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Masterthesis accounting & auditing

'The difference in the effect of CEO's age on earnings management activity in various industries'

A study that examines the differences in the effect of CEO's age on earnings management activity in profitable and competitive industries compared to less profitable and less competitive industries

Author: Jesse van Duijn

Student number: 482615

Supervisor: Dr. Wenjiao Cao

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Abstract

The current literature shows a negative effect of CEO's age on earnings management activity. As CEOs get older, they are less likely to engage in earnings management activity. This is because the CEOs will become more ethical when they get older. The current literature furthermore shows a higher tendency to engage in earnings management in less profitable and more competitive industries compared to more profitable and less competitive industries. However, it is unknown whether the effect of CEO's age on earnings management activity holds in all industries or whether this effect differs between industries. The study contributes to the current literature by examining the difference in the effect of CEO's age on earnings management activity in less profitable and more competitive industries compared to more profitable and less competitive industries. The results of this study show evidence that the effect of CEO's age on earnings management activity is larger in less profitable industries compared to more profitable industries. The results did not gave significant evidence that the effect of CEO's age on earnings management activity is different in competitive industries compared to less competitive industries.

Content

1 Introduction

Earnings management is a topic that has been part of discussion in the literature for quite some decades. In general there is no single clear definition of earnings management (Beneish, 2001). A commonly used definition is the one that is used in the paper of Healy and Wahlen (1999). According to them: "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting number" (Healy & Wahlen, 1999). According to Schipper (1989) earnings management is "the purposeful intervention in the external financial reporting process with the intent of obtaining some private gain." From these two definitions can be concluded that earnings management is used to alter the financial reports to give a different picture of the actual economic performance of the company and that earnings management is done for obtaining a private gain.

The ones who obtain the above mentioned private gain, are often the CEOs. CEOs could have multiple incentives to commit earnings management. A major incentive is that the CEOs get compensation that depends on the level of share price (Bergstresser & Philippon, 2006). Bergstresser and Philippon find evidence in their study (2006) that there is a higher level of earnings management in companies where the compensation of the CEOs is more sensitive to the share price of the company. The CEOs then have an incentive to engage in earnings management activity as this increases their level of compensation due to the higher stock price. Similar results are found in the study of Cheng and Warfield (2005). They stated in their study that managers with high equity incentives are motivated to engage in earnings management. The reason for this is that earnings management will increase the value of the share price and these managers can therefore sell their stocks with more profit in future periods (Cheng & Warfield, 2005).

It can be said that CEOs engage in earnings management because this could give them a private gain. However, engaging in earnings management is not without risk for CEOs. The biggest consequences for CEOs that manipulate earnings to obtain a private gain is that the CEO gets fired due to the discovery of their engagement in earnings management. (Hazarika, Karpoff & Nahata 2012). In the study of Hazarika et al. (2012), it is concluded that there is a strong association between earnings management and the likelihood of forced CEO turnover.

They stated that in the short run, earnings management is associated with an increased likelihood of a forced ouster in the year after engaging in earnings management (Hazarika et al., 2012). In the long run earnings management is negatively related to the CEO's job tenure over the time they are in position as a CEO (Hazarika et al., 2012). So it can be said that engaging in earnings management could have great consequences for CEOs when the earnings management is discovered. The reputation of a CEO is quite important and getting fired is obviously bad for their reputation (Ali & Zhang, 2015). Ali and Zhang (2015) examined the changes in the incentives of CEOs to engage in earnings management during their tenure. They concluded that earnings overstatement is greater in the first three years of a CEO's tenure compared to the later years of their tenure. This is because the ability of the CEOs is unknown for the market in the beginning of their tenure. The CEOs therefore want to influence the market perception of their ability in the first years of their tenure (Ali & Zhang, 2015). This perception of a CEO by the market is important because this has an impact on things like future compensations and reappointments. So the paper of Ali and Zhang (2015) shows that CEOs in their early years of tenure are more likely to engage in earnings management.

Apart from the CEO tenure, the influence of CEO's age on earnings management has also been examined in the current literature. For example in the literature there is evidence that CEOs who are near retirement age, are more likely to manage earnings because of the horizon problem (Davidson, Xie, Xu, & Ning, 2007). This horizon problem reflects the issue that people who are near retirement, are not too concerned with the long-run performance of the company. Instead of the long-run, they focus on the short-run (Davidson et al., 2007). So in the short run, it is more profitable for the almost leaving CEOs to manage earnings. However this holds for CEOs who are almost at the end of their tenure. Huang, Rose-Green and Lee (2012) examined the relation between CEO's age and financial reporting quality of firms. Their study showed evidence that older CEOs are less likely to manage earnings and that older CEOs are less likely to be associated with financial restatements (Huang, Rose-Green, & Lee, 2012). The study gives as reason that older individuals are more ethical and conservative than younger individuals. Therefore older individuals are less likely to be involved in aggressive earnings management that results in a worse quality of financial reporting (Huang et al., 2012). So in general can be said that the existing literature shows evidence that younger CEOs are more likely to be involved in earnings management

compared to older CEOs. The existing literature shows a negative association between CEO's age and the likelihood of being involved in earnings management.

In addition to the individual CEO characteristics, like age, also the industry characteristics have an effect on the likelihood of earnings management activity. In a study that examines earnings management across Malaysian industries, evidence is found that earnings management is prevalent only in some industries and the motivation for earnings management differs across industries (Wasiuzzaman, Sahafzadeh, & Nejad, 2015). The study showed that firms operating in less profitable industries are more likely to engage in earnings management compared to firms operating in profitable industries (Wasiuzzaman et al., 2015). Furthermore the study showed that firms operating in high competitive industries have a larger tendency to engage in earnings management than firms operating in less competitive industries. In an almost similar study of Wasiuzzaman (2018), he found that the level of profitability in an industry indeed has an impact on the likelihood of earnings management activity but he failed to find evidence that competitiveness also has an impact on the likelihood of earnings management activity. Both studies were done in a setting of Malaysian industries. However the authors of the studies wrote that their studies are the first ones which examines the role of industry characteristics in influencing earnings management activity.

The studies that examined the relationship between CEO's age and the likelihood of engaging in earnings management activity only took the CEO's characteristics into consideration but did not take the industry characteristics where the firms of the CEOs are operating, into consideration. In the current literature, there has not been done many research on how industry variables like profitability and competitiveness influences earnings management activity in general. The studies of Wasiuzzaman, Sahafzadeh and Nejad (2015) and Wasiuzzaman (2018) showed some mixed evidence regarding the effect of industry characteristics on earnings management activity. However, in general can be said that these studies together showed that firms in less profitable and more competitive industries are more likely to engage in earnings management activity compared to more profitable and less competitive industries.

However the effect of the industry characteristics on the relationship between CEO's age and engaging in earnings management activity remained unknown in the current literature. It was therefore interesting to examine whether the CEO's age effect on earnings management

uniformly affects all industries. This thesis therefore examined whether the pattern that younger CEOs compared to older CEOs are more likely to engage in earnings management, differs in less profitable and less competitive industries compared to more profitable and more competitive industries. This leaded to the following research question:

'Does the effect of CEO's age on earnings management uniformly affects all industries?

To get an answer to this research question, two sub-questions had to be answered. This is done by a literature review and an empirical research. The mentioned two sub-questions are the following:

1. Does the effect of CEO's age on earnings management differ in less profitable industries compared to more profitable industries?

2. Does the effect of CEO's age on earnings management differ in less competitive industries compared to more competitive industries?

In the empirical research, the effect of CEO's age on earnings management activity in the different industries are examined by performing a regression analysis. In this regression analysis, earnings management activity is the dependent variable and CEO's age is the most important independent variable in this regression analysis. This thesis uses discretionary accruals to proxy for earnings management activity. The discretionary accruals are estimated by the modified Jones model of Kothari, Leone and Wasley (2005). The industries which are examined, are characterized by profitability and competitiveness. To cover the profitability, the average net income per industry is used. The Herfindahl-Hirschman Index (HHI) is used to cover competitiveness as this is a common approach to measure the market concentration. This index reflects the number and size distribution of a firm in a certain market (Rhoades, 1995).

This thesis makes a contribution to the current literature by examining whether the effect of CEO's age on earnings management uniformly effects all industries. This is done by a sample of firms from the U.S. (North America) over the period 2011 till 2015. More information regarding the sample is given in chapter 3. Overall, the results of this thesis show that there is a difference in the effect of CEO's age on earnings management activity in profitable

industries compared to less profitable industries. The effect on CEO's age on earnings management is stronger in less profitable industries compared to more profitable industries. However the results did not show evidence for a significant difference in the effect of CEO's age on earnings management activity in more competitive industries compared to less competitive industries. Therefore it cannot be concluded that the effect CEO's age on earnings management activity differs in less competitive industries compared to more competitive industries. The thesis therefore especially contributes to the current literature by showing a stronger effect of CEO's age on earnings management activity in less profitable industries compared to more profitable industries.

These findings are important for the users of financial statements and for the accounting profession. Financial statement users can decide to consider the age of the CEO when they want to evaluate the quality of the financial statements of the firms in (less/more) profitable industries. The findings in this thesis are useful for the accounting profession because auditors can consider to accept a lower level of detection risk if they audit a firm under control of a younger CEO in (less/more) profitable industries.

This thesis does suffer from several limitations. The first limitation is the not significant difference in the effect of CEO's age on earnings management activity between the sample with the more competitive firms and the sample with the less competitive firms. Since the adjusted R-squared of the regressions are low, there is not enough statistical power to conclude there is no significant difference in the effect of CEO's age on earnings management activity between firms in less competitive and more competitive industries based on the used samples. Hence the statistical power is a big limitation of this thesis. Another possible reason for these not significant results is the sample size of 1325 observations. A larger sample with more firms over a larger period could cause for significant results for the regression on these samples. The second limitation is that the sample consists of firms only from the U.S. (North America). Therefore the results of this thesis are hard to generalize to the industries in the rest of the world. The reason for this sample, is that the needed data was easy available and it was also convenient to separate the different industries in the U.S. (North America) by using the North American Industry Classification Code (NAICS). An recommendation for further research is therefore to generate a sample with firms from all over the world. The third limitation is the use of discretionary accruals to proxy for earnings management. In general most studies on earnings management use

accruals models as a proxy. Therefore in this thesis discretionary accruals are also used as a proxy for earnings management. However the current literature shows several ways to proxy for earnings management as for example by using an earnings distribution model (Wasiuzzaman et al., 2015). Using another proxy for earnings management could give other results than obtained in this thesis. Therefore using discretionary accruals to proxy for earnings management limits the research in this thesis. The last limitation is the use of the discretionary accrual model of Kothari, Leone and Wasley (2005). The model is used in this thesis since this model is often used in quite similar studies to earnings management. However there are many models in the current literature that are used to estimate discretionary accruals. Another model could give other results than obtained in this thesis. Therefore only using the model of Kothari, Leone and Wasley (2005) to estimate the discretionary accruals, limits this research.

2 Literature review

2.1 Introduction

This chapter provides discussion about the prior research that is used in this thesis. The chapter is divided in several parts which relates to the different topics that are relevant to this thesis. The first part is about the effect of CEO's age on earnings management. The second part is about the effect of age on behavior. This part discusses how older people in general act differently to younger people. The third part will explain the relationship between earnings management in the various kinds of industries. The focus of this third part is on the effect of the industry characteristics, profitability and competitiveness, on the engagement of firms in earnings management. The fourth part will explain how earnings management is measured in several studies and will give the model that is used in this thesis to detect earnings management. The last part of this chapter summarizes the findings of this literature review.

2.2 The effect of CEO's age on earnings management

As stated earlier the effect of CEO's age on earnings management is a topic in the current accounting literature that has been examined before. The existing literature shows in general a negative association between CEO's age and earnings management. Huang, Rose-Green and Lee (2012) examined this relation between the age of CEOs and financial reporting quality. They showed that older CEOs are less likely to manage earnings and are also less likely to be associated with financial restatements. Furthermore in their study, they also found a negative association between CEO's age and the firms meeting or beating firms analysts forecasts (Huang et al., 2012). Therefore they concluded that older individuals are less likely to be involved in aggressive earnings management that results in a worse quality of financial reporting (Huang et al., 2012). Another study that examined the relationship between several CEO characteristics, among which the age of CEOs, is the study of Qawasmeh and Azzam (2020). They did not find a significant relationship between CEO's age and earnings management. This in contrast to Huang, Rose-Green and Lee (2012). However Qawasmeh and Azzam (2020) did find a significant relationship between the CEO's tenure and the level

of discretionary accruals, which is a proxy for earnings management. A CEO is more likely to engage in earnings management in their early years of their service compared to their later years of their service. This finding was also concluded in the earlier mentioned study of Ali & Zhang (2015). Ali and Zhang (2015) stated that this is because the CEOs want to influence the market perception of their ability in their first years of their tenure. Another example of a study that examined the relationship between several CEO characteristics and earnings management is the study of Santoso and Fuâ (2014). They also concluded that the level of absolute discretionary accruals, which is a proxy for earnings management, is negatively associated with the age of CEOs (Santoso & Fuâ, 2014). Overall, the current literature shows a negative association of CEO's age on earnings management. Most studies show that the level of discretionary accruals, which is a proxy for earnings management, is lower when the age of the CEO gets higher. Therefore in general it can be said that there is a negative association between CEO's age and earnings management.

2.3 The effect of age on behavior

The current literature shows evidence for a negative effect of CEO's age on earnings management. This raises the question why older CEOs act differently compared to younger CEOs. As shortly mentioned before in this thesis, Huang, Rose-Green and Lee (2012) stated that older individuals are more ethical and conservative than younger individuals. Therefore older CEOs are less likely to engage in earnings management. However it is interesting to examine how older individuals in general act differently compared to younger individuals. In general, the current psychology literature suggests that the relationship between age and ethical behavior is positive (Huang et al., 2012). Mudrack (1989) examined the age trends in personal development of people. In his study, he suggests that older individuals are more ethical because they are longer exposed to traditional culture (Mudrack, 1989). Therefore Mudrack (1989) came to the conclusion that age is a predictor of the ethical behavior of people. Deshpande (1997) suggests in his study that older individuals are more ethical in their behavior. He gives as reason that older individuals are more conservative in their outlook (Serwinek, 1992). According to Desphande, older individuals are more likely to perceive certain situations to be immoral compared to younger individuals (Deshpande, 1997). Another study that examined the relationship between ethical beliefs and age, is the study of

Dawson (1997). In his study, evidence was found that ethical standards increase as the age and the experience of the individuals progresses (Dawson, 1997).

Besides the already mentioned reasons for the increase in ethical behavior when age progresses, like the exposure to culture (Mudrack, 1989), other studies also tried to explain why this increase in ethical behavior occurs. Twenge and Campbell (2008) stated that younger individuals are more narcissistic and have a higher self-esteem compared to older individuals. These characteristics are more likely to lead to unethical behavior (Twenge & Campbell, 2008). Another reason that ethical standards increase with the progress of age, is that the level of moral-reasoning increases with age (Wimalasiri, 2001). This study showed evidence for a significant difference in moral judgement between a group of younger students compared to a group of older students (Wimalasiri, 2001).

Apart from the ethical standards, older individuals are also less likely to take risks (Vroom & Pahl, 1971). Vroom and Pahl (1971) give as reason that older managers are more conservative compared to younger managers and therefore are more risk averse. This can also explain why older CEOs are less likely to engage in earnings management. When their engagement in earnings management activity is discovered, many consequences like getting fired, could happen (Hazarika, Karpoff & Nahata 2012). Other studies also stated that older individuals are more conservative compared to younger individuals. As for example in the study of Wallach and Kogan (1961). Taken together it can be said that when age increases, the level of ethical standards of individuals become higher. Possible reasons for this are that the level of moral-reasoning (Wimalasiri, 2001) increases when age increases, that younger individuals tend to be more narcissistic compared to older individuals and that younger individuals have higher a self-esteem compared to older individuals (Twenge & Campbell, 2008). Furthermore individuals become more conservative when they get older and this decreases the level of risk-taking.

2.4 Earnings management in various industries

Most studies on earnings management examine relationships on variations across firms and why these variations occur. Furthermore the effect of corporate governance variables such as board characteristics on earnings management is a topic that has been examined extensively. However the relationship between earnings management and industry characteristics is a

topic that has not been examined quite frequently. As mentioned earlier in the introduction, the study of Wasiuzzaman, Sahafzadeh and Nejad (2015) did examine the relationship between earnings management and industry characteristics. They showed evidence that industry characteristics do have an effect on the likelihood of earnings management activity in companies. The study examined earnings management activity across Malaysian industries. First of all the study showed evidence that there is a significant tendency to manage earnings across all kinds of industries (Wasiuzzaman et al., 2015). A reason for this can be obtained from the prospect theory (Kahneman and Tversky 1979). This theory states when there is a reference point, an individual derives value from gains if they pass this reference point (Kahneman and Tversky 1979). In the case of managers, they are motivated to engage in earnings management to report earnings that have passed a certain threshold because managers will then get bonuses (Wasiuzzaman et al., 2015). So the prospect theory gives an explanation why in general managers of firms in all kinds of industries are motivated to manage earnings.

Besides the overall motivation of earnings management, the study also examined the effect of certain industry characteristics on earnings management activity. These industry characteristics are competitiveness, leverage, capital intensity, volatility and profitability. In this thesis the difference in the effect of CEO's age on earnings management activity will be examined in various industries. As described earlier the industries that are examined in this study are characterised by profitability and competitiveness. It is therefore interesting to look at the results in the study of Wasiuzzaman et al. (2015). That study namely gives insight into the general effect of the industry characteristics competitiveness and profitability on the likelihood of engaging in earning management by managers. However Wasiuzzaman et al. (2015) did not examine the effect of the CEO's age on earnings management in these different industries. As mentioned earlier, this thesis will therefore add value to the current literature by examining this effect.

The study Wasiuzzaman et al. (2015) shows that the tendency to manage earnings in highly competitive industries is larger compared to less competitive industries (Wasiuzzaman et al., 2015). There are several possible explanations for this. First of all, it is not easy to pass the costs of production on to the consumers in highly competitive industries (Datta, Iskandar-Datta & Singh, 2013). This leads to a greater tendency to engage in earnings management activity. Another reason why there is a greater tendency to engage in earnings management in

highly competitive industries is that managers try to misinform their rivals (Bagnoli & Watts, 2010). Firms in highly competitive industries are more likely to produce biased earnings reports for example to avoid showing good future prospects to others (Datta et al., 2013). This could prevent new competitors from entering the industry. Lastly, managers in firms operating in a highly competitive industry are more likely to become more individualistic and opportunistic (Fama, 1980). This causes managers to focus on the short-term results rather than the long-term results. The consequence is that managers in the competitive industries have a higher tendency to misreport earnings in view of their career progression (Wasiuzzaman et al., 2015). Besides the greater tendency to manage earnings in highly competitive industries, the study of Wasiuzzaman, Sahafzadeh and Nejad (2015) also shows evidence that there is a significant tendency to manage earnings in less profitable industries compared to more profitable industries. According to Porter (1979) industries are recognized as attractive or unattractive based on their potential for profitability. When this potential is low, an industry is considered as unattractive (Wasiuzzaman et al., 2015). An industry that operates in a perfectly competitive industry is considered as the most unattractive since the potential profits in these industries are overall also low (Wasiuzzaman et al., 2015). The reason for this is due to new competitors who can easily enter the market. To establish its position, firms in perfectly competitive industries are motivated to manage earnings to mislead their rivals. Misleading the rivals will make these rivals think that the firm has strategies to earn profits that are above the median of the industry (Wasiuzzaman et al., 2015). Therefore firms in less profitable industries have a higher tendency to engage in earnings management compared to firms operating in more profitable industries. However these effects of profitability and competitiveness on the engagement of managers in earnings management are general effects of these industry characteristics. It remains unclear whether the earlier mentioned effect of CEO's age on earnings management activity differs in these industries.

2.5 Measuring earnings management

Quite some studies examined the relationship between certain variables and earnings management. However the use of the proxy for earnings management differs in studies. In the study of (Wasiuzzaman et al., 2015), the earnings distribution model is used to detect earnings management activity across industries. This earnings distribution model is obtained

from Burgstahler and Dichev (1997). This model is based on the assumption that individuals have a "threshold mentality". Individuals want to beat certain thresholds to get for example bonuses as explained earlier by the prospect theory. In this earnings distribution model, earnings management is detected by the occurrence to avoid losses and to achieve the earnings from last year. This is measured by the irregularly higher or lower frequency of positive or negative earnings and earnings changes (Wasiuzzaman et al., 2015). The earnings distribution model is not used in many studies. However, according to McNichols (2000) this model brings the advantage that it provides strong predictions about the behavior of earnings around a threshold or target. The study of Wasiuzzaman et al. (2015) used this model because through this model, the motivation to manage earnings is carried out at the industry level instead of firm level. According to them this is a better way to evaluate the role of the industry in the motivation to manage earnings.

In general most studies on earnings management use accruals models. To detect and test for earnings management, an often used accrual model is the Jones (1991) model. Quite some researchers modified the Jones model on the elements that have an influence on the process of earnings management. An example of this is the model of Dechow, Sloan and Sweeney (1995). They considered that liabilities were a way of managing turnover and therefore they thought it is necessary to deduct the variance of the liabilities from the value of the non-discretionary accruals. Another modified Jones model is the model by Kothari, Leone and Wasley (2005). Their model improved the Jones model by including the return on assets as an independent variable (ROA) (Kothari et al., 2005). The model of Kothari will be used in this thesis since this model is often used in quite similar studies to earnings management. The model will be explained later on in the chapter of the empirical research design.

2.6 Summary

In conclusion can be said that the effect of CEO's age on earnings management is that younger CEOs are more likely to engage in earnings management compared to older CEOs. So there is a negative association between CEO's age and earnings management (Huang et al., 2012). This can be explained because older people in general act differently than younger people. When people get older, they will become more ethical (Mudrack, 1989) and they will become more conservative in their outlook (Serwinek, 1992). Furthermore older individuals

are also less risk-taking compared to younger individuals (Vroom & Pahl, 1971). Furthermore it can be said that the literature shows evidence that industry characteristics do have an effect on the likelihood of earnings management activity at firms. Overall there is a significant tendency to manage earnings across all kinds of industries, which can be explained by the prospect theory (Wasiuzzaman et al., 2015). Furthermore there is evidence that the tendency to manage earnings is larger in highly competitive industries and in less profitable industries (Wasiuzzaman et al., 2015). Lastly the current literature showed that there are different ways to proxy for earnings management. Often accrual models, such as the Jones (1991) model, are used to detect and test for earnings management. This model is modified over time by quite some researchers. An example of a modified Jones model is the model by Kothari et al. (2005). This model will also be used in this thesis.

3 Hypotheses development and sample description

3.1 Introduction

The literature review before provided a theoretical basis, which is relevant for the research in this thesis. This chapter discusses the hypotheses and describes the sample that is used in the empirical research later on. The hypotheses formed in this chapter are based on the research question:

'Does the effect of CEO's age on earnings management uniformly affects all industries?

The chapter starts with the motivations for the hypotheses and the development of the hypotheses. The description of the sample that is used for the empirical research is discussed thereafter.

3.2 Motivations and hypotheses

As stated in the introduction, in the empirical research two questions will be answered. These are the following:

1. Does the effect of CEO's age on earnings management differ in less profitable industries compared to more profitable industries?

2. Does the effect of CEO's age on earnings management differ in less competitive industries compared to more competitive industries?

The current literature describes a negative relationship between CEO's age and the engagement in earnings management (Huang et al., 2012). The older the CEO gets, the less is he or she is likely to engage in earnings management. The explanation for this is that older individuals in general have higher ethical standards compared to younger individuals

(Dawson, 1997). According to Mudrack (1989), age is a predictor of the ethical behavior of people. The ethical standard increases with age for several reasons as mentioned in the literature review. One of those is that the level of moral-reasoning increases with age and therefore the ethical standards also progresses with age (Wimalasiri, 2001).

In general can be said that older CEOs have a lower likelihood of engaging in earnings management compared to younger CEOs (Huang et al., 2012). Furthermore, managers of firms in all kinds of industries are motivated to manage earnings according to the prospect theory (Wasiuzzaman et al., 2015). According to prior literature specific industry characteristics influence the likelihood of CEOs engaging in earnings management. The study of Wasiuzzaman, Sahafzadeh and Nejad (2015) showed that there is a higher tendency to manage earnings in highly competitive industries compared to lower competitive industries. This can be explained by the reason that production costs are not easily passed onto consumers in highly competitive industries (Datta et al., 2013). Furthermore another reason for earnings management in highly competitive industries is that there is a greater tendency for managers to misinform their rivals compared to lower competitive industries (Bagnoli & Watts, 2010). The study of Wasiuzzaman, Sahafzadeh and Nejad (2015) further gave evidence that there is a significant tendency to manage earnings in less profitable industries compared to more profitable industries. The study of Wasiuzzaman, Sahafzadeh and Nejad (2015) stated as a reason for this that firms in less profitable industries are motivated to manage earnings because they want to mislead their rivals. Based on the prior literature the following two hypotheses can be set up regarding the two mentioned questions in the empirical research:

H1: Younger CEOs engage more in earnings management in less profitable industries compared to more profitable industries.

H2 Younger CEOs engage more in earnings management in more competitive industries compared to less competitive industries

3.3 Sample

The sample that is used in this thesis consists of publicly held companies in the U.S. (North

America). The start of the sample period is in 2011 and ends in 2015. The reason for the sample period is that this period provides current data. A period of five years is chosen because this provides enough data to perform the empirical research. Therefore the sample period ends in 2015. The reason for this sample, is that the needed data was available and it was easy to separate the different industries in this country by using the North American Industry Classification Code (NAICS). This was needed to calculate the Herfindahl-index (HHI). More explanation on the variables will be given later on.

The data is retrieved from the Compustat Capital IQ database. From this database, two datasets are retrieved. These are retrieved from Compustat North America daily and from Compustat Execucomp. The dataset from North America daily provides the needed financial statement information such as net income. The dataset from Execucomp provided the information of the CEOs per firm such as the age of the CEOs. These two datasets are merged to make the sample. After excluding all the firms that have missing observations and excluding all financial institutions, the final sample consists of 1325 firms. The reason many observations were missing was due to matching the Compustat dataset with the Execucomp dataset. From many firms the age of the CEO was unknown. Furthermore the prior literature also excluded all the financial institutions (SIC code 6000-6999) due to their special regulatory environment (Peni & Vähämaa, 2010). All these firms have 5 years of observations from 2011 till 2015. The total amount of observations in this sample is therefore equal to 6625. An overview of the sample selection process and the sample distribution is given in table 1 of appendix B. Furthermore an overview of the descriptive statistics and a correlation matrix of the variables are shown in table 2 of appendix B.

3.4 Independent and dependent variables

The description of the variables in the dataset is included in appendix A. The dependent variable in the regression analysis will be DACC. This dependent variable will be estimated in chapter 4 of the empirical research design by using the modified Jones model by Kothari et al. (2005) as stated in the previous chapter. Furthermore the model itself is also explained in chapter 4. The main independent variable will be the CEO_AGE (average age of the CEOs in a year per firm). The reason for using the average age, is because some of the firms have multiple CEOs per year. Most firms in the dataset do have one CEO per firm year. Using the

average age does not affect the level of age for this firms since there is only one CEO. So for this firms, the average age just reflects the age of the only CEO per firm year. However for the firms with multiple CEOs per firm year, the following problem occurred when the average age of CEOs was not used. If the firm information such as NI (net income) was merged to each CEO, then the financial statement information of the firms would have returned multiple times in the sample. For example if a company had four CEOs in 2011, then the net income of 2011 was also included four times in the sample. Taking the average age of the CEOs per year in a firm did solve this problem for this firms. Furthermore the HHI and the NI are included in the sample because in chapter 4 the sample will be split into 2 parts. The HHI is calculated by taking the total sales of all the firms in the industry per year that is grouped by the North American Industry Classification System (NAICS). Thereafter the total sales of the specific firm per year is divided by the total sales in the industry. This amount reflects the market share per year and then this is squared to calculate the HHI (Wasiuzzaman et al., 2015). The variables TA, TL, PPE, SALES, REC are included in the sample to calculate the total amount of accruals in chapter 4 in this thesis. These variables are also more explained in chapter 4 by the explanation of the model of Kothari et al. (2005).

3.5 Control variables

The variables LEV, SGROWTH and SIZE, AGERET are the control variables in the regression analysis in chapter 4. According to prior studies these firm characteristics are useful predictors of earnings management (Peni & Vähämaa, 2010) (Huang et al., 2012). LEV is a proxy for the financial condition of a firm. Troubled companies may have more incentives to use accruals to decrease income (DeAngelo, DeAngelo & Skinner, 1994). According to Peni and Vähämaa (2010) there needs to be controlled for sales growth (SGROWTH) because high growth firms are less transparent and may have greater opportunities for earnings management. There needs to be controlled for firm size (SIZE) because size is negatively associated with earnings management (Peni & Vähämaa, 2010). Larger firms have stronger governance structured and lower information asymmetries (Peni & Vähämaa, 2010). Besides, larger firms are in general subject to greater monitoring by auditors (Peni & Vähämaa, 2010). AGERET is a dummy variable that equals one if an CEO_AGE equals 62 or is higher than 62 and is zero is the CEO_AGE is lower than 62. This control variable is needed because prior research suggests that there is an increased likelihood

of CEOs to be involved in earnings management when the CEOs are approaching retirement (Davidson, et al. 2007). This is the so-called horizon problem as mentioned before in this thesis (Davidson, et al. 2007).

4 Empirical research design

4.1 Introduction

The previous chapter provided the hypotheses and the sample for this thesis. In this chapter the research design is discussed. The chapter starts with the model of Kothari et al. (2005) that is used to estimate the amount of accruals per year for each firm. After that, the regression model that is used in this sample is explained. Thereafter the methodology to test the hypotheses is discussed.

4.2 Measuring earnings management

As mentioned before, this thesis uses accruals to proxy for earnings management. To estimate the amount of accruals per firm per year, the model of Kothari, Leone and Wasley (2005) is used. The basis of this model is the modified Jones model. This model performs the best as a discretionary accrual model (Dechow & Dichev, 2002). The model of Kothari et al (2005) improved the Jones model by including the return on assets as an independent variable (ROA). The model of Kothari et al. (2005) is used in this thesis since this model is quite recent and is often used in studies of earnings management that are quite similar to this thesis. Kothari et al. (2005) uses a performance-matched model to estimate discretionary accruals. The paper estimates the performance-matches Jones model discretionary accrual as the difference between the Jones model discretionary accrual and the corresponding discretionary accrual for a performance-matches firm (Kothari et al., 2005). Furthermore Kothari et al. (2005) estimate an additional discretionary accrual measure where the return on assets (ROA) is included. This is done to compare the effectiveness of performance matching, versus a regression-based approach (Kothari et al., 2005). In this model, total accruals are used to estimate the discretionary accrual model. The total accruals are defined as the change in non-cash current assets minus the change in current liabilities excluding the current portion of long-term debt, minus the depreciation and amortization, scaled by lagged total assets (Kothari et al., 2005). The model is as follows:

$$TAC_{it} = \alpha_0 + \beta_1(1/ASSETS_{it-1}) + \beta_2\Delta SALES_{it} + \beta_3\Delta PPE_{it} + \beta_4 ROAit + \varepsilon_{it} \quad (1)$$

In this model the variables are:

TAC_{it} - Total accruals: the change in non-cash current assets minus change in current liabilities excluding the current portion of long-term debt, minus depreciation and amortization expense, scaled by lagged total assets of firm i in year t (Kothari et al., 2005);

$ASSETS_{it-1}$ - Total assets of firm i in year t-1;

$\Delta SALES_{it}$ - Change in sales minus the change in account receivables, scaled by lagged total assets of firm i in year t

ΔPPE_{it} - Gross value of property, plant and equipment scaled by lagged total assets of firm i in year t

ROA_{it} - Net income scaled by lagged total assets of firm i in year t

The model above shows the extent to which the dependent variable TAC is explained by the several independent variables. The independent variables that are used in equation (1) are the part of the accruals that are non-discretionary accruals. This non-discretionary component reflects the part of the total accruals that are naturally created by the mandatory accounting regulation. The discretionary component is the part of the total accruals that is created by the choices of the management. This is the part that is assumed to manage the earnings. When the amount of non-discretionary accruals are pulled off from the amount of total accruals, then the amount of discretionary accruals are left over. To measure the earnings management, the discretionary accruals have to be calculated. This is the part of accruals that is not explained by the non-discretionary accruals. This part of discretionary accruals is reflected by the ε_{it} (residuals) in equation (1). If the part of discretionary accruals becomes larger, then the level of earnings management is higher.

4.3 Model & Methodology

When the discretionary accruals are measured by equation (1) as mentioned above, then the influence of the independent variable CEO_AGE on the dependent variable ACC has to be

measured. The model that will therefore be used is the following:

$$\mathrm{DACC}_{\mathrm{it}} = \alpha_0 + \beta_1\mathrm{CEO\_AGE}_{\mathrm{it}} + \beta_2\mathrm{AGERET}_{\mathrm{it}} + \beta_3\mathrm{SIZE}_{\mathrm{it}} + \beta_4\mathrm{SGROWTH}_{\mathrm{it}} + \beta_5\mathrm{LEV}_{\mathrm{it}} \quad (2)$$
$$+ \varepsilon_{\mathrm{it}}$$

The variables are defined and explained in Appendix A. The dependent variable $\mathrm{DACC}_{\mathrm{it}}$ will be measured with the model given by equation (1). This is the absolute value of the discretionary accruals. α_{it} is the intercept in the mathematical formulation. The control variables are, $\mathrm{AGERET}_{\mathrm{it}}$, $\mathrm{SIZE}_{\mathrm{it}}$, $\mathrm{SGROWTH}_{\mathrm{it}}$ and $\mathrm{LEV}_{\mathrm{it}}$ as explained in chapter 3 of this thesis. The independent variable of interest in this formulation is $\mathrm{CEO\_AGE}_{\mathrm{it}}$. Equation (2) is made up on the basis of the model of (Peni & Vähämaa, 2010). Peni and Vähämaa (2010) examined the relation between earnings management and CEO's gender. They calculated the dependent variable in the same way as done in this thesis. Namely by basis of equation (1). Their independent variable is obviously different since they examine the relationship between CEO's gender and earnings management. However, the model of Peni and Vähämaa (2010) is a useful model for this thesis since a quite similar relationship in this thesis is examined. Namely the relationship between earnings management and CEO's age.

Now the model is clear, it needs to be explained how the hypotheses are tested. To test whether the hypothesis needs to be rejected or not, the sample has to be split two times into two different samples. The first separation of the original sample is done to make two samples of observations, where one sample covers the firms that operate in highly profitable industries and the other sample covers the firms that operate in low profitable industries. This needs to be done to test hypothesis 1. The separation is done by ordering all the observations in a way from highest net income to the lowest income. Thereafter to make the separation, the 50% of observations of the original sample with the highest net income are grouped into a separate sample and the 50% of observations of the original sample with the lowest amount of net income are grouped into a separate sample.

The second separation of the original sample is done to make two samples of observations, where one sample covers the firms that operate in highly competitive industries and the other

sample covers the firms that operate in low competitive industries. This needs to be done to test hypothesis 2. The separation is done by ordering all the observations in a way from highest HHI to the lowest HHI. Thereafter to make the separation, the 50% of observations of the original sample with the highest HHI are grouped into a separate sample and the 50% of observations of the original sample with the lowest HHI are grouped into a separate sample.

To test the two hypotheses, equation (2) is applied to the four different samples. Thereafter the coefficients that are retrieved for the variable CEO_AGE are compared to each other to see if these are statistically significantly different for the separate samples. So the coefficients CEO_AGE for the two samples that are grouped by net income are compared to each other and the coefficients CEO_AGE for the two samples that are grouped by HHI are compared to each other. However this two-step procedure, where the residuals from equation (1) are used as the dependent variable in equation (2), generates biased coefficients (Chen, Hribar & Melessa, 2018). The study of Chen, Hribar and Melessa (2018) shows that the two-step procedure generated biased coefficients and standard errors that can lead to incorrect inreferences, with both Type I and Type II errors. In the many different examined settings, a significant bias was indicated in the results. This was also the case in the discretionary accrual setting. Chen, Hribar and Melessa (2018) show different solutions to eliminate the bias that results from the two-step procedure regression. Their best solution is to estimate the coefficients for all the model regressors in a single-step regression, instead of the two-step regression. Therefore equation (1) and equation (2) are combined into single model to estimate all unbiased coefficients for all the model regressors. This gives the following model:

$$\text{TAC}_{it} = \alpha_0 + \beta_1 \text{CEO\_AGE}_{it} + \beta_2 (1/\text{ASSETS}_{it-1}) + \beta_3 \Delta\text{SALES}_{it} + \beta_4 \Delta\text{PPE}_{it} \qquad (3)$$
$$+ \beta_5 \text{ROA}_{it} + \beta_6 \text{AGERET}_{it} + \beta_7 \text{SIZE}_{it} + \beta_8 \text{SGROWTH}_{it} + \beta_9 \text{LEV}_{it} + \varepsilon_{it}$$

The definitions for the variables in equation (3) are the same as the definition for the variables in equation (1) and equation (2). Since these two equations are combined into a single model, the variable CEO_AGE on TAC_{it} still reflects the CEO_AGE effect on discretionary accruals as in equation (2). Therefore to test the two hypotheses, equation (3) is applied to the four different samples. Thereafter the coefficients that are retrieved for the variable CEO_AGE are

compared to each other to see if these are statistically significantly different for the separate samples as mentioned earlier. So, to reject the hypotheses or not and therefore to conclude whether the effect of CEO's age on earnings management uniformly affects all industries, the results from equation (3) are used.

5 Empirical results

5.1 Introduction

The previous chapter provided the empirical research design. In this chapter the empirical results are discussed. First the regressions are performed and the results of the regression are presented. After that the results and the hypotheses are discussed. Lastly a summary of this chapter is given.

5.2 Performing the regression models

As stated in the previous chapter, the sample has to be split two times. So the regression will be performed on the four final samples. Each sample has in the end 3312 or 3313 of firm level observations. After this is done, equation (3) is performed on the each of the samples. The results of this are given in table 5 and table 6 of appendix B. The results of these single-step regressions, that are reflected by equation (3), are analysed and used to conclude whether the effect of CEO's age on earnings management uniformly affects all industries. Only the coefficient of interest (CEO_AGE) and the control variables that are used for the analysis are given in table 5 and table 6 of appendix B.

5.2.1 Performing regression on subsamples split by net income

First of all, the sample is split into two parts based on the net income. The descriptive statistics of the samples are given in table 3 of appendix. Since the variable TAC was such a small coefficient, the variable is scaled by 100. By doing this, the regression coefficients results become readable. Furthermore given that the level of earnings management differ across industries and over time, there is controlled for the potential industry and time effects in the regression (Peni & Vähämaa, 2010). Therefore a two-way fixed-effects specification is used which allows for a different intercept for each industry according to the NAICS codes and also controls for the possible change in earnings management over time according to the fiscal years. Each company is classified into an specific industry by the NAICS codes. As for example companies with NAICS code 61 are classified into the industry Health Care and

Social Assistance (NAICS Association, 2021). Therefore the level of NAICS codes that are used for the fixed-effects are the different industries given by the NAICS Association (NAICS Association, 2021). The results of the regression are shown in table 5 of appendix B. To test the significance of the difference between the two obtained regression coefficients for CEO_AGE, a t-test is conducted. The results of this t-test are also shown in table 5 of appendix B.

5.2.2 Performing regression on subsamples split by HHI

The sample is split into two parts based on the HHI. The descriptive statistics of the split samples are given in table 4 of appendix B. The variable TAC is also scaled by 100 in this regression. By doing this the regression coefficients results become readable. The fixed effects for the potential industry and time effects are also used in this regression. The results of this regression are shown in table 6 of appendix B. To test the significance of the difference between the two obtained regression coefficients for CEO_AGE, a t-test is conducted. The results of this t-test are also shown in table 6 of appendix B.

5.3 Results of the regression models

This paragraph discussed the outcome of the regression model on the samples. First the results that belong to hypothesis 1 are discussed and after that the results belonging to hypotheses 2 are discussed.

5.3.1 Analysis hypothesis 1

The first hypothesis discusses the relationship between CEO's age and earnings management activity in profitable industries compared to less profitable industries. As mentioned, the results of the regression (equation (3)) on the samples that are split based on net income are presented in table 5 of appendix B. In the first regression on the sample with the 50% of firms with the highest level of net income there seems to be a negative relationship between TAC and CEO_AGE. However the coefficient of CEO_AGE is very small and is also not

significant. Since CEO_AGE is not significant, it cannot be said that CEO_AGE has a negative relationship with TAC in the sample with the 50% of firms with the highest level of net income. In the second regression on the sample with the 50% of firms with the lowest level of net income there is a significant negative relationship between TAC and CEO_AGE. On the basis of this regression can be said that when a CEO gets one year older, the amount of discretionary accruals decreases with 0.166. Since the mean of TAC for this sample of firms with the lowest level of net income is around 0.08, the decreasing of 0.166 is quite great (Table 3, Appendix B). Therefore it can be said that the effect of CEO's age on the discretionary accruals is quite important. Furthermore since discretionary accruals are used as a proxy for earnings management there can be said, based on this sample, that the likelihood of engaging in earnings management decreases quite great when a CEO gets older. This is in line with the earlier published literature that showed a negative effect of CEO's age on earnings management activity (Huang, Rose-Green & Lee, 2012). A reason for this is that ethical standards increased when individuals become older (Wimalasiri, 2001). Wimalasiri (2001) showed evidence that ethical standard increases when individuals get older because the level of moral-reasoning increases with age. Furthermore older individuals are also more conservative and more risk averse and therefore they have a lower likelihood of being involved in earnings management compared to younger individuals (Vroom & Pahl, 1971). The control variable SGROTWH is negative and significant in the regression on the sample with the 50% of firms with the highest level of net income, as expected. In the sample with the 50% of firms with the lowest level of net income SGROWTH is positive and not significant. This is in contradiction to outcomes of prior research (DeAngelo, DeAngelo & Skinner, 1994). In both regressions the control variables SIZE are significant, as expected. However SIZE is a positive coefficient in the sample with the 50% of lowest level of net income. This is also in contradiction to prior research (DeAngelo, DeAngelo & Skinner, 1994). The variable LEV is negative and significant in both regressions, which is as expected (DeAngelo, DeAngelo & Skinner, 1994). Furthermore there can be seen that AGERET is not significant in both regressions. A possible reason for this is that there are too few observations which have an CEO_AGE higher or equal to 62 years.

To see if the null hypotheses of hypothesis 1 have to be rejected or not, the coefficients of CEO_AGE of the regressions (equation (3)) on the samples that are split by net income (Table 5, Appendix B) are tested against each other by using a t-test. The absolute value of the difference between the coefficients CEO_AGE of the two regressions on the two samples

split by net income is 0.140 and is therefore small (Table 5, Appendix B). However the outcome of this t-test shows a significant difference at 5% between the two coefficients of CEO_AGE. This means that CEOs of the same age, do have 0.140 more amounts of discretionary accruals in the financial statements for companies in less profitable industries compared to the CEOs from the same age in more profitable industries. Since the discretionary accruals are a proxy for earnings management, there can be said that the likelihood of engaging in earnings management for CEOs from the same age, is lower in more profitable industries compared to less profitable industries. So there can be said that the null hypothesis which states that there is no difference in the effect of CEO's age on earnings management activity in profitable industries compared to the effect of CEO's age on earnings management activity in less profitable industries, is rejected at a significance level of 5%. Hypotheses 1 which stated: *"Younger CEO engage more in earnings management in less profitable industries compared to more profitable industries"* is therefore supported. It can be concluded there is a significance difference in the effect of CEO's age on earnings management activity in profitable industries compared to the effect of CEO's age on earnings management activity in less profitable industries. Younger CEOs are more likely to engage in earnings management in less profitable industries compared to younger CEOs in more profitable industries.

5.3.2 Analysis hypothesis 2

The second hypothesis discusses the relationship between CEO's age and earnings management activity in competitive industries compared to less competitive industries. The results of the regressions (equation (3)) that are applied on the samples that are split based on HHI are presented in table 6 of appendix B. Again the relation between the variables TAC and CEO_AGE is tested. This relationship was also tested in hypothesis 1, however the samples used for the regressions for both hypotheses are different. The first regression of table 6 is based on the sample with the 50% of observations with the highest level of HHI. The coefficient CEO_AGE is negative and significant at 5% (Table 6, Appendix B). Therefore there can be concluded that CEO_AGE has a negative effect on TAC based on this regression. On the basis of this regression can also be said that when a CEO gets one year older, the amount of discretionary accruals decreases with 0.082. Since the mean of TAC for this sample of firms with the lowest level of HHI is around 0.03, the decreasing of 0.082 is

quite great (Table 4, Appendix B). In the second regression on the sample of firms with the 50% lowest level of HHI, the coefficient of CEO_AGE is negative and significant at 5%. On the basis of this regression can also be said that when a CEO gets one year older, the amount of discretionary accruals decreases with 0.153. Since the mean of TAC for this sample of firms with the lowest level of HHI is around 0.06, the decreasing of 0.153 is also quite great (Table 4, Appendix B). Therefore it can be said that the effect of CEO's age on the discretionary accruals is quite important based on the two regressions. Since discretionary accruals are used as a proxy for earnings management there can be said, based on both samples for HHI, that the likelihood of engaging in earnings management decreases quite great when a CEO gets older. This is in line with the earlier published literature that showed a negative effect of CEO's age on earnings management activity as also stated by the analysis of hypothesis 1 (Huang, Rose-Green & Lee, 2012). Furthermore both regressions in table 6 of appendix B show significant and not significant control variables. The not significant control variables are in contradiction with earlier research. Prior research namely showed significant outcomes of these variables (DeAngelo, DeAngelo & Skinner, 1994).

As by hypothesis 1, to see if the null hypothesis of hypothesis 2 have to be rejected or not, the coefficients of CEO_AGE on the samples that are split by HHI (Table 6, Appendix B) are compared against each other by using a t-test. The absolute value of the difference between the two coefficients of CEO_AGE on the two regressions of the split samples by HHI is very small (0.071). Furthermore the t-test shows a not significant difference at 5% between the two coefficients of CEO_AGE. Therefore the null hypothesis which stated that there is no difference in the CEO's age effect on earnings management activity in more competitive industries compared to the CEO's age effect of less competitive industries cannot be rejected at a significance level of 5%. So hypothesis 2 which stated: *"Younger CEO engage more in earnings management in more competitive industries compared to less competitive industries"* cannot be supported. Therefore it cannot be concluded that younger CEOs engage more in earnings management activity in more competitive industries compared to younger CEOs in less competitive industries. On the basis of this research, there is no significant difference in the effect of CEO's age on earnings management activity in competitive industries compared to the effect of CEO's age on earnings management activity in less competitive industries. The effect of CEO's age on earnings management is therefore not significantly different in competitive industries compared to less competitive industries.

5.4 Summary

This chapter discussed as first the performing of the regression models (equation (3)) on the samples that are split by net income and by HHI. Thereafter the both hypotheses were discussed. The null hypothesis that belongs to the first hypotheses is rejected at a significance level of 5%. Therefore it can be concluded that there is a significant difference in the effect of CEO's age on earnings management activity in profitable industries compared to the effect of CEO's age on earnings management activity in less profitable industries. Younger CEOs are more likely to engage in earnings management activity in less profitable industries compared to younger CEOs in more profitable industries. The regression (equation (3)) that was used for the second hypothesis did not show a significant difference between the coefficients CEO_AGE. The null hypothesis that belongs to the second hypothesis can therefore not be rejected at a significance level of 5%. Therefore it can be concluded that based on this research, there is no significant difference in the effect of CEO's age on earnings management activity in competitive industries compared to the effect of CEO's age on earnings management activity in less competitive industries.

6 Conclusion and limitations

6.1 Answer on the research question

The goal of this thesis was to contribute to the current literature about the relationship between CEO's age and earnings management activity. Prior research also examined this relationship and concluded there is a negative effect of CEO's age on earnings management activity (Huang, Rose-Green & Lee, 2012). How older the CEO gets, the less the CEO is likely to engage in earnings management. However it was unknown whether this negative effect of CEO's age uniformly affects all industries. Therefore this thesis contributes to the current literature by examining the difference in the effect of CEO's age on earnings management activity in various industries. The research question of this thesis is hence the following:

'Does the effect of CEO's age on earnings management uniformly affects all industries?

To answer this research question, two hypotheses were discussed. The first hypothesis was: "*Younger CEOs engage more in earnings management in less profitable industries compared to more profitable industries."*

This hypothesis focuses on the difference in the effect of CEO's age on earnings management in profitable industries compared to the effect of CEO's age on earnings management in less profitable industries. Net income is used to measure the profitability of the industry. After splitting the original sample (Table 2, Appendix B) by net income into two separate samples (Table 3, Appendix B), a regression (equation (3)) on both samples was performed. This regression showed a negative but not significant coefficient for CEO_AGE for the sample with the 50% of firms with the highest level of net income and showed a negative significant coefficient for CEO_AGE for the sample with the 50% of firms with the lowest level of net income (Table 5, Appendix B). The coefficients of CEO_AGE were compared to each other by using a t-test (Table 5, Appendix B). This test showed a significant difference between the coefficient of CEO_AGE for the sample with the 50% of firms with the lowest level of net income and the coefficient of CEO_AGE for the sample with the 50% of firms with the highest level of net income. Therefore it can be said there is a difference in the effect of

CEO's age on earnings management activity in industries with a high level of net income and in industries with a low level of net income. Hence there is support for hypothesis 1. Younger CEOs are indeed more likely to engage in earnings management in less profitable industries compared to younger CEOs in more profitable industries. The effect of CEO's age on earnings management activity is stronger in less profitable industries compared to profitable industries.

The second hypothesis was:

"Younger CEOs engage more in earnings management in more competitive industries compared to less competitive industries."

This hypothesis focuses on the difference in the effect of CEO's age on earnings management in competitive industries compared to the effect of CEO's age on earnings management in less competitive industries. The HHI is used to measure for competitiveness in industries. After splitting the original sample (Table 2, Appendix B) by HHI into two separate samples (Table 4, Appendix B), a regression (equation (3)) on both samples were executed. The regressions showed negative and significant coefficients for CEO_AGE for the sample with the 50% of firms with the highest level of HHI as well as for the sample with the 50% of firms with the lowest level HHI (Table 6, Appendix B). To compare the coefficients a t-test is conducted. This t-test showed a not significant difference between the two regression coefficients of CEO_AGE (Table 6, Appendix B). Hence there is no support for hypothesis 2. There is no significant difference in the effect of CEO's age on earnings management in competitive industries compared to the effect of CEO's age on earnings management in less competitive industries. It cannot be concluded that younger CEOs engage more in earnings management in competitive industries compared to younger CEOs in less competitive industries.

Overall the conclusions of those two hypotheses give an answer to the research question whether the effect of CEO's age on earnings management uniformly affects all industries. Hypothesis 1 makes clear that the effect on CEO's age on earnings management is larger in less profitable industries compared to more profitable industries. Younger CEOs engage more in earnings management in less profitable industries compared to younger CEOs in more profitable industries. Hypothesis 2 indeed showed a difference in the effect of CEO's age on earnings management in more competitive industries compared to less competitive industries.

However this difference is not significant (Table 6, Appendix B). Therefore it cannot be concluded that there is a difference in the effect of CEO's age on earnings management in competitive industries compared to the effect of CEO's age on earnings management in less competitive industries. Based on the results at hypothesis 2, the effect of CEO's age on earnings management is not significantly different in competitive industries compared to less competitive industries. To give an answer to the research question, the effect of CEO's age on earnings management differs in profitable industries compared to less profitable industries but this effect does not differ in competitive industries compared to less competitive industries.

6.2 Contribution of thesis

As stated earlier, the relationship between CEO's age and earnings management have been examined before. Earlier research did found a negative relationship between CEO's age and earnings management (Huang, Rose-Green & Lee, 2012). When the CEOs become older, they become more ethical and therefore they are less likely to engage in earnings management activity (Dawson, 1997). Furthermore earlier research also examined earnings management in different industries. The likelihood to manage earnings is greater in less profitable and in more competitive industries compared to more profitable and less competitive industries (Wasiuzzaman et al., 2015). However it was not investigated before whether the effect of CEO's age uniformly affects all industries or that there was a difference in the effect of CEO's age on earnings management between industries. Therefore this thesis makes a contribution to the current literature by examining whether the effect of CEO's age on earnings management uniformly effects all industries. This is done by a sample of firms from the U.S. (North America). Furthermore the industries where this relationship between CEO's age and earnings management is examined are characterized by profitability and by competitiveness. This thesis therefore contributes to the current literature by examining the effect of CEO's age on earnings management in profitable industries compared to less profitable industries and by examining this effect in competitive industries compared to less competitive industries. The study especially shows that there is indeed a stronger effect of CEO's age on earnings management activity in less profitable industries compared to more profitable industries.

6.3 Research limitations and suggestions for future research.

There are several limitations in this thesis. The first major limitation is that there was not a significant difference between the regression coefficients for CEO_AGE on the sample with the 50% of firms with the highest HHI and the regression coefficient CEO_AGE on the sample with the 50% of firms with the lowest HHI (Table 6, Appendix B). To conclude there is indeed no significant difference in the effect of CEO's age on earnings management activity between competitive and less competitive industries there have to be looked at the statistical power of the regressions. This statistical power is measured by the adjusted R-squared. For the regressions on the split sample by HHI as well as the regressions on the split sample by net income, the adjusted R-squared for the regressions are lower than 0.2 (Table 5 and table 6, Appendix B). These are low values for the adjusted R-squared and therefore there is not enough statistical power to conclude there is no significant difference in the effect of CEO's age on earnings management activity between firms in less competitive and more competitive industries based on the used samples. Hence the statistical power is a big limitation of this thesis. Another possible reason for the not significant results, is the total sample size of 1325 observations. A larger sample could therefore be an improvement for further research. A larger sample size could make that the difference in the regression coefficients for CEO_AGE for hypothesis 2 will also become significant. The second point of limitation is the fact that the sample only consists of firms from the U.S. (North America). Therefore the results in this thesis are only applicable to the industries in the U.S. This makes it hard to generalize the results for industries in the whole world. The reason for this sample, is that the needed data was easy available and it was also convenient to separate the different industries in the U.S. (North America) by using the North American Industry Classification Code (NAICS). An recommendation for further research is therefore to generate a sample with firms from all over the world. This would make the results generalizable. The third possible limitation of this thesis is that discretionary accruals are used to measure for earnings management. In general most studies on earnings management use accruals models as a proxy. Therefore in this thesis discretionary accruals are also used as a proxy for earnings management. However there are different ways to measure earnings management as for example the earnings distribution model in the study of Wasiuzzaman Sahafzadeh and Nejad (2015). An suggestion for future research would therefore be to also use another measure for earnings management. The fourth and last possible limitation of this thesis is the use of the

model of Kothari, Leone and Wasley (2005). The model is used in this thesis since this model is often used in quite similar studies to earnings management. The model of Kothari, Leone and Wasley (2005) is an adjusted Jones model and is used to estimate the amount of discretionary accruals for each firm per year. There are many models to estimate the discretionary accruals and using another model could give other results. An suggestion for future research would therefore be to use another model to estimate the amount of discretionary accruals for each firm per year.

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Appendix

Appendix A

Variable	*Definition*
DACC	Absolute value of discretionary accruals. The total amount of discretionary accruals is estimated by the modified Jones model by Kothari et al. (2005).
CEO_AGE	The average AGE of the one or multiple directors of a firm in a year (age in years) (source: Execucomp)
AGERET	A dummy variable that is 1 if CEO_AGE equals 62 or is higher than 62, and is 0 otherwise.
TA	The total value of the end of the year assets (in million of dollars) (source: Compustat)
TL	The total value of the end of the year liabilities (in million of dollars) (source: Compustat)
NI	The value of the total net income per firm in a year (in million of dollars) (source: Compustat)
PPE	The total gross value of the end of the year property, plant and equipment (in million of dollars) (source: Compustat)
SALES	The total sales in a year per firm (in million of dollars) (source: Compustat)
REC	The total value of the end of the receivables (in million of dollars) (source: Compustat)
LEV	The end of the year total liabilities divided by the end of the year total assets (in percentage). (The assets and liabilities are retrieved from Compustat, however the leverage is calculated by myself)
SGROWTH	The sales growth rate (in percentage). The increase (decrease) in sales compared to prior year. This is calculated by subtracting the total sales in year t-1 from the total sales in year t. Thereafter this amount is divided by the sales in year t -1. (Sales are retrieved from Compustat, however the sales growth is calculated by myself).
TAC	TAC - Total accruals: the change in non-cash current assets minus change in current liabilities excluding the current portion of long-term debt, minus depreciation and amortization expense, scaled by lagged total assets of firm i in year t (Kothari et al., 2005)

TABLE 1: Sampling procedure/ Sample distribution

Panel A: Sample selection procedure

Sampling procedure:	N
Total amount of firm year level observations in dataset:	14.667
Less financial institutions (SIC code 6000-6999)	(5.340)
Less firms with missing observations (mostly caused due to matching with Execucomp)	(8.092)
Total amount of firm year level observations in sample for regression design	1.325

Panel B: Sample distribution of firms per year:			
Year:	Observations (N):	Percentage of total observations:	Cumulative percentage of total observations:
2011	1325	20%	20%
2012	1325	20%	40%
2013	1325	20%	60%
2014	1325	20%	80%
2015	1325	20%	100%

Note. Panel A of this table provides an overview of the sample selection procedure. Panel B provides an overview by the sample distribution of the firms per year.

TABLE 2: Descriptive statistics and correlation matrix

Panel A: Descriptive Statistics

Variables	N	Mean	SD	P25	Median	P75
CEO_AGE	6625	53.45	3.99	51.00	53.50	55.83
AGERET	6625	0.02	0.14	0.00	0.00	0.00
TA	6625	9309.30	24619.37	685.10	2063.80	6794.00
TL	6625	5791.52	14996.10	273.05	1135.97	4223.80
NI	6625	519.77	2269.01	16.59	88.23	339.20
PPE	6625	5809.70	21000.28	229.40	841.20	3087.00
SALES	6625	7488.40	23463.39	656.30	1817.10	5532.00
REC	6625	860.71	2304.12	69.53	212.30	662.91
LEV	6625	0.55	0.27	0.37	0.53	0.68
SGROWTH	6625	0.10	1.01	-0.01	0.05	0.13
SIZE	6625	7.72	1.68	6.53	7.63	8.82
HHI	6625	0.14	0.28	0.01	0.00	0.08
TAC	6625	0.06	0.13	0.00	0.03	0.08

Panel B: Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CEO_AGE												

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(2)	*AGERET*	**0.40**											
(3)	*TA*	**0.08**	**-0.02**										
(4)	*TL*	**0.08**	**-0.02**	**0.96**									
(5)	*NI*	**0.06**	-0.01	**0.77**	**0.68**								
(6)	*PPE*	**0.09**	-0.01	**0.85**	**0.81**	**0.57**							
(7)	*SALES*	**0.07**	0.00	**0.78**	**0.74**	**0.71**	**0.70**						
(8)	*REC*	**0.08**	-0.01	**0.81**	**0.78**	**0.74**	**0.60**	**0.73**					
(9)	*LEV*	0.00	**-0.06**	**0.11**	**0.20**	0.00	**0.09**	**0.10**	**-0.11**				
(10)	*SGROWTH*	**-0.04**	-0.01	**-0.02**	**-0.02**	0.00	**-0.02**	-0.01	-0.01	-0.01			
(11)	*SIZE*	**0.14**	**-0.02**	**0.61**	**0.62**	**0.41**	**0.46**	**0.48**	**0.54**	**0.34**	**-0.03**		
(12)	*HHI*	**0.05**	**0.02**	**0.05**	**0.05**	**0.06**	-0.01	**0.11**	**0.11**	**0.07**	-0.01	**0.13**	
(13)	*TAC*	**0.02**	**-0.02**	0.00	0.00	-0.01	0.00	0.00	0.00	**0.02**	0.00	0.01	0.01

Note. TABLE 2 Panel A provides the descriptive statistics for the variables. Panel B presents correlations between the variables.

The detailed definition of the variables is provided in appendix A. The bold correlations are significant at the 0.01 level.

TABLE 3: Descriptive statistics of samples split by net income

Sample with 50% of observations with the highest level of net income:

Variables	Mean	SD	Median
CEO_AGE	53.97	3.70	54.00
AGERET	0.02	0.14	0.00
TA	16215.30	32731.14	5493.10
TL	9901.81	19691.00	3287.83
NI	1138.10	3009.00	339.30
PPE	9881.20	28392.54	2262.60
SALES	13168.70	31772.36	4445.10
REC	1503.00	3057.43	530.10
LEV	0.59	0.25	0.58
SGROWTH	0.10	1.23	0.06
SIZE	8.78	1.28	8.61
HHI	0.17	0.29	0.02
TAC	0.04	0.14	0.02

Sample with 50% of observations with the lowest level of net income:

Variables	Mean	SD	Median
CEO_AGE	52.93	4.26	53.00
AGERET	0.02	0.14	0.00
TA	2405.30	6771.26	719.50
TL	1682.48	5325.81	326.38
NI	-98.40	693.64	16.59
PPE	1739.33	6555.93	288.45
SALES	1809.80	5230.76	698.80
REC	218.66	669.37	87.06
LEV	0.50	0.28	0.50
SGROWTH	0.10	0.71	0.05
SIZE	6.67	1.33	6.58
HHI	0.10	0.26	0.00
TAC	0.08	0.13	0.06

Differences in mean and median between the split samples:

Variables	Difference in mean	Difference in median
CEO_AGE	1.04***	1.00***
AGERET	0.00	0.00
TA	13810.13***	4773.60***
TL	8227.33***	2961.45***
NI	1236.52***	322.71***
PPE	8141.90***	1974.15***

SALES	11358.98***	3746.30***
REC	1284.30***	443.04***
LEV	0.09***	0.08***
SGROWTH	0.00	0.01***
SIZE	2.11***	1.74***
HHI	0.06***	0.02***
TAC	0.04***	0.04***

Note. Table 3 provides the descriptive statistics for the variables for the sample, which has 3312 observations (N), with the 50% of observations that has the highest level of net income. Table 3 also provides the descriptive statistics for the variables for the sample, which has 3313 observations (N), with the 50% of observations that has the lowest level of net income. Furthermore the table provides the absolute differences between the two samples for the mean and median. A t-test is used to measure the significance of the difference in the means of the two samples. Mood's median test is used to measure the significance of the difference in medians of the two samples. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels.

TABLE 4: Descriptive statistics of samples split by HHI

Sample with 50% of observations with the highest level of HHI:

Variables	Mean	SD	Median
CEO_AGE	53.82	3.75	53.75
AGERET	0.02	0.15	0.00
TA	13330.20	31281.55	3571.30
TL	8261.34	19061.30	2167.68
NI	877.90	3035.95	161.12
PPE	7342.10	25532.41	1441.50
SALES	12170.20	31103.04	3604.10
REC	1368.70	3034.62	399.50
LEV	0.59	0.23	0.57
SGROWTH	0.07	0.22	0.05
SIZE	8.26	1.55	8.18
HHI	0.27	0.34	0.08
TAC	0.03	0.14	0.05

Sample with 50% of observations with the lowest level of HHI:

Variables	Mean	SD	Median
CEO_AGE	53.08	4.20	53.20
AGERET	0.01	0.13	0.00
TA	5289.50	14200.56	1154.30
TL	3322.46	8622.34	527.04
NI	161.74	908.88	44.84
PPE	4277.70	15020.66	445.70
SALES	2808.00	9493.31	890.40
REC	352.93	946.49	117.50
LEV	0.50	0.30	0.48
SGROWTH	0.13	1.40	0.06
SIZE	7.18	1.63	7.05
HHI	0.00	0.00	0.00
TAC	0.06	0.10	0.03

Differences in mean and median between the split samples:

Variables	Difference in mean	Difference in median
CEO_AGE	0.74***	0.55***
AGERET	0.01*	0.00
TA	8040.70***	2417.00***
TL	4938.88***	1640.64***
NI	716.16***	116.28***
PPE	3064.40***	995.80***
SALES	9362.20***	2713.70***
REC	1015.77***	282.00***

LEV	0.09***	0.09***
SGROWTH	0.06**	0.01***
SIZE	1.08***	1.13***
HHI	0.27***	0.08***
TAC	0.03***	0.02***

Note. Table 4 provides the descriptive statistics for the variables for the sample, which has 3312 observations (N), with the 50% of observations that has the highest level of HHI. Table 3 also provides the descriptive statistics for the variables for the sample, which has 3313 observations (N), with the 50% of observations that has the lowest level of HHI. Furthermore the table provides the absolute differences between the two samples for the mean and median. A t-test is used to measure the significance of the difference in the means of the two samples. Mood's median test is used to measure the significance of the difference in medians of the two samples. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels.

TABLE 5: The effect of CEO's age on discretionary accruals on the split samples by net income by using a single-step regression model

Dependent variable =	TAC_{it}	TAC_{it}	Difference in CEO_AGE
	(1)	(2)	(1) – (2)
CEO_AGE	-0.026	-0.166***	0.140**
	(0.459)	(-6.426)	
AGERET	-0.003	1.047	
	(-1.549)	(1.288)	
SIZE	1.080***	-2.013***	
	(-2.765)	(-5.612)	
SGROWTH	-0.267**	0.926	
	(-2.019)	(-2.330)	
LEV	-2.277***	-2.702***	
	(-3.282)	(-5.117)	
CONSTANT	-5.049***	22.245***	
	(-4.023)	(7.795)	
OBSERVATIONS	3312	3313	
Adj. R-squared	0.0681	0.1739	
Industry F.E.	Yes	Yes	
Year F.E.	Yes	Yes	
S.D. Cluster	Year	Year	

Note. Table 5 presents the results from estimating the following OLS regression:

$$TAC_{it} = \alpha_0 + \beta_1 CEO\_AGE_{it} + \beta_2(1/ASSETS_{it-1}) + \beta_3 \Delta SALES_{it} + \beta_4 \Delta PPE_{it} + \beta_5 ROA_{it}$$
$$+ \beta_6 AGERET_{it} + \beta_7 SIZE_{it} + \beta_8 SGROWTH_{it} + \beta_9 LEV_{it} + \varepsilon_{it}$$

The results given under dependent variable "TACit" (1) represent the results for the regression on the sample with the 50% of observations with the highest level of net income. The results given under dependent variable "TACit" (2) represent the results for the regression on the sample with the 50% of observations with the lowest level of net income. Only the variable of interest and the control variables are provided. The detailed variable definitions are provided in Appendix A. T-statistics are provided in parentheses. Furthermore the table provides the absolute difference of the regression coefficient CEO_AGE (1) – (2). A t-test is conducted to test the significance of the difference between the regression coefficients. A standard error of 0.0491 is used. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels.

TABLE 6: The effect of CEO's age on discretionary accruals on the split samples by HHI by using a single-step regression model

Dependent variable =	TAC$_{it}$	TAC$_{it}$	Difference in CEO_AGE
	(1)	(2)	(1) – (2)
CEO_AGE	-0.082***	-0.153***	0.071
	(-2.669)	(-3.531)	
AGERET	-2.600**	1.899	
	(2.105)	(-1.619)	
SIZE	0.101	-1.365***	
	(-0.612)	(-4.267)	
SGROWTH	-1.897	-0.178	
	(-0.707)	(-0.310)	
LEV	-4.229***	-3.633***	
	(-3.505)	(-4.273)	
CONSTANT	7.362***	2.308***	
	(3.336)	(9.934)	
OBSERVATIONS	3312	3313	
Adj. R-squared	0.0603	0.1488	
Industry F.E.	Yes	Yes	
Year F.E.	Yes	Yes	
S.D. Cluster	Year	Year	

Note. Table 6 presents the results from estimating the following OLS regression:

$$\text{TAC}_{it} = \alpha_0 + \beta_1 \text{CEO\_AGE}_{it} + \beta_2 (1/\text{ASSETS}_{it-1}) + \beta_3 \Delta \text{SALES}_{it} + \beta_4 \Delta \text{PPE}_{it} + \beta_5 \text{ROA}_{it}$$

$$+ \beta_6 \text{AGERET}_{it} + \beta_7 \text{SIZE}_{it} + \beta_8 \text{SGROWTH}_{it} + \beta_9 \text{LEV}_{it} + \varepsilon_{it}$$

The results given under dependent variable "TACit" (1) represent the results for the regression on the sample with the 50% of observations with the highest level of HHI. The results given under dependent variable "TACit" (2) represent the results for the regression on the sample with the 50% of observations with the lowest level of HHI. Only the variable of interest and the control variables are provided. The detailed variable definitions are provided in Appendix A. T-statistics are provided in parentheses. Furthermore the table provides the absolute difference of the regression coefficient CEO_AGE (1) – (2). A t-test is conducted to test the significance of the difference between the regression coefficients. A standard error of 0.0491 is used. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels.