

Executive compensation and earnings manipulation: Bonus  
compensation versus equity-based compensation.



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## Abstract

This study examines the link between executive compensation and earnings management, in particular testing the association between two forms of compensation, bonus and equity-based compensation, and earnings management. The hypothesis stated in this research is that executive bonus compensation leads to a higher level of earnings management compared to equity-based compensation. Using a sample period between 2006 and 2017, the results demonstrate that almost no relationship exists between executive compensation and executives manipulating earnings. The results presented in this paper are not in accordance with the most prior literature; however, several studies have also failed to identify any relationship between compensation contracts and earnings manipulation. I theorize that the results of this study are different due to the sample period used in this research.

# 1. Introduction

## 1.1 Background and context

Many investors rely on the decisions of professional managers who own scarcely any of the companies they manage but nevertheless make decisions regarding a company's investment and payout (Bergstresser and Philippon 2006). A manager whose own financial stake is not influenced by the value of the company he or she manages could be incentivized to act in ways that reduce the investor's claim while privately benefiting from the claim. This segregation of ownership and control has long been identified as a problem in corporate governance. One of the theories that explains the relationship between the owner and the decision maker is the agency theory, which refers to the company as the principal and to the management as the agent. The theory describes a potential problem that can arise between the principal (the stakeholders) and the agent (the management), wherein the agent must execute important decisions and therefore has more knowledge about the organization than the principal. This creates an information asymmetry between the management and the shareholders. A further complication can arise in differing goals between the principal and the agent, for the agent is interested primarily in short-term goals while the principal is primarily interested in long-term goals. One such short-term goal for management consists of executive compensation. In this study, management means chief executives that can exercise discretion in the top level of a company and executive compensation is the reward that consists of bonuses, options and stocks.

Bennet et al. (2016) examine compensation grants linked to the chief executive officer (CEO) and are based on accounting-numbers metrics. The most popular form of grants is based on earnings per share (EPS), with 46% of grants linked to an EPS goal. Seventy-two percent of grants are paid in cash and 28% collected in the form of stocks. Furthermore, Bennet et al. (2016) claim that cash bonuses (72%) and stocks (28%) are the most popular forms of payouts. Based on this study, I conclude that bonus and equity-based compensation remain a large component of executive payments. Li and Wang (2016) suggest that after the technology bubble and option expensing and backdating, an increasing number of companies have implemented stock-based multiyear accounting-based performance (MAP) instead of option grants, resulting in a change in structure pay but not in pay amount. This shift raises the question of whether the structure of compensation grants influences the incentives of

executive managers with respect to earnings management, as well as whether equity-based and bonus compensation create different incentives for managers to manipulate earnings.

According to Bergstresser and Philippon (2006), the primary goal of executive compensation is to align upper management incentives with the interests of shareholders; however, they suggest that compensation incentives could have mixed results. It may be possible that large compensation rents increase incentives for managers to manipulate the company's earnings in accordance with their own interests. O'Connell (2004) also demonstrates concerns regarding executive compensation. For him, aligning the interest of shareholders with executives is a long-term process. Executive compensation, however, is based on a short-term perspective, according to O'Connell (2004), due to the average CEO turnover of four years, executive compensation can result in aggressive earnings management to ensure steady earnings reports and to align with the forecasts of analysts.

## 1.2 Purpose

The primary purpose of this thesis is to examine the relationship between executive bonus and equity-based compensation and then to investigate which of these forms of grants results in a higher level of earnings management. Specifically, this thesis investigates whether executive bonus or equity-based compensation provides greater incentives for executives to manipulate earnings. Several studies (Healy 1985; Bergstresser and Philippon 2006; Armstrong et al. 2009) have been conducted concerning executive compensation and earnings management. Most of this literature (Gao and Shrieves 2002; Cheng and Warfield 2005) examines the equity-based compensation incentives resulting in earnings management. This thesis considers both forms of grants, that is, executive bonus and equity-based compensations, and leads to the following research question:

*Does a relationship exist between executive compensation and earnings manipulation, specifically examining bonus compensation and equity-based compensation?*

To answer this research question, the following sub-questions are addressed in this thesis:

1. *What is earnings management?*
2. *What is executive compensation and what is the difference between bonus compensation and equity-based compensation?*
3. *What is the relationship between executive bonus compensation and earnings management?*

#### 4. *What is the relationship between equity compensation and earnings management?*

Using a sample period from 2006 to 2017, I find that there is almost no association between earnings management and executive compensation. The results suggest that equity-based compensation leads to a higher level of earnings manipulation compared to bonus compensation. Based on the results the hypothesis of this study that executive bonus compensation leads to a higher level of earnings manipulation compared to equity-based compensation should be rejected, but the correlation is nevertheless too small and economically not significant to draw meaningful conclusions.

### 1.3 Relevance

The link between executive compensation and earnings manipulation must first be investigated. Many studies (Gaver et al. 1995; Dechow et al. 2003; Armstrong et al. 2009) have examined the relationship between compensation incentives and earnings management, most of which identify a positive relationship between executive compensation (stock or bonus) and earnings management. However, Armstrong et al. (2009) suggest in their research that there is no clear link between equity incentives and accounting irregularities. The results of their research contradict those of prior literature, finding instead that the level of executive CEO equity incentives have a modest negative relationship with the incidence of accounting irregularities. They explain their contradictory results by noting that most of the prior studies have limitations with respect to endogeneity and omitted variables.

By contrast, more recent studies such as those conducted by Bennet et al. (2016) and Li and Wang (2016) find that performance compensation in general (stock or bonus) depends on earnings; thus, earnings may motivate managers to engage in earnings manipulation. This new literature indicates the presence of a link between executive compensation and earnings management.

The research conducted in this thesis is relevant because the finding of Armstrong et al. (2009) are consistent with the notion that equity incentives reduce agency costs because equity incentives might reduce incentives for executives to manipulate earnings by aligning managers interests with those of shareholders. However, (short-term) bonus compensation incentives do not possess the same element of aligning with the interests of shareholders as equity incentives do. It is thus possible that executives tied to a bonus scheme can be

provided with different incentives than executives tied to options and stocks. Bonus compensation can thus present executives with higher incentives to manipulate earnings than equity-based compensation.

Furthermore, Li and Wang (2016) mention in their paper that between 1996 and 2008, 42% of MAP payouts were cash-based. Thus, bonus grants appear to comprise a large portion of executive compensation. Their results also mention that between 2002 and 2008, firms prefer stock-based MAP plans over bonus compensation plans, with stock-based MAP plans increasing from 43.4% in 2002 to 69.4% in 2008 and cash-based MAP plans decreasing in the same period from 53.1% to 28.8%. These trends raise the question of whether this decrease in cash-based MAP plans indicates that firms are aware that bonus compensation motivates executives more than equity-based compensation to manipulate accounting earnings numbers. The decrease in cash-based MAP plans could be in line with Armstrong et al. (2009) when they indicate that equity-based compensation incentives could reduce agency costs.

#### 1.4 Contribution

As described above, the primary contribution of this thesis to existing literature is that it takes both forms of executive grant, namely, bonus and equity-based compensation, into consideration, comparing bonus and equity-based grants (stocks and options) to identify which provides higher incentives to manipulate earnings. According to Core and Guay (1999), one means of encouraging managerial ownership is to award managers with options or shares of stock. Theoretically, granting managers options or stocks could incentivize managers to act in the interest of shareholders. However, option and stock grants can also lead managers to focus on short-term stock prices and thereby provide incentives to manipulate earnings (Cheng and Warfield 2005). According to Healy (1985), bonus grants incentivize managers to select accounting procedures and accruals to increase the value of their compensation. Bonus schemes are primarily annual and therefore demand a shorter-term perspective than equity-based compensation. While with equity compensations the primary goal is to align the interests of managers with those of executives, bonus schemes are more related to accounting numbers and metrics tied to this accounting numbers. The metrics related to accounting numbers could incentive executives to manipulate earnings numbers, so that the tied metrics are met. Armstrong et al. (2009) argue that equity-based grants ensure that the interests of shareholders align with the interests of management and therefore do not create

incentives for earnings manipulation. Based on these studies, it is possible to argue that bonus grants create different incentives than equity-based grants.

The most interested party in terms of executive compensation is investors. Institutional investors and large shareholders like Warren Buffet are supporters of rewarding executives against specific performance goals (Bennet et al. 2016). By rewarding executives for specific performance goals, investors want to align the interests of executives with their own interests and alleviate rent-seeking behavior from executives. Furthermore, regulators also manifest concerns that high executive compensations could motivate executives to manipulate earnings for their personal gain.

## 1.5 Structure

The sub-questions enumerated above are intended to answer the research question and inform the structure of this thesis, which is as follows: Section 1 introduces the topic of the thesis and contextualizes this research. Section 2 answers Sub-questions 1 and 2. This section contains a literature review explaining earnings management, its usage and its effects, and it contains an introduction to executive compensation. Section 3 explains the difference between the two components of the executive compensation package: bonus and equity-based compensation. In Section 3, the hypothesis tested in this thesis is explained. Section 4 describes the research design of this study. In this section, the main dependent and independent variables are explained and the model for determining earnings management is discussed in this section. The sample that is used in this thesis is also discussed in section 4. Section 5 enumerates the empirical results.



## 2. Background and literature review

### 2.1 Introduction

In this section, the topics of earnings management and executive compensation are explained, answering the sub-questions *what is earnings management?* and which incentives stimulate executives to manipulate earnings. Section 2.2 discusses earnings management, at which point Section 2.3 explains manager incentives to engage in earnings manipulation. Section 2.4 then introduces the two primary forms of executive compensation: bonus and equity-based compensation. Finally, Section 2.5 addresses the literature regarding executive compensation and earnings management.

### 2.2 Earnings management

A significant body of literature focuses on earnings management, which requires a discussion of financial reporting to understand. According to Healy and Wahlen (1999), standard-setters determine an accounting language that managers can use to communicate with the interested stakeholders of a company. The purpose of such financial reports is to provide information about a company for the stakeholders and specifically to distinguish companies performing well from those performing poorly. This accounting language is a standard enforceable by the independent auditor and the SEC.

Healy and Wahlen (1999) suggest that in practice, standard-setters experience a conflict between the relevance and reliability of accounting information under alternative standards. Standards that address credibility seem to cause less relevant and timely financial reporting, which can harm the quality of financial reporting, this could undermine the very purpose of accounting standards.

To ensure that financial reports contain information about the firm's performance, standards must allow managers to use their own judgement in financial statements. This freedom allows managers to use their knowledge regarding businesses and growth opportunities and to select the reporting methods, standards and disclosures that suit the company's economic wellbeing. Such freedom could help increase the value of accounting standards as a form of communication; however, because auditing is not perfect, the freedom of managerial judgement leaves room for earnings management. According to Healy and Wahlen (1999), earnings management occurs when management attempts to mislead

stakeholders or to influence contractual outcomes that depend on the underlying economics of the firm. Although managerial judgement is important for a company's economic performance, it also allows management the possibility of using their judgement and structure transactions in financial reporting to mislead external stakeholders.

Healy and Wahlen (1999) believe that there are several means by which managers can exercise their judgement in financial reporting. For example, managers must choose between accounting methods for reporting economic transactions, such as between straight-line or accelerated depreciation, as well as choosing among different inventory valuation methods such as LIFO, FIFO or weighted-average. They also must choose how to structure corporate transactions. For example, it is possible to structure lease contracts in a way so that the lease contracts are off-balance and to structure equity investments to decide whether they require consolidation.

Overall, one can argue that management judgement in financial reporting involves both advantages and disadvantages. The disadvantages arise from the misallocation of resources due to earnings management, while the advantages manifest as improvements in the credible communication of private information through financial reporting to stakeholders by the management. Thus, it is important for standard-setters to understand which standards allowing managers to exercise judgement add value to financial reporting.

Beneish (2001) suggests that two perspectives exist regarding earnings management: the opportunistic and the information perspectives. The opportunistic perspective holds that managers have the goal of misleading investors, while the information perspective holds that management uses managerial discretion to share private information about future cash flows with investors. According to Beneish (2001), prior literature has not been able to distinguish between the two perspectives, raising the question of whether managerial discretion is exercised to inform or to mislead investors? Beneish (2011) also mentions that the conclusions of most studies discuss opportunistic incentives for earnings management without considering the perspective of informative earnings management.

According to Ronen & Yaari (2008), the definition of earnings management forwarded by Healy and Wahlen serves well to describe earnings management. It defines both sides of earnings management, namely, the cost-contracting aspect wherein earnings management is used to influence contractual outcomes and the informational aspect wherein earnings management is used to mislead stakeholders. However, Ronen and Yaari (2008) find that the

definition nevertheless contains two weaknesses. The first is that the definition formulates a boundary between earnings management and other normal activities whose output is also earnings. The second is that not all earnings are misleading. They suggest that investors make a distinction between persistence earnings and one time bumps. Firms that employ earnings management to distinguish between persistence earnings and bumps are not attempting to manipulate earnings.

To address this weakness, Ronen & Yaari (2008, p.25) formulate three different definitions of earnings management, drawing distinctions between white, gray and black:

- White: "Earnings management is taking advantage of the flexibility in the choice of accounting treatment to signal the manager's private information on future cash flows."
- Gray: "Earnings management is choosing an accounting treatment that is either opportunistic (maximizing the utility of management only) or economically efficient."
- Black: "Earnings management is the practice of using tricks to mispresent or reduce transparency of the financial reports."

### 2.3 Earnings management incentives

Although some literature (Bergstresser and Philippon 2006; Bennet et al. 2016) claim that earnings management exists, it has been very difficult for researchers to document. According to Healy and Wahlen (1999), the difficulty arises because if researchers want to point out earnings manipulation, they should estimate earnings before the effects of earnings management. Researchers have formulated a different approach that makes it possible to test whether firms engage in earnings management. This approach first examines conditions wherein managers experience strong incentives to manipulate earnings then tests whether accounting choices are consistent with these incentives. It is therefore important to understand the incentives that drive managers to manipulate earnings and establish earnings management, which researchers have investigated. The incentives I focus on, in line with Healy and Wahlen (1999), are the following: Capital market incentives, regulatory incentives and contracting incentives.

**Capital market incentives:** Wide use of accounting information by investors and financial analysts for valuing stocks can incentivize managers to manipulate earnings that effect short-

term stock prices. Recent literature on stock market incentives focuses on unexpected accrual behavior during periods when capital market incentives to manage earnings are intended to be high. The studies regarding capital market incentives and earnings management are based on periods wherein capital market transactions take place and when there is a gap between firm performance and the forecasts of analysts. De Angelo (1988) reports that managers of buyout firms are incentivized to understate earnings, and her results indicate modest evidence for earnings management by buyout firms when examining the changes in accruals. Studies have also investigated whether managers exaggerate earnings in periods prior to equity offers. Teoh et al. (1998b) suggest that firms report positive unexpected accruals prior to equity offers. Furthermore, studies on earnings management for capital market motives indicate the use of earnings management to meet the expectations of analysts. Burgstahler and Eames (1998) find evidence for earnings manipulation by firms in order to meet analyst forecasts. They report in particular that managers desire to be in line with analyst specifications and therefore take actions to increase earnings so that the earnings do not deviate from the predictions of analysts.

**Regulatory incentives:** According to Healy and Wahlen (1999), the literature regarding regulatory incentives has identified two forms of regulation: industry-specific regulation and anti-trust regulation. Standard-setters have displayed an interest in earnings management to avoid industry regulation. Most industries in the US face some level of regulation, but some such as banking and insurance deal with industry regulation that is particularly dependent on accounting data. For example, banking regulations demand that banks have certain capital requirements that are written into accounting numbers, and insurance regulations require insurers to meet conditions for minimal financial health. Studies have demonstrated that industry regulations tied to accounting numbers could give management the incentive to manipulate balance sheets and income statements to mislead regulators. Collins et al. (1995) provide evidence that banks that are close to minimum regulatory requirements exaggerate loan loss provisions, recognize abnormal gains and understate write-offs. Furthermore Adiel (1996) claims that financially weak insurers understate claim loss reserve to prevent regulatory attention. Aside from industry specific regulation, some studies claim that anti-trust regulation could also motivate management to engage in earnings management. In addition, managers looking for protection or subsidy could also be incentivized toward earnings management. Chan (1992) found that firms that were under investigation for anti-

trust violations disclosed income-decreasing abnormal accruals in investigation years. Jones (1991) demonstrates that firms looking for import relief tend to postpone income in the year of application.

**Contracting incentives:** Standard-setters are interested in earnings management and contracting incentives for two reasons. First, earnings management for any reason that leads to manipulation of financial statements is important for standard-setters. Secondly, financial reports of companies are meant to communicate management information not only to stock investors but also to debt investors and investor representatives on the board (Healy and Wahlen, 1999). Several studies (Perry et al. 2001; Holthausen et al. 1995) have examined the relationship between contracting incentives and earnings management, most of which focus on two forms of contracts: lending contracts and management compensation contracts. In this thesis, I focus on management compensation contracts, the purpose of which is to align the incentives of management and external stakeholders in a firm (Healy and Wahlen 1999). However, most studies (Healy 1995; Guidry et al. 1998) provide evidence that management uses accounting judgement to increase earnings-based bonus grants. For example, Guidry et al. (1998) claim that managers of multinational firms are likely to postpone earnings if they notice that meeting their bonus target is unrealistic and when they have reached the maximum target of a bonus plan. Holthausen et al. (1995) provide evidence that firms with bonus award tend to report accruals that defer income when the limit is reached compared to firms that have comparable activities but do not have bonus limits. Dechow and Sloan (1991) examine the final years in office of executives and note that CEOs tend to reduce R&D expenses, most likely for the purpose of increasing disclosed earnings. The researchers claim that such behavior is to meet short-term goals for achieving their compensation grants. Overall, most studies regarding earnings management and contracting incentives claim that some firms manipulate earnings to increase their bonus grants. However, no evidence exists regarding the magnitude of earnings management and which accruals are used to manipulate earnings.

## 2.4 Earnings compensation

The board of directors is responsible for the structure and design of compensations, defining the different components of compensation: salary, short-term cash and stock bonuses, grants of stock options and grants of restricted stocks (Ronen and Yaari 2008). In

this study, I primarily emphasize two components: the bonus compensation and the equity-based compensation. The cash compensation consists of salaries and bonuses. I focus exclusively on bonus compensation because several studies examine the relationship between compensation components and earnings management and don't find a positive association between salary compensation and earnings management. For example, Gao and Shrieves (2002) examine the association between different forms of compensation and the intensity of earnings management. They find a negative association between salary and the intensity of earnings management and a positive association between bonuses and stock options. Erickson, Hanlon and Maydew (2004) examine firms charged with accounting fraud by the SEC with a sample consisting of 50 firms during the period from January 1996 to November 2003. Their results demonstrate that salary is negatively associated with the probability of being accused of fraud.

Studies regarding equity-based compensation focus primarily on the total wealth generated by stock and option grants. According to Ronen and Yaari (2008), this is because executive compensation increases according to the value of their equity holdings, the latter of which is equal to the price per share times the number of shares and options expressed. Furthermore, several studies claim that stock and options grants have become a significant component of compensation package in recent years. Bergstresser and Philippon (2006) mention in their study that in the past 15 years, an enormous increase in stock-based and option-based executive compensation can be observed. In their paper, they state that "The median exposure of CEO wealth to firm stock prices tripled between 1980 and 1994, and doubled again between 1994 and 2000" (Bergstresser and Philippon, 2006, P.1). Bennet et al. (2016) examine the grants linked to the firm's CEO and based on accounting-numbers metrics. They consider a variety of grants that includes cash, stock and option grants awarded to the top five highest paid executives of the 750 largest firms by market capitalization between 1998–2012. They claim that earnings per share (EPS) with 46% of the grants linked to an EPS goal is the most popular form of grants. Furthermore, they suggest that cash and stock are the most popular forms of compensation, with 72% of the grants being paid in cash and 28% of the grants being collected in the form of stocks.

## 2.5 Literature on executive compensation and earnings management

Section 162 (m) of the internal revenue code was introduced in 1993 in response to public attention to extremely high CEO salaries. The tax rule limits the tax deductibility of compensation of executives surpassing one million to performance-based compensation. Salaries of executives thus declined, while bonuses and equity-based compensation increased. According to Perry and Zenner (2001), this change in the tax deductibility status of compensation also motivates management to manage earnings.

Several studies (Gaver and Austin 1995; Cheng and Warfield 2005) have examined the relationship between executive compensation and earnings management, primarily with respect to equity-based compensation. However, some literature does examine the relationship between bonus compensation and earnings manipulation. One of the first studies to link bonus compensation to accounting decisions was conducted by Healy (1985). The results of his research provide evidence for two actions taken by management regarding earnings management. First, when managers realize that they can increase their payoff by inflating earnings, they will act thusly. Secondly, Healy (1985) suggests that once a manager has discovered that earnings are sufficiently low that no matter which accounting method is selected the performance targets will not be met, the manager can then choose to decrease the current earnings further by higher write-offs or by postponing revenues. This could increase the probability of meeting earnings targets for subsequent periods, a strategy known as “taking a bath.” However, this strategy of taking a bath has not been supported by subsequent studies. Many researchers find no evidence for this strategy, with results suggesting that when earnings are extremely low, managers would prefer to show income-increasing behavior, a strategy known as “smoothing” (Gaver and Austin 1995; Reitenga et al. 2002). As stated by Ronen and Yaari (2008), the difference between Healy’s results and other studies is due to the sample period and the manner in which Healy defines bonuses.

The most recent study to indicate taking a bath managerial behavior was conducted by Bennet. et al. (2016), who find that a disproportionately large number of firms exceed the performance target by a small amount as compared to the number of firms that fail to meet the performance target by a small amount. They also provide evidence that this effect is stronger for non-equity payouts, which could indicate that executives manipulate short-term earnings numbers to slightly exceed their target to receive bonus grants. Based on this finding, one can expect that bonus grants provide higher incentives to manipulate earnings

compared to equity-based grants. Other researchers also support the finding of Bennet et al. (2016) that a large number of firms just exceed their performance by a small amount. Holthausen, Larcker and Sloan (1995) and Guidry, Leone and Rock (1999) conclude that when firms exceed their performance that is linked to a bonus grant the reported earnings are hoard.

Ronen and Yaari (2008) state that equity-based compensation can provide conflicting incentives with respect to manage earnings. They note that on the one hand, the higher the market price of a firm, the higher the value will be of management holdings, and therefore it is optimal to inflate earnings for the short-term horizon. On the other hand, the higher the market price, the more difficult it becomes to earn a raise in the future, and thus for the long-term horizon, it is optimal to deflate earnings. However, according to O'Connell (2004), the average turnover of CEOs is around 4 years; thus, equity-based compensation appears to favor a short-term perspective. He states that the goal of equity-compensation of aligning the interests of management with those of shareholders is not realized. Instead, O'Connell (2004) believes that equity-based compensation has led to aggressive earnings management to report steady earnings and appease analyst forecasts. Most of the existing research is in line with the results of O'Connell's study. For example, where Gao and Schrieves (2002) did not find an association between salary compensation and the intensity of earnings management, they do provide evidence that the size of stock options is positively related to the intensity of earnings management.

Other studies find a positive relationship between executive compensation and earnings manipulation. Most of these studies claim that equity-based compensation and holdings provide incentives for managers to manipulate earnings numbers in their own interest (Bromiley et al. 2007; Efendi et al. 2007). Furthermore, using data form Compustat and Executive Compensation datasets, Bergstresser and Philippon (2006) provide evidence that firms whose CEOs are more incentivized to manipulate earnings have higher levels of earnings management. They define CEOs who are more incentivized as executives whose compensation is more sensitive to a firm share price. They also state that CEOs sell a large number of their shares and exercise their options in years wherein a large portion of firm earnings is determined by accruals. Burns and Kedia (2006) examine restatements of 215 firms whose financial reports were inconsistent with GAAP. Their results demonstrate a positive association between earnings management and stock option grants.



Although most researchers conclude that there is an association between equity-based compensation and earnings management, some researchers suggest that their results are not in line with this assumption. For example, Armstrong et al. (2009) claim that most studies have used databases that do not provide data for most firms and that this could lead to selection bias. Furthermore, they mention that these studies ignored endogenous matching of executives with their observed compensation contracts. Finally, Armstrong et al. (2009) state that if anything, their results demonstrate that equity-based compensation could reduce the incidence of earnings manipulation, although they notice that the effect is minimal. The primary reason for their contradictory results are, according to Armstrong et al. (2009), the propensity-score matched-pair research design, wherein they take endogeneity concerns into account.

### 3. Hypothesis development

The purpose of this study is to examine the association between earnings management and two forms of executive compensation, namely, bonus and equity-based compensation. Healy (1985) examines the association between management accounting and accrual procedures decisions and their income reporting incentives regarding these two types of plan. Watts and Zimmerman (1978); Bowen, Noreen and Lacey (1981); and Holthausen (1981) also examine the association between executive bonus schemes and income-increasing behavior, with results indicating that executives choose income-increasing accounting procedures to maximize their bonus compensation. Watts and Zimmerman (1986) believe that in firms with earnings-based compensation agreements, managers are always incentivized to favor income increasing accounting procedures. In their study, Watts and Zimmerman (1986) mention the income-smoothing hypothesis, which suggests that managers prevent earnings fluctuations that seem abnormal for a firm, instead ensuring that the earnings are consistent with investors' expectations. Furthermore, the researchers believe that earnings fluctuations can lead to uncertain job security and increase a firm's borrowing costs.

According to Healy (1985), the empirical results of these studies conflict with each other, and their tests present several problems. The first problem is that these studies fail to properly define earnings, using a definition such that accounting procedures do not affect bonuses. Instead, Healy (1985) defines earnings as a function of income before taxes in more than half of his sample collected for his study.

The second problem according to Healy (1985) is that prior literature expects that compensation grants always induce managers to choose income-increasing accounting procedures. Healy considers the possibility that managers can also be subject to income-decreasing incentives and therefore could use accounting procedures to decrease earnings. Healy's results suggest that bonus schemes create incentives for managers to select accounting procedures and accruals to increase the value of their bonus grants. He finds a strong association between accruals and the incentives for managers to report income towards their bonus schemes.

Gao and Shrieves (2002) examine how the components of compensation influence the behavior of managers concerning the intensity of earnings management. In their study, they focus on the opportunistic earnings management hypothesis, wherein managers use accruals

to manipulate current-year earnings to gain benefit for themselves or their firms. The empirical results suggest that the intensity of earnings management is related to compensation design. Specifically, they conclude that the amounts of bonuses and the intensity of current year stock option grants are positively related to the intensity of earnings management.

Bergstresser and Philippon (2006) suggest that the executive managers are, over the years, much more directly exposed to the changes in the share prices of their companies due to the compensation grants of options and stocks that are given to executives. Bergstresser and Philippon (2006) indicate that although the main purpose of equity-based compensation is to align managers incentives with those of shareholders, such compensation also can encourage managers to use their discretion to manipulate earnings. In their study, the researchers examined the use of discretionary accruals by executive managers to manipulate earnings. They provide evidence that in firms where the CEO's total future compensation is closely tied to the value of stock and options holdings, the use of discretionary accruals is more pronounced.

Armstrong et al. (2009) find that the evidence provided by prior literature is mixed and that the link between executive equity incentives and earnings management remains in question. In their study about executive equity-based compensation and accounting irregularities, they find that in firms where CEOs are more tied to equity-based compensation, a higher level of earnings management is not observable (Armstrong et al. 2009).

The most recent studies regarding executive compensation do not agree with the notion of Armstrong et al. (2009) that equity-based compensation leads to the alignment of interests of managers and investors. Bennet et al. (2016) and Li and Wang (2016) suggest that performance compensation in general (whether equity-based or bonus) depends on earnings; thus, earnings may motivate managers to engage in earnings manipulation.

I first examine whether executive bonus or equity-based compensation are associated with earnings management. Based on the literature discussed in this study regarding executive compensation, I expect that both forms of executive compensation lead to earnings management. Once the relationship between executive compensation and earnings management is examined, I focus on the difference between the two forms of compensation grant, namely, which leads to a higher level of earnings management.

The difference in earnings management between these two forms of compensation arises since bonus and equity-based compensation could potentially present different incentives. Cheng and Warfield (2005) suggest that the incentives for earnings management arise from the risk associated with ownership of stocks or stock-based compensation. For example, when executives are rewarded with stock-based compensation, they tend to sell shares they already possess for reasons of risk diversification. Furthermore, managers continue to sell shares in the future when the risk exposure is expected to be higher than the management is willing to bear (Ofek and Yermack, 2000). Managers expect that risk exposure can increase in the future because when stock prices increase, the wealth of managers is more concentrated in the stock, and the options holdings are more sensitive to stock prices (Cheng and Warfield 2005). This selling perspective can motivate managers with equity incentives to increase stock prices. Bonus grants present different incentives than equity-based compensation, primarily in that bonus grants don't include the selling perspective. Most of the time, as mentioned in the study by Bennet et al. (2016), compensation contracts such as bonus schemes are linked to an accounting-based metric.

Where equity-based compensation is still tied to the performance of the firm (e.g., stock price) after the period wherein the compensation is granted, bonus compensation is only influenced by firm performance for the duration of the period wherein the compensation is granted and is thus not effected by stock price or firm performance once the compensation is granted. This could present different incentives for managers regarding earnings management. Moreover, Healy (1985) argues that bonus schemes could also incentivize managers to select income-decreasing procedures. He mentions in his study that when managers discover that earnings are so low that no matter which accounting procedures are selected the tied metrics will not be met, then managers are incentivized to decrease current earnings so that future earnings can be increased. This strategy does not influence current bonus grants, but it does increase the chance that future earnings targets are met. Acting in this pattern could also ensure that bonus grants present potentially different incentives compared to equity-based compensation. Based on the understanding that bonus and equity-based compensation can present different incentives and therefore could influence earnings management differently, the following hypothesis is examined in this study:

**H1: Executive bonus compensation leads to a higher level of earnings manipulation compared to equity-based compensation.**

This above hypothesis is stated here in the alternative form ( $H_a$ ), the null hypothesis: executive bonus compensation *does not* lead to higher earnings manipulation compared to equity-based compensation. Based on the study of Healy (1985), wherein he finds a relationship between bonus compensation and earnings management, as well as the study of Armstrong (2009), wherein he suggests that equity-based compensation is meant to align the interests of managers with those of shareholders, I expect that bonus compensation leads to a higher level of earnings manipulation compared to equity-based compensation.

## 4. Research design and sample selection

### 4.1 Introduction

In this section, the methodology of this study is explained, as well as the sample selection and data sources used in this thesis. The methodology contains the explanation of the primary dependent (Y) and independent (X) variables, followed by an overview of the models used to examine the association between executive compensation (the independent variable) and earnings management (the dependent variable).

### 4.2 Research design

The primary research conducted within this study examines the association between executive compensation and earnings management. Executive compensation is the main independent variable, and earnings management is the main dependent variable. The independent variable, executive compensation, consists of the two forms of grants discussed earlier in this study, namely bonus and equity-based compensation.

For the empirical analysis, I use discretionary accruals as a proxy for earnings management. Discretionary accruals are the accruals that are in control of the executives, and non-discretionary accruals are those that are beyond the control of the executives. To identify discretionary accruals, I employ a modified version of the Jones model. According to Dechow et al. (1995), the modified Jones model provides the most powerful tests of earnings management. Following Dechow et al. (1995), the total accruals are first measured, and thereafter, the non-discretionary accruals are measured; finally, the discretionary accruals are determined by subtracting non-discretionary accruals from total accruals. The total accruals are measured using the following equation:

$$TA_{i,t} = \alpha_1 (1/A_{i,t-1}) + \alpha_2 (\Delta REV_{i,t} - \Delta REC_{i,t}) + \alpha_3 (PPE_{i,t}) + v_{i,t},$$

Where

$TA_t$  = total accruals scaled by lagged total assets,

$\Delta REV_t$  = revenues in year  $t$  minus revenues in year  $t - 1$  scaled by total assets at  $t - 1$ ,

$\Delta REC_t$  = net receivables in year  $t$  minus net receivable in year  $t - 1$  scaled by total assets at  $t - 1$ ,

$PPE_t$  = gross property plant and equipment in year  $t$  scaled by total assets at  $t - 1$ ,

$A_{t-1}$  = total assets at  $t - 1$  and

$\alpha_1, \alpha_2, \alpha_3$  = firm specific parameters.

After that the total accruals are measured, the next step is to estimate the non-discretionary accruals. Following Dechow et al. (1995), the following model is used to measure non-discretionary accruals:

$$NDA_{i,t} = a_1(1/A_{i,t-1}) + a_2(\Delta REV_{i,t} - \Delta REC_{i,t}) + a_3(PPE_{i,t}),$$

Where

$NDA_t$  represents non-discretionary accruals scaled by lagged total assets.

The modified version of the Jones model claims that all changes in credit sales in the event period are the result of earnings management. This assertion is based on the logic that it is easier to manipulate earnings by exercising discretion over the recognition of revenue on credit sales than it is to manipulate earnings by exercising discretion over the recognition of revenue on cash sales (Dechow et al. 1995). Eventually, the discretionary accruals are determined by subtracting non-discretionary accruals from total accruals. The following model is used to measure discretionary accruals:

$$DA_{i,t} = TA_{i,t} - NDA_{i,t}$$

Where

$DA_t$  represents the discretionary accruals scaled by lagged total assets.

Following Dechow, Richardson and Tuna (2003), I make several adjustments of the modified Jones model. This "modified modified" Jones model is used for the robustness of the tests of Models 1 and 2. The first adjustment serves to separate non-discretionary accruals from discretionary accruals concerning credit sales, because according to Dechow et al. (2003), some credit sales can be non-discretionary. Following Dechow et al. (2003), the following regression is used for credit sales ( $\Delta REC$ ):

$$\Delta REC = \alpha + k\Delta Sales + e$$

$K$  measures the expected change in accounts receivable for a change in sales. The second adjustment serves to include the lagged value of total accruals ( $LagTA$ ) in the modified Jones model. This variable is added because according to Dechow et al. (2010), it enhances the

accruals predictive ability by controlling for reversals. The final adjustment is including a control variable for growth (GR\_Sales) since changes in business decisions and environment can lead to higher or lower accruals. The “modified modified” Jones model equation is stated as follows:

$$TA = \alpha + \beta_1 ((1+k)\Delta Sales - \Delta REC) + \beta_2 PPE + \beta_3 LagTA + \beta_4 GR\_Sales + e$$

Once the modified Jones model measures the dependent variable (Y), focus turns to the independent (X) variable. To examine the effect of bonus and equity-based compensation on earnings management, I use the model presented in McNicholson and Wilson (1988). The following primary equation is used for an accrual-based test of earnings management:

$$DA_{i,t} = \alpha + \beta PART_{i,t} + X_{k,i,t} + e_{i,t}$$

Where

DA = discretionary accruals scaled by lagged total assets,

PART = dummy variable partitioning the data set into two groups for which earnings management predictions are specified by the researcher,

X<sub>k</sub> = Other relevant variables influencing discretionary accruals (control variables) and

e = an error term.

Following the general model of McNicholson and Wilson (1988), I use the equation below to examine the effect of bonus compensation on earnings management:

$$DA_{i,t} = \alpha + \beta \text{bonus\_comp}_{i,t} + \text{Size}_{i,t} + \text{Leverage}_{i,t} + \text{Growth}_{i,t} + \text{Stockreturn}_{i,t} + \text{ROA}_{i,t} + \text{ROE}_{i,t} + \text{Impl\_claim}_{i,t} + e_{i,t}$$

( I )

Where

bonus\_comp = bonus compensation.

Based on previous literature, I use several control variables that may be correlated with earnings management or bonus compensation. According to Cheng and Warfield (2005), the positive accounting theory claims that managers engage in earnings management to decrease political costs (proxied by size). Furthermore, managers also tend to manage earnings to relax debt covenants (proxied by leverage). Skinner and Sloan (2002) suggest that compensation



incentives are higher for small firms or growth firms, and that high growth firms are more likely to beat or meet analyst forecasts. Therefore, I control for firm size and growth (proxied by the book-to-market ratio and sales growth). Based on existing literature, I further add Stock return, ROA, ROE and Implicit claim as control variables.

The following model is used to examine the association between equity-based compensation and earnings management:

$$DA_{i,t} = \alpha + \beta eq\_comp_{i,t} + Size_{i,t} + Leverage_{i,t} + Growth_{i,t} + Stockreturn_{i,t} + ROA_{i,t} + ROE_{i,t} + Impl\_claim_{i,t} + e_{i,t} \quad (II)$$

Where

eq\_comp = equity-based compensation.

The control variables used in Model 2 are the same as used in the previous model wherein the association of bonus compensation and earnings management is examined (Model 1). In Model 2, I also use discretionary accruals as a proxy for earnings management. All the variables used in Model 2 are the same as those used in Model 1. I use the same control variables in both models because executive managers are presented with the same incentives when they want to maximize their compensation. In addition, I want to examine whether bonus compensation or equity-based compensation creates a higher level of earnings management; thus, all the other variables used in the model must be the same in order to examine only one aspect of compensation. The predictive validity framework (“Libby boxes”) are included in Appendix A, wherein the conceptual and operational independent (X) and dependent (Y) variables are illustrated.

Furthermore, bonus and equity-based compensation are measured using a dummy variable. First, for each firm in the sample, the bonus compensation is divided by total compensation. Subsequently, the median of this outcome is taken as the threshold for the bonus dummy:

Where

Dummy 0 = bonus firm  $i <$  median

Dummy 1 = bonus firm  $i >$  median

I use the same method to measure equity-based compensation. Here, also, the equity-based compensation of all firms in the sample is divided by the total compensation of these firms. Thereafter, the median of this outcome is taken as the threshold for the equity dummy, Where

Dummy 0 = equity grant firm  $i <$  median

Dummy 1 = equity grant firm  $i >$  median

It is also possible to combine Models 1 and 2 into one model. One of the two independent variables are then used as a control variable. The following equation is used for Model 3:

$$DA_{i,t} = \alpha + \beta \text{bonus\_comp}_{i,t} + \beta \text{equity\_comp}_{i,t} + \text{Size}_{i,t} + \text{Leverage}_{i,t} + \text{Growth}_{i,t} + \text{Stockreturn}_{i,t} \\ \text{ROA}_{i,t} + \text{ROE}_{i,t} + \text{Impl\_claim}_{i,t} + e_{i,t}$$

(III)

#### 4.3 Sample selection

The data used in this thesis is available in the databases within the Wharton Research Data Services to which the university has access. The database COMPUSTAT provides company year accounting data for U.S. companies on annual basis; in this thesis, accrual measure is based on COMPUSTAT data. Furthermore, the Executive Compensation (ExecuComp) database is used to determine executive bonus and equity-based compensation. The sample period extends from 2006 to 2017. The ExecuComp dataset consists of 47,000 firm-years observations. The data is sorted through two steps that eventually result in a dataset of 5,000 firm-year observations. First, all the executives who did not receive a bonus compensation are dropped. Secondly, all the executives who did not receive an equity-based compensation are also dropped. Subsequently, the data is sorted and the COMPUSTAT and ExecuComp datasets are merged, resulting in a total of 3,967 firm-year observations for the modified Jones model and 1833 firm-year observations for the “modified modified” Jones model. The firm-year observations for the “modified modified” Jones model are lower than the modified Jones model because the variables used in the “modified modified” Jones are different.

## 5. Empirical results

### 5.1 Introduction

As mentioned earlier in this study, the link between earnings management and executive compensation is critical to my hypothesis that executive bonus compensation leads to higher levels of earnings management compared to equity-based compensation. Prior literature has reported mixed results regarding the link between executive compensation and earnings management, and no prior study of which I am aware has distinguished the bonus and equity-based compensation leading to earnings management. In this section, I first report the relationship between executive compensation and earnings management. I use different models to compare the difference between the two forms of compensation.

### 5.2 Results of the analysis

As mentioned previously in the research design section, in the first part, I use discretionary accruals as a proxy for earnings management using the modified Jones model, in the second part, conducting additional analyses to assess the robustness of the empirical result. Subsequently, I use the “modified modified” Jones model to test whether I obtain the same empirical results as obtained in first part.

Table 1 provides descriptive statistics on abnormal accruals determined by the modified Jones model, abnormal accruals determined by the “modified modified” Jones model, executive bonus compensation divided by total compensation, executive equity compensation divided by total compensation, size, leverage, growth, sales growth, stock return, ROA, ROE and implicit claim. The sample used for the rest of the empirical analyses consist of 3967 firm-years observations for the modified Jones model and 1893 firm-year observations for the “modified modified” Jones model.

TABLE 1  
Descriptive Statistics on all variables

	count	mean	sd	min	max
Abnormal_accruals_MJ	3967	0.013	0.106	-2.352	0.70
Abnormal_accrual_MMJ	1833	0.06	0.089	-0.705	0.601
Bonus_Comp	3967	0.164	0.149	0.000	1
Equity_Comp	3967	1.037	0.122	0.838	2.560

Size	3967	7.515	1.730	3.757	12.380
Leverage	3967	0.200	0.197	0.00	0.900
Growth	3967	0.503	0.525	-2.200	2.416
Salesgrowth	1833	0.111	0.319	-0.549	2.092
Stockreturn	3967	-0.961	0.060	-1.000	-0.648
Return-on-Assets	3967	0.036	0.116	-0.537	0.325
Return-on-Equity	3967	0.073	0.446	-2.438	1.915
Implicit-Claim	3967	0.500	0.431	-0.901	1.00

Table 2 presents the correlations between all the key variables used in various analyses. The correlations reported in Table 2 suggest that the control variables are significantly correlated with each other, and it is thus important to control for them simultaneously. Correlations between almost all the variables are based on the sample used for the rest of the empirical analyses, namely, the 3,967 firm-years observations for the modified Jones model and 1833 for the “modified modified” Jones model.

TABLE 2  
Correlation between Variables

	Abnormal _accruals _MJ	Abnormal _accruals _MMJ	Bonus_C omp	Equity_C omp	Size	Leverage	Growth	Salesgro wth	Stockretu rn	ROA	ROE	Impl_clai m
Abnormal _accruals _MJ	1											
Abnormal _accruals _MMJ	0.976	1										
Bonus_C omp	0.0670**	0.0635*	1									
Equity_C omp	0.0979***	0.0959***	-0.0433	1								
Size	0.00464	0.0191	-0.0492	-0.0433	1							
Leverage	-0.0995***	-0.0716	0.0569	-0.0492	0.242	1						
Growth	0.0380	0.0330	-0.0129	0.0569	0.0236	-0.163	1					
Salesgro wth	0.0564	0.0260	-0.0228	-0.0129	-0.125	-0.0298	-0.0273	1				
Stockretu rn	0.0790	0.0513	0.0836	-0.0228	-0.526	-0.294	-0.210	0.197	1			
ROA	0.516	0.493	0.0553	0.0836	0.0490	-0.285	-0.0586	0.0910	0.263	1		
ROE	0.214	0.196	0.0525	0.0553	0.0603	0.0839***	-0.229	-0.0226	0.0782	0.424	1	
Impl_clai m	0.109	0.0244	0.0245	0.0525	-0.0689	-0.189	-0.0574	0.100	0.120	0.130	0.112	1

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

The first part of the results of H1 are provided in Table 3A. Table 3A contain the result of the regression of the three models, mentioned in Section 4. The models contain the results of the dependent variable, earnings management, and the independent variable, bonus compensation and equity compensation. Furthermore, the independent variables bonus and equity compensation are used as dummy variables in Table 3A. I use discretionary accruals as a proxy for earnings management in this study. As mentioned previously, the modified Jones model is used in Table 3A to measure discretionary accruals. The results are based on the sample used for the rest of the analyses, namely, 3,967 firm-year observations. All the variables used in the regression are significant at a 0.05 level except for implicit claim.

**TABLE 3A**  
**Executive compensation and Earnings management via Discretionary Accruals**

Model 1		Model 2		Model 3	
Variables	DA_MJ	Variables	DA_MJ	Variables	DA_MJ
Bonus_dummy	0.007** (0.003)	Equity_dummy	0.023*** (0.004)	Bonus_dummy	0.007** (0.003)
Size	-0.003*** (0.001)	Size	-0.005*** (0.001)	Equity_dummy	0.023** (0.004)
Leverage	0.037*** (0.008)	Leverage	0.040*** (0.008)	Size	-0.005** (0.001)
Growth	0.017*** (0.003)	Growth	0.018*** (0.003)	Leverage	0.039** (0.008)
Stockreturn	-0.136*** (0.031)	Stockreturn	-0.138*** (0.031)	Growth	0.017** (0.003)
ROA	0.464*** (0.014)	ROA	0.465*** (0.014)	Stockreturn	-0.142** (0.031)
ROE	0.011*** (0.004)	ROE	0.011*** (0.004)	ROA	0.464** (0.014)
Impl_claim	0.003 (0.003)	Impl_claim	0.005 (0.003)	ROE	0.011** (0.004)
_cons	-0.132*** (0.026)	_cons	-0.124*** (0.026)	Impl_claim	0.005 (0.003)
				_cons	-0.130** (0.026)
Observations	3,967				
R-squared	0.271				
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

The results in model 1 demonstrate that there is little relationship between executive bonus compensation and earnings management. Although the result is significant on a 0.05 level, the magnitude between executive bonus compensation and earnings management is

too small to be economically significant. Model 2 in Table 3A contains the results of the regression between the independent variable, equity-based compensation, and the dependent variable, earnings management. The results suggest a small relationship between equity-based compensation and earnings management. Although the correlation of earnings management to equity-based compensation is higher than its correlation to bonus compensation, the magnitude is nevertheless too small to conclude that equity-based compensation is economically significant. In model 3 bonus compensation and equity compensation are both included in the regression. The results of the model do not differ from the results presented in model 1 and 2.

Table 3B consists of the results pertaining to the second part of H1. Once again, the modified Jones model is used to measure discretionary accruals. Discretionary accruals are used as a proxy for earnings management. Furthermore, the independent variables bonus and equity-based compensation are divided by total compensation in Table 3B. The results are based on the sample used for the rest of the analyses: 3,967 firm-year observations. Almost all the variables used in the regression are significant at a 0.05 level except for implicit claim.

**TABLE 3B**  
Executive compensation and Earnings management via Discretionary Accruals

Model 1			Model 2			Model 3		
Variables		DA_MJ	Variables		DA_MJ	Variables		DA_MJ
Bonus_comp		0.013* (0.009)	Equity_comp		0.050*** (0.012)	Bonus_comp		0.013* (0.010)
Size		-0.003*** (0.001)	Size		-0.004*** (0.001)	Equity_comp		0.050*** (0.012)
Leverage		0.0372*** (0.008)	Leverage		0.039*** (0.008)	Size		-0.004** (0.001)
Growth		0.017*** (0.002)	Growth		0.017*** (0.003)	Leverage		0.038*** (0.008)
Stockreturn		-0.135*** (0.030)	Stockreturn		-0.134*** (0.031)	Growth		0.017*** (0.003)
ROA		0.464*** (0.014)	ROA		0.464*** (0.014)	Stockreturn		-0.136** (0.031)
ROE		0.011*** (0.004)	ROE		0.011*** (0.004)	ROA		0.464*** (0.014)
Impl_claim		0.003 (0.003)	Impl_claim		0.004 (0.003)	ROE		0.011*** (0.004)
_cons		-0.131*** (0.026)	_cons		-0.176*** (0.029)	Impl_claim		0.004 (0.003)
						_cons		-0.180** (0.029)

Observations	3,967
R-squared	0.271
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

The results in the models 1, 2, and 3 are almost the same as the result in Table 3A. Although the results are significant on a 0.05 level, the magnitude of the independent variables in all the three models is too small to be economically important.

Overall, the results presented in Tables 3A and 3B suggest that executive equity-based compensation is associated with a higher level of earnings management compared to executive bonus compensation. Although the results are significant on a 0.05 level, the magnitude is nevertheless too small and economically not significant to draw meaningful conclusions.

### 5.3 Robustness check

In this section, I investigate whether the results presented in Table 3A and 3B regarding executive compensation and earnings management are sufficiently robust to conclude that bonus and equity-based compensation do not result in earnings management. For this empirical test, I use the same independent and control variables as used in the previous tests. The only difference is that in this model, I use a different method to measure discretionary accruals. As illustrated in Section 4, I use the “modified modified” version of the Jones model to measure the dependent variable, discretionary accruals.

**TABLE 4A**  
Executive compensation and Earnings management via “modified modified” Jones model

Model one		Model two		Model Three	
Variables	DA_MMJ	Variables	DA_MMJ	Variables	DA_MMJ
Bonus_dummy	0.006* (0.003)	Equity_dummy	0.023*** (0.005)	Bonus_dummy	0.007* (0.003)
Size	-0.004*** (0.001)	Size	-0.006*** (0.001)	Equity_dummy	0.024*** (0.004)
Leverage	0.037*** (0.008)	Leverage	0.041*** (0.011)	Size	-0.006** (0.001)
Growth	0.009*** (0.003)	Growth	0.009** (0.004)	Leverage	0.039*** (0.008)
Stockreturn	-0.154*** (0.031)	Stockreturn	-0.158*** (0.040)	Growth	0.009** (0.003)
ROA	0.435***	ROA	0.438***	Stockreturn	-0.164**



	(0.014)		(0.019)		(0.031)
ROE	-0.001 (0.004)	ROE	-0.002 (0.005)	ROA	0.437*** (0.014)
Impl_claim	-0.004 (0.004)	Impl_claim	-0.003 (0.004)	ROE	-0.003 (0.004)
_cons	-0.147*** (0.035)	_cons	-0.139*** (0.034)	Impl_claim	-0.003 (0.003)
				_cons	-0.146** (0.035)
Observations	1,833				
R-squared	0.263				
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

**TABLE 4B**  
Executive compensation and Earnings management via “modified modified” Jones model

Model one		Model two		Model Three	
Variables	DA_MMJ	Variables	DA_MMJ	Variables	DA_MMJ
Bonus_comp	0.011* (0.012)	Equity_comp	0.044*** (0.014)	Bonus_comp	0.011* (0.012)
Size	-0.004*** (0.001)	Size	-0.005*** (0.001)	Equity_comp	0.044*** (0.014)
Leverage	0.038*** (0.011)	Leverage	0.040*** (0.011)	Size	-0.005** (0.001)
Growth	0.009*** (0.004)	Growth	0.009** (0.004)	Leverage	0.039*** (0.011)
Stockreturn	-0.152*** (0.041)	Stockreturn	-0.153*** (0.040)	Growth	0.009** (0.004)
ROA	0.436*** (0.019)	ROA	0.437*** (0.019)	Stockreturn	-0.157*** (0.041)
ROE	-0.001 (0.005)	ROE	-0.001 (0.005)	ROA	0.436*** (0.019)
Impl_claim	-0.004 (0.004)	Impl_claim	-0.003 (0.004)	ROE	-0.001 (0.005)
_cons	-0.145*** (0.035)	_cons	-0.185*** (0.038)	Impl_claim	-0.003 (0.004)
				_cons	-0.190*** (0.038)
Observations	1,833				
R-squared	0.263				
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

The results reported in Table 4A and 4B continue to suggest that executive equity-based compensation results in higher level of earnings management than executive bonus compensation. Despite the dependent variable being measured using the “modified modified” Jones model, the results remain the same as those of the previous tests. To

summarize, all the results suggest that a negligible relationship between bonus and equity-based compensation and earnings management exists. The results do demonstrate that equity-based compensation incentivizes executives to manipulate earnings more than bonus compensation does; however, the correlation between both forms of grants and earnings management is too small to have an economical value.

## 6. Conclusion

In this study, I examine the relationship between executive compensation and earnings management. Specifically, I examine two forms of compensation granted to executives and examine which of these grants are more strongly associated with earnings management. Most firms reward executives using a variety of forms of compensation, but I focus on executive bonus and equity-based compensation.

Prior literature suggests that managers act different when their compensation is tied to a bonus grant. First, when managers notice that they can increase their payment by inflating earnings, they manage earnings to result in a higher compensation. Secondly, when executives realize that the earnings are so low that no matter which accounting method is used the performance targets tied to bonuses will not be met, managers then choose to decrease current earnings so that the performance targets for subsequent periods are met. Evidence concerning equity-based compensation and earnings management is mixed. Most literature suggests that a positive relationship exists between executive equity-based compensation and earnings management due to the belief that when an executive's compensation is sensitive to a firm share price, the executive is more motivated to manage earnings in accordance with their own interests. However, more recent literature has stated that equity-based compensation could decrease the incidence of earnings management, although it notes that the effect is very modest.

The results of this paper demonstrate that executive equity-based compensation results in a higher level of earnings management compared to executive bonus compensation. However, the association between equity-based compensation and bonus compensation resulting in earnings management is too low to draw conclusions from. These results demonstrate, that no economical significant relationship exists between earnings management and bonus or equity-based compensation. The research question of this study is as follows: *Does a relationship exist between executive compensation and earnings manipulation, specifically examining bonus compensation and equity-based compensation?* Based on the results of this study I can conclude that there is no economically significant evidence that bonus or equity-based compensation results in earnings management.

To assess the robustness of these results, I performed additional analyses to examine the relationship between bonus and equity-based grants and earnings management. In this

additional analysis, I use the “modified modified” Jones model to measure discretionary accruals. The results of this analysis provide further evidence that almost no association exists between bonus and equity-based grants and earnings management.

## 7. Discussion

Several studies have identified a relationship between bonus schemes and earnings manipulation; Holthausen et al. (1995) finds evidence for CEOs manipulating earnings downwards when they are at the upper bond, and Graver et al. (1995) finds evidence between earnings smoothing and bonus schemes. I assume that the difference between my results and those found in prior literature is primarily due to the differences in the sample period. In this study, the sample period extends from 2006 to 2017, while that from Holthausen et al. (1995) extends from 1982 to 1992 and that from Graver et al. (1995) extends from 1980 to 1990. Furthermore, Cheng and Warfield (2005) uses in their study a sample period extending from 1993 to 2000, and they also report an extremely low correlation between earnings management and bonus compensation. Moreover, some studies, such as that conducted by Armstrong et al. (2009), also find no evidence of a relationship between executive compensation and earnings management.

Limitations of this study include the sample period it used, namely, firm-year observations between 2006 and 2017. The sample period is mainly due to the elimination of firms without bonus or equity-based compensation plans, as well as of firms for which no data was available for both compensation and earnings management. The resultant final sample could thus be biased and not represent the entire firm population. Furthermore, the low association between executive grants and earnings management could be due to unreliable variables used in the regression models. Moreover, the models used to measure discretionary accruals could be a limitation of this study. Researchers (e.g. Dechow et al. 1998) show in their study that the estimates of discretionary accruals include amounts of non-discretionary accruals.

A follow-up study on this paper could investigate why the recent sample period does not demonstrate any economic correlation between executive compensation and earnings management. It could be that firms design bonus schemes and equity-based compensation in such a manner that executives are unable to use their discretion to manipulate earnings, or else changes in accounting standards do not provide the executives sufficient room to exercise their discretion. It is also possible to compare different sample periods with the same variables and examine if the sample periods show different results regarding executive compensation and earnings management.

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## Appendix A

The predictive validity framework (“Libby boxes”) illustrates the conceptual and operational X and Y variables.

