033	9.506	29	45	52	60	76
CFOdummy	492	.854	.354	0	1	1	1	1

Table 4 provides descriptive statistics for all the variables used in the regression analysis as well as the CFOdummy for explanatory purposes. J_ABS_DACC and K_ABS_DACC are the dependent variables as our measures for earnings management. A detailed presentation for the variables is presented in table 1. The extreme values of the continuous variables are winsorized at the 1% and the 99% distribution levels. For ease of interpretation, values with * have been multiplied by 100.

The MTB-variable has substantially differing mean and median since the variation between the observations are vast. This is depicted through the standard deviation (22.93), which is more than thrice as big as the mean (6.649) and compared to the median (2.370) it is almost tenfold. This is unsurprising since the dataset has not been filtered on industry-basis. The Market-to-Book Ratio varies greatly between industries because of different approaches to accounting and fair value assessments.

In the dataset we have two dummy variables, CFOdummy and CFOgender. The CFOdummy variable is included to show how the distribution is allocated for CFOs with/without ownership in the dataset. For instance, by looking at the mean we can see that in 85.4% of the observations the CFO has some form of ownership in the firm. The CFOdummy will not be included in the hypothesis testing in section 4.2 since the CFOshare variable provides this information in the regression analysis. The CFOgender variable describes the gender allocation for the CFOs in the dataset. It takes the value of 0 when the CFO is female and 1 when the CFO is male. Table 4 illustrates that in 85.9% of the observations, the CFO is male.

The remaining two variables are CFOtenure and CFOage. The mean of CFOtenure shows that the average time a CFO has had the current position is 5.289 years. This indicates that there are plenty of time for the CFO to implement his or her earnings management techniques. However, perhaps the median offers a fairer view of the sample considering that the maximum value is 28 and that the standard deviation (6.179) is larger than the mean.

Table 5 Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
CFOshare	1.06	0.946086
MTB	1.20	0.833635
ΔREV	1.15	0.873211
ROA	2.35	0.425134
OCF	2.23	0.448331
OCF2	1.30	0.769775
LEV	1.09	0.920415
CFOgender	1.09	0.918351
CFOtenure	1.18	0.845213
CFOage	1.43	0.698881
Mean VIF	1.85	

Variance Inflation Factor (VIF) values below 0.1 and above 10 requires further investigation for multicollinearity. For smaller sample sizes, a VIF value below the square root of 10 (3.16) is encouraged, in accordance with Hair et al. (2014). A more detailed discussion on VIF is presented in section 3.2. The variables are defined in table 1.

While examining the VIF (table 5) and the correlation between variables (table 6), no values exceed the upper and lower limits, as suggested by Hair et al. (2014). This indicates that no multicollinearity interferes with the statistical testing.

Table 6 Correlation Between Variables

	J_ABS_DACC	K_ABS_DACC	CFO share	MTB	ΔREV	ROA	OCF	OCF2	LEV	CFO gender	CFO tenure	CFO age
J_ABS_DACC	1.0000											
K_ABS_DACC	0.847*	1.0000										
CFOshare	0.022	0.017	1.0000									
MTB	0.124*	0.208*	-0.007	1.0000								
ΔREV	0.073	0.060	0.016	0.018	1.0000							
ROA	-0.211*	-0.147*	0.048	-0.214*	0.164*	1.0000						
OCF	-0.220*	-0.190*	0.109*	-0.172*	0.163*	0.718*	1.0000					
OCF2	0.369*	0.266*	0.073	0.103*	0.157*	-0.231*	-0.141*	1.0000				
LEV	0.018	0.043	0.013	0.131*	-0.009	0.008	0.023	-0.022	1.0000			
CFOgender	-0.062	-0.029	-0.084	0.043	0.029	-0.030	0.018	0.052	-0.019	1.0000		
CFOtenure	-0.038	-0.097*	-0.012	-0.015	-0.049	0.131*	0.071	-0.052	-0.002	0.082	1.0000	
CFOage	-0.174*	-0.198*	-0.124*	-0.184*	-0.088	0.037	0.002	-0.171*	-0.067	0.208*	0.301*	1.0000

Table 6 shows the correlation between the variables used in the regression analysis. J_ABS_DACC and K_ABS_DACC are the dependent variables as our measures for earnings management. The variables are defined in table 1 and a more detailed discussion on correlation between them is presented in section 3.2. The extreme values of the continuous variables are winsorized at the 1% and the 99% distribution levels. * significant at the 5 % level.

In table 6, we find that there is a high correlation (0.847) between J_ABS_DACC and K_ABS_DACC, however these variables are not used simultaneously, meaning that their correlation is irrelevant. We also detect a high correlation between OCF and ROA (0.7180), which is not surprising considering that they are both performance-indicators.

5 Results

5.1 Hypothesis testing

Our hypothesis was developed to examine if CFO equity incentives in Swedish listed firms result in greater earnings management. To test the hypothesis, we estimate the absolute value of discretionary accruals using the modified Jones model, as interpreted by Dechow et al. (1995). We use this as our measurement for earnings management and as our dependent variable for our regression analysis, developed in chapter 3.

The generated results of the regression analysis (model 2) are displayed in the table 7. The Coef. column shows the coefficient and significance level for each variable used in the regression analysis. Significant findings are highlighted with a bold font and the level of significance. The t-stat column shows the t-statistic for the test. At the bottom of the table we have disclosed the number of observations in the sample as well as the R-square value, which is an indicator of how well the variables that we have chosen interprets the result of our model.

Table 7 Hypothesis Testing

Modified Jones model			
Variables	**Coef.**	**t-stat**	**Expected sign**
CFOshare	0.002	(0.018)	+
MTB	-0.000	(-0.338)	None
ΔREV_TA	-0.001	(-0.082)	+
ROA	-0.000	(-0.662)	-
OCF	-0.058	(-0.538)	-
OCF2	**0.515****	(2.262)	None
LEV	-0.0110	(-0.319)	-
CFOgender	0.010	(0.734)	+
CFOtenure	0.000	(0.282)	+
CFOage	-0.000	(-0.875)	-
Year FE	Yes		
Size FE	Yes		
Observations	491		
R-squared	0.292		

Table 7 presents the results of our regression analysis, with J_ABS_DACC as our dependent variable. Detailed definitions for the variables are presented in table 1. Robust t-statistics are within parentheses. The extreme values of the continuous variables are winsorized at the 1% and the 99% distribution levels, explained in section 3.2. Year FE and Size FE denote the year fixed effect and size fixed effects. Standard errors are robust as mentioned in section 3.2. ** means that the OCF2 variable is significant at the 5 % level.

Table 7 displays an insignificant relationship with the dependent variable J_ABS_DACC and our

independent variable CFOshare meaning that we reject our hypothesis. The expectation that there is an association between the CFO's stock ownership in the firm and the degree of earnings management cannot be supported. However, the coefficient of the CFOshare variable is positive as expected.

Among our independent variables only OCF2 show a significant result. Table 7 illustrate that OCF2 has a significant positive relationship with J_ABS_DACC at the 5 % significance level (t-statistic: 2.262). The relationship is positive which is consistent with the hypothesis testing by Barua et al. (2010). Furthermore, a 1 unit increase in J_ABS_DACC lead to a 0.515 increase in OCF2.

Table 7 also present that the regression model (model number 2) used to conduct the test includes year and group size fixed effects as mentioned in section 3.2. The number of observations that was used is 491 and the R-squared is 0.292.

5.2 Robustness test

As mentioned in section 3.1.3, a robustness test will be conducted using the model as interpreted by Kothari et al. (2005), by adding ROA to the formula the estimation of the discretionary accruals (model 3). The robustness regression model (model 4), has the dependent variable K_ABS_DACC.

Table 8 follows the same structure as table 7.

Table 8 Robustness Test

Kothari model			
Variables	**Coef.**	**t-stat**	**Expected sign**
CFOSHARE	0.011	(0.143)	+
MTB	0.000	(0.740)	None
ΔREV_TA	-0.007	(-0.419)	+
ROA	0.000	(0.501)	-
OCF	-0.076	(-0.785)	-
OCF2	0.234	(1.457)	None
LEV	-0.004	(-0.143)	-
CFOgender	0.006	(0.428)	+
CFOtenure	-0.001	(-1.334)	+
CFOage	-0.000	(-1.051)	-
Year FE	Yes		
Size FE	Yes		
Observations	491		
R-squared	0.250		

Table 8 presents the results of our regression analysis, with K_ABS_DACC as our dependent variable. Detailed definitions for the variables are presented in table 1. Robust t-statistics in parentheses. The extreme values of the continuous variables are winsorized at the 1% and the 99% distribution levels, explained in section 3.2. Year FE and Size FE denote the year fixed effect and size fixed effects. Standard errors are robust as mentioned in section 3.2

Once again, there is no significant relationship between the dependent variable K_ABS_DACC and the independent variable CFOshare, meaning that we reject our hypothesis. Table 8 shows that we still cannot support our expectation that there is an association between the CFO's ownership in the firm and the degree of earnings management. However, the coefficient is positive as expected.

Next, table 8 illustrate that none of the independent variables displays a significant relationship, meaning that we cannot draw any conclusions from them.
Table 8 also present that the regression model (model number 4) used to conduct the test includes year and group size fixed effects as mentioned in section 3.2. The number of observations that was used is 491 and the R-squared is 0.250.

6 Summary and Conclusions

For a prolonged period of time, the main focus of executives' impact on earnings management has been on CEOs. However, more recent studies show that CFOs not only have an impact on accounting decision and financial outcomes, but the most crucial one of all senior managers. The causes behind the CFO's behaviour vary greatly, where some claim that personal characteristics, beating analysts' forecasts and reporting income smoothed results drives CFOs to manage earnings. Given that they are agents in line with the agency theory, several researchers have found that they alter the financial reports for personal gain. Some researchers find that equity incentives, such as stock holdings and options, for CFOs increase the amount of earnings management that is exercised.

Considering the effect that CFOs have on the financial outcomes of the firms, combined with equity incentives being a driver for earnings management, the purpose of this paper has been to examine the association between equity incentives owned by the CFO and the degree of earnings management. The study was conducted by using a sample of 130 (492) Swedish listed firms from 2005-2009. A quantitative method consisting of a regression analysis has been interpreted using the absolute value of discretionary accruals, estimated through the modified Jones model (Dechow et al., 1995), as a proxy for earnings management. After controlling for factors known to be associated with earnings management, we reject our hypothesis that a larger stock ownership owned by the CFO leads to higher levels of earnings management. Furthermore, a robustness test is conducted using the model developed by Kothari et al. (2005), supporting our main results. Although the results did not align with our assumptions, we did find contradicting relationships between CFOs' equity incentives and earnings management while conducting the literature review, which provided an indication of the outcome of our study.

The thesis is subject to the following limitations. First, our sample is limited by both the information provided by the database but also the data collected by hand, where a larger sample size would have been appreciated. Second, our model is based on prior research and there is no certain way to know if this interpretation is the most suitable one for our study. For instance, we only measure the impact of accruals management rather than the combined effect of real

activities management. We motivate this by clarifying that CFOs wield their impact through accounting choices, however there might be other ways to define their impact on earnings management besides accruals. Third, it is also relevant to reflect upon if other drivers of earnings management rather than equity incentives better explain the association with CFOs' behaviours. For instance, prior research show that CFOs strive to report solid earnings and beating analysts' forecast. This has not been taken into account in this study.

We are confident that this study contributes to the existing research by highlighting the uncertainty in the assumptions established on the subject. It is also important to extend the existing literature to other regions, such as Sweden, to make it more accessible to local practitioners and regulators. Future research would do well to investigate the connection between CFOs' equity incentives and earnings management exercised, by conducting studies with larger sample sizes along with data collected from a more suitable database that provides all the necessary data. We encourage further research on Swedish market, because of the deficit of findings in this region compared to the US.

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