Erasmus School of Economics[1]

Bachelor Thesis Financial Accounting

CEO tenure and goodwill impairments

An empirical study on the relation between CEO tenure and goodwill impairments in North American publicly listed companies.

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Abstract

This paper examines whether CEO tenure influences goodwill impairment, by investigating if goodwill impairments are more likely to happen under first-year CEOs compared to their senior counterparts. Bloom (2009) fuels this question by stating that the introduction of SFAS 142 has led to a manipulation of goodwill impairments, handing CEOs the chance to use goodwill impairments as a form of earnings management. This phenomenon, known as 'big bath accounting', implies that CEOs are willing to understate earnings in the current period, allowing them to take credit for the higher reported earnings in the following years. Observations (N = 11,706) from North American public companies between 2014 and 2023 were used in multiple linear and logistic regression models to test the hypotheses. The results show that (a) the chance of a goodwill impairment occurring is more likely under first-year CEOs and (b) there were significantly greater goodwill impairments in relative size under first-year CEOs. Hence, these findings do support the notion of 'big bath accounting'.

Keywords: Goodwill impairment, earnings management, CEO tenure, 'big bath accounting'

[1] The views stated in this thesis are those of the author and not necessarily those of Erasmus School of Economics or Erasmus University Rotterdam.

Table of Contents

1. Introduction

Since 1985, more than 325,000 mergers and acquisitions have been announced in the United States (hereafter US) with a known value of almost 34,900 billion US dollars, and it reached an all-time high of 25,170 deals in 2021 (Institute for Mergers, Acquisitions, and Alliance, 2024). In an acquisition, one company purchases the majority, or all of another company's shares to gain control of that company (Hargreaves Lansdown, 2024). Consequently, goodwill is created as an intangible asset that appears on the balance sheet for a price premium (Săcui & Sala, 2018). This price premium is known as the total excess of the purchase price over the fair value of net identifiable assets (Henning et al., 2020).

Since 2001, companies require an annual impairment test to take place for goodwill to check whether the carrying amount on the balance sheet is still recoverable on the date of the impairment test (Beatty & Weber, 2006). The goodwill impairment test begins by comparing the fair value of a reporting unit with its carrying amount, including goodwill (FASB, 2001). Afterwards, the company should report a goodwill impairment loss if the fair value is below its carrying amount. A major cause of a goodwill impairment loss has to do with overpayment, which implies that the purchase price is 'too high', and hence the carrying amount of goodwill becomes bigger and is no longer recoverable in the future. This overpayment can be linked to managerial hubris which implies that bidding firms infected by hubris pay too much for their target value, due to managers overestimating their own ability to manage the target (Roll, 1986). Another reason goes hand-in-hand with Bloom's (2009) statement that goodwill impairments, since the adoption of SFAS 142 in 2002, have been subjected to manipulation as the impairment is calculated on the basis of forecasts which are unreliable. This leads to a form of earnings management that is better known as 'taking a big bath', which implies that CEOS are willing to manage earnings downwards in the current period, in order to take credit for the reported earnings being higher in the future (Kirschenheiter & Melumad, 2002).

Additionally, according to Albersmann et al. (2020) goodwill impairment tests can be used as a form of earnings management. There have been several studies to investigate the effects of CEO tenure on earnings management as a whole, mostly claiming that a new CEO tends to overstate the expenses in their first year in order to inflate the earnings of the coming years (Strong and Meyer, 1987; Pourciau, 1993). In order to combine CEO tenure and goodwill impairment, this thesis will answer the following research question:

What is the impact of CEO tenure on goodwill impairments in publicly listed companies in the US and Canada, during the time period of 2014 to 2023?

The thesis offers social relevance, in the way that examining the impact of CEO tenure on goodwill impairments can provide insights as to how investors should be careful to interpret the financial statements of a company, in the case of a new CEO. Moreover, it could be of importance to regulatory bodies, such as the Financial Accounting Standards Boards (hereafter FASB), to look at ways impairment tests of goodwill can be modified in the future in order to not be a form of earnings management.

The study uses data of Compustat North America which is used to gather US and Canadian fundamental and market information on active and inactive publicly held companies (Wharton Research Data Services, n.d.-a). Hence, the sample of this study covers active and active publicly held companies in the US and Canada. This sample was chosen as the data of these companies is relatively easy to retrieve, as compared to private companies in Europe for example. Moreover, a lot of prior literature is also focused on (North) American companies, thus the findings of this study are able to build on existing theories.

It is hypothesized (H1) that goodwill impairments are more likely to occur under first-year CEOs, as compared to their senior counterparts. H2 states that goodwill impairments would be greater in relative size under first-year CEOs, compared to their senior counterparts. H3 delves into the final year of the CEO, stating that goodwill impairments are greater in relative size in the final year of a CEO tenure. While H1 is tested with a logistic regression model, H2 and H3 are tested with linear regression models. The independent variables in the models use the data on CEO tenure. The tenure of a CEO will be coded with the help of the dummy variable $Early\ Years_{it}$ which is equal to 1 for the first three years of service for a CEO and equal to 0 for the other years in the sample period. The same idea applies to the variables of the first five years, and the final years of CEOs' service. Appendix A contains a list of all the variables used in this research.

For the dependent variables in the empirical analysis, the data on goodwill impairments will be used. The sample period in this research will cover the years from 2014 to 2023. This offers the thesis the opportunity to investigate the average CEO tenure, as many CEOs mention a seven-year average as their ideal tenure for the role, while directors say that CEOs should leave the job after 9.5 years (Citrin et al., 2019). Moreover, it ensures that the research does not overlap with prior research of Jordan and Clark (2015) which covers the sample period from 2003 to 2013.

From the findings of the hypotheses, it can be concluded that the tenure of a CEO does influence the goodwill impairments in public companies in the US and Canada, both the event itself and its relative size. The results of the hypotheses suggest that there is strong evidence that there is a significantly greater chance of goodwill impairments under first-year CEOs, compared to their

senior counterparts, on average for this data sample. Also, CEOs in their final year impair significantly more goodwill than in their other years.

Next, we focus on how to interpret the findings and their implications. From a theoretical perspective, the findings do support the notion of "big bath accounting" as executive management make accounting choices such that it is favorable for their own position. The findings provide empirical evidence that CEOs try to achieve this by impairing goodwill early in their tenure. The practical implications include providing insights for regulatory bodies, board of directors of companies and investors.

This thesis aims to contribute to the literature on CEO tenure, earnings management and goodwill impairments by bridging the gap between CEO tenure and goodwill impairments. While the current literature focuses mostly on the role of CEO tenure on earnings management in general, this study offers insights into the role of CEO tenure on goodwill impairments in the context of publicly listed companies in the US and Canada. Also, the literature on CEO tenure seems to be outdated, hence this study has the ability to investigate whether the effects of CEO tenure on earnings management have evolved.

The study does have some limitations within its methodology. Firstly, the database of Compustat North America does not have all the data concerning the control variables that are used in the research of Ali and Zhang (2015), which is used as inspiration for these variables. This results in omitted variable bias, which makes it difficult to establish a direct causal relationship. Secondly, the database of Compustat is a publicly available database, which might give incomplete or incorrect information, potentially harming the validity of the research. To combat these problems for future research, one can use only privately available information that has been reviewed. Another limitation is found in the results section as there is no statistical justification for the cutoff period of three years for the variable $Early\ Years_{it}$.

Future research could aim to expand the scope and diversity of the sample by including private companies and firms from various other countries to test the generalizability of our findings. Within such research, it could be interesting to investigate if there are significant differences between the regulatory environment of the US (FASB) or the accounting standard of IFRS that is mostly used in European countries.

The rest of the paper is organized as follows. Section 2 presents a literature review in which the hypotheses are formed. Section 3 and 4 discuss the data and methodology. Section 5 displays the results and Section 6 contains the conclusion and discussion.

2. Literature review

This section provides an overview of definitions and prior literature that is needed to answer the research question of the thesis. Subsections 2.1 to 2.3 define CEO tenure, goodwill and its forms, goodwill impairment, thereby discussing how goodwill impairment can be seen as a form of earnings management, next to the possible causes and consequences of goodwill impairment. Subsections 2.4 and 2.5 summarize the prior literature regarding CEO tenure and earnings management, also specifically in the form of goodwill impairments. This section ends with subsection 2.6 which introduces the hypotheses tested in the empirical part of the thesis.

2.1 CEO tenure and earnings management

The thesis relates to three streams of literature. First, it relates to the literature on the relationship between CEO tenure and earnings management. The tenure of a chief executive officer (CEO), known as the time a person spends in the CEO position, is one of the key observable characteristics of the CEO, and therefore frequently used in the academic fields of management and accounting (Darouichi et al., 2021). The tenure of a CEO is often used as a proxy for the CEO's exercise of social influence, with regards to relationships with boards of directors or individual executives. A recent study conducted by Equilar shows that the average tenure of S&P 500 CEOs has decreased during the period of 2013 to 2022. In 2013, the average CEO tenure was 7.6 years, and by 2022 it had dropped to 7.2 years (Chen, 2023). On the other hand, the 100 best-performing CEOs who appear on Harvard Business Review's 2019 list have an average tenure of 15 years, more than double the S&P average of 7.2 years (HBR Editors, 2023).

To explore the relationship between CEO tenure and earnings management, there should also be a clear definition of earnings management. A paper by Beneish (2001) includes a definition of earnings management: "the process of taking deliberate steps within the constraints of generally accepted accounting principles to bring about a desired level of reported earnings." (Cited in Schipper, 1989, P.92). Previous studies have shown different results for CEOs tend to manage earnings in their first year of service. A study by Ali and Zhang (2015) examines changes in CEOs' incentive to manage earnings during their tenure as CEO. For the empirical analysis of their study, Ali and Zhang considered earnings management through accruals manipulation in which they follow the cross-sectional accruals model suggested by McNichols (2002), and through real activities manipulation in which they follow the model of Roychowdhury (2006), a model that captures discretionary expenses like R&D and advertising. Their results, for the sample period 1992 to 2010, show that earnings are more likely to be overstated in the early years than in the later years of CEOs'

service (Ali & Zhang, 2015). A paper by Pourciau (1993) contradicted this finding, as the study investigates the relationship between nonroutine executive changes and discretionary accounting choices. The results suggested that new executives record accruals and write offs such that earnings are lower in the year of executive change, with increasing earnings in the subsequent years. Subsequently, this form of earnings management allows CEOs to take credit for the higher reported earnings in the following years.

Also, Strong and Meyer (1987) delve more into the thoughts behind writing down assets as a way to manage earnings. In order to research the decision to write down assets, they used a paired case-control methodology to assess the financial characteristics of writedown and non-writedown firms. Their sample counted 120 writedown firms, and each of the 120 firms was matched by industry with two firms that did not choose to write down any assets. Next to the same industry, these control firms were selected by size, measures by total assets, to match the writedown firms as closely as possible (Strong & Meyer, 1987). Afterwards, a table is presented which highlights the systematic differences between the two groups for (financial) variables, such as debt to asset ratio, market to book ratio or outside management change. Ultimately, they concluded that the most significant difference between the two groups is a change in senior management. Hence, the decision to write down assets can be linked to CEO tenure, especially if the CEO comes from outside the company.

2.2 Earnings management and goodwill impairment

The second stream of literature that relates to this thesis focuses on the relationship between earnings management and goodwill impairments. Bloom (2009) states that goodwill impairments, since the adoption of SFAS 142 in 2002, have been subjected to manipulation as the impairment is calculated based on forecasts which are unreliable. This phenomenon is better known as 'taking a big bath', which implies that a company is willing to manipulate earnings in the current period in order to report higher earnings in the future (Kirschenheiter & Melumad, 2002). Before delving into the details of goodwill impairment as a form of earnings management, there must be a basis to understand how goodwill and goodwill impairments are defined in financial reporting.

According to Bloom (2009) goodwill can be defined as an intangible asset, either in the form of purchased goodwill or inherent goodwill. Johnson and Petrone (1999) dive deeper into the details of the definition of goodwill in their top-down perspective that views goodwill as a component of a larger asset. Under this perspective, the larger asset, known as the investment, must qualify as an asset before it is broken down into the different components. After the identifiable net assets are recorded, the remainder is assigned to goodwill and as such, goodwill is referred to as what is "left

over". Subsequently, goodwill may be viewed as a component of an acquisition, which is based on the acquirer's expectations about future earnings from the acquiree and the combination (Johnson & Petrone, 1999). The Economic Times (2024) provides a similar definition in the sense that goodwill is a company's reputation for expected future profits that exceed the normal rate of profits in the industry, resulting in an ability of a company to generate super-profits in the future. In early work from P.D. Leake (as quoted in Sterrett, 1915), examples of goodwill include rights to carry on industrial and commercial enterprises, the use of trade-names and trade-marks, patent rights and copyrights. Other explanations include personality, locality, connections, premises, reputation and skill, and quality of goods (Cooper, 2007).

According to international and national accounting bodies such as the International Accounting Standards Committee (IASC) and the FASB, purchased goodwill is considered as an intangible asset that appears as a result of the acquisition of one company by another, for a price premium (Săcui & Sala, 2018). Under US GAAP, SFAS No. 141 states that purchased goodwill refers to the "excess of the cost of an acquired entity over the net of the amounts assigned to assets required and liabilities assumed" (FASB, 2008). In other words, it is known as the total excess of the purchase price over the fair value of net identifiable assets (Henning et al., 2020).

The other form of goodwill is known as inherent goodwill. The Economic Times (2024) defines inherent goodwill as the firm's worth that is greater than the fair value of its separable net assets. The main difference with regards to purchased goodwill is that inherent goodwill develops over time due to a company's strong reputation, while purchased goodwill arises from a transaction like an acquisition. Subsequently, inherent goodwill is also known as internally generated goodwill or non-purchased goodwill (Oxford University Press, 2010). This means that inherent goodwill falls under US GAAP guidance ASC 350, which implies that any costs associated with internally developed intangible assets should be expensed as incurred (Stuart, 2020a). Hence, inherent goodwill cannot be capitalized in the balance sheet under US GAAP (Jerman & Manzin, 2008).

2.3 Goodwill impairments

2.3.1 Accounting for goodwill impairments

Prior to the publication of the FASB statement No. 142, Goodwill and Other Intangible Assets (hereafter, SFAS 142) in 2001, the accounting rules for goodwill impairments fell under the Accounting Principles Board Opinion No. 17 (hereafter, APB 17). Within APB 17, the Board concludes that the cost of each type of intangible asset, including goodwill, should be amortized systematically over a period not exceeding 40 years (EFRAG, 2014). Also, APB 17 states that companies should evaluate the periods of amortization continually to determine whether later events and

circumstances warrant revised estimates of useful lives (AICPA, 1970). This could eventually lead to an impairment loss, which implies that impairment tests under APB 17 only take place in the occurrence of a special event or circumstance that indicates that the carrying amount of an asset, in this case goodwill, may not be recoverable.

SFAS 142 significantly changed the way in which companies need to report accounting for goodwill. Firstly, SFAS 142 eliminates goodwill amortization and secondly, it requires goodwill to be evaluated for impairment at least annually, or to be consistent with APB 17, if events or changes in circumstances indicate that the carrying amount of an asset obtained in an acquisition may not be recoverable (Beatty & Weber, 2006). The goodwill impairment test consists of a two-step process which begins by comparing the fair value of a reporting unit with its carrying amount, including goodwill (FASB, 2001). If the carrying amount of the reporting unit exceeds its fair value amount, the entity should recognize this as an impairment loss (Stuart, 2020b). The second step measures the amount of the impairment loss, including a remeasurement of the fair value of a reporting unit (FASB, 2001).

However, to perform step two, an entity must assign the fair value of a reporting unit to all of the assets and liabilities of that unit, including any unrecognized intangible assets, as if the reporting unit had been acquired in a business combination (Deloitte, 2017). Subsequently, this step can become very complicated and expensive to complete which ultimately led an elimination of step 2 as of January 2017. Currently, the test has been simplified to "if the carrying amount of a reporting unit exceeds its fair value, an impairment loss shall be recognized in an amount equal to that excess, limited to the total amount of goodwill, allocated to that reporting unit" (Deloitte, 2017).

2.3.2 Causes of impairments

The paper of Li et al. (2011) suggests that the cause of impairments is mainly focused on the fact that acquirers may often overpay for the target. This overpayment can be linked to two reasons, with the first being that it may result because of agency conflicts in merger and tender offers – managers may launch diversification programs that create no value for shareholders but only satisfy their own preferences for growth, in order to remain entrenched or to decrease the risk associated with managerial human capital (Amihud & Lev, 1981; Morck et al., 1988). Secondly, overpayment can result from managerial hubris which implies that bidding firms infected by hubris pay too much for their target value, due to managers overestimating their own ability to manage the target (Roll, 1986).

2.3.3 Consequences of impairments

An impairment of goodwill affects the financial statement of a company as the journal entry to record an impairment of an asset is to debit the income statement, and a credit to the related asset, which decreases the book value of the asset (Zucca & Campbell, 1992). The value of the impairment in the income statement is a loss, which technically results in lower earnings, and those flow back into the equity section of the balance sheet to reflect a lower book value of equity (Buhlinger, 2022).

2.4 Literature on goodwill impairments as earnings management

After understanding the above concepts, it is now important to delve into several studies that show that goodwill impairments have indeed been used as a form of earnings management. As previously mentioned by Bloom (2009), since the introduction of SFAS 142 the testing of impairment goodwill is subject to manipulation. Research of Herz et al. (2001) discusses the different valuation methods in as to how goodwill impairments are measured, thereby showing that the residual nature of goodwill complicates its measurement. In reality, goodwill results in two ways; purchased goodwill and inherent goodwill, see subsection 2.3, whereas SFAS 142 treats goodwill as it is only required through purchased goodwill. Hence, the impairment test under this standard could reveal untrue results. For example, an entity might have an existing goodwill balance from a prior acquisition, and this purchased goodwill is now worthless. However, because the firm generated inherent goodwill, either before or after the acquisition, the goodwill impairment test under SFAS 142 might result in no write-down (Jordan et al., 2007). This shows that the standard could be harmful providing correct financial reports.

Moreover, Herz et al. (2001) also point out that any measurement errors in computing the fair value of net assets directly affects the value of goodwill, which in turn affects the amount of a goodwill impairment. This shows that the testing of impairment goodwill is subject to manipulation as this error could also be intentional or focused on certain desired outcomes. Similarly, Massoud and Raiborn (2003) note that companies may be able to choose whether to recognize an impairment loss such that it suits their results. For example, a company might decide to recognize an impairment loss when it is already suspecting a significant loss for that year. Subsequently, goodwill impairments can be seen as a form of earnings management.

Furthermore, research by Sevin and Schroeder (2005) examines the relationship between the standards of goodwill impairments under SFAS 142 and earnings management in 2002, the year when SFAS 142 was adopted. The research includes a sample of over 200 randomly selection companies that differ in size, in which big bath indicator ratios like *Return on Assets* and *Return on Sales* are compared between the years 2001 and 2002. Their results argue that the adoption of SFAS

142 contributes to companies engaging in earnings management, whereas small firms experienced a significantly greater impact and were more likely than large firms to take big bath charges (Sevin & Schroeder, 2005).

2.5 CEO tenure and goodwill impairment

The third stream of literature directly relates to the main research question of this thesis which examines the relationship between CEO tenure and goodwill impairments, in the context of publicly listed companies in the US and Canada. The study by Masters-Stout et al. (2008) has a similar purpose as it focuses on the tenure of the CEOs of publicly held companies and their corresponding goodwill impairment decisions, in the context of the Fortune 500 companies during the period 2003 to 2005. The analysis part consists of multiple linear regressions with three measures of goodwill impairment being analyzed: the impairment after taxes, the impairment after taxes as a percentage of the number of sales and the impairment before taxes as a percentage of the total assets serving as the dependent variable. The primary independent variable of interest is the number of years the CEO is in office, with a new CEO being coded as 1 if he/she became CEO within the last two years (Masters-Stout et al., 2008). The results of the paper show that for all the impairment measures, the impairment is higher for the new CEOs, compared to that of senior CEOs. Furthermore, the regression also includes earnings which shows that when earnings are positive, a smaller amount of impairment is expected. Differently put, as net income declines, the new CEOs tend to increase the amount of the impairment more than the senior CEOs, suggesting that new CEOs are more inclined to take the big bath (Masters-Stout et al., 2008). Overall, their findings conclude that new CEOs impair more goodwill than senior CEOs.

This thesis aims to contribute to the literature on CEO tenure, earnings management and goodwill impairments by bridging the gap between CEO tenure and goodwill impairments. While the current literature focuses mostly on the role of CEO tenure on earnings management in general, this study offers insights into the role of CEO tenure on goodwill impairments in the context of publicly listed companies in the US and Canada. Also, the literature on CEO tenure seems to be outdated, hence this study has the ability to investigate whether the effects of CEO tenure on earnings management have evolved.

2.6 Hypotheses development

Based on the prior literature that is stated in subsections 2.4 and 2.5, there is most likely going to be a positive relationship between the early years in the CEO tenure and whether a goodwill impairment takes place. In order to answer the main research question of this thesis, three hypotheses have been formulated.

As mentioned in subsection 2.1, there have been numerous papers to investigate the influence of CEO tenure on earnings management. While the paper of Ali and Zhang (2015) concluded that managers tend to overstate their earnings in the early years, Pourciau (1993) stated different findings. That paper investigated the relationship between nonroutine executive and discretionary accounting choices, and found that executives record accruals and write offs such that earnings are lower in the year of executive change, with increasing earnings in the subsequent years. Strong and Meyer (1987) researched the decision-making process in writing off assets, and thereby concluded that the most important reason to write off is a change in senior management. Moreover, Subsection 2.5 analyzed research related to goodwill impairments as a form of earnings management in the work of Masters-Stout et al. (2008), and their results provided compelling evidence that new CEOs impair more goodwill than their senior counterparts. Hence, the first hypothesis has been formulated to test the chance of a goodwill impairment taking place. In order to test whether goodwill impairments are more likely to happen under new CEOs, the following hypothesis has been formulated:

Hypothesis 1*: The event of a goodwill impairment loss is more likely to occur under first-year CEOs compared to CEOs who are longer in a company, on average.*

After having tested for the standalone event of a goodwill impairment taking place, it is also interesting to look at how much the goodwill impairment relatively differs in size between first-year CEOs, as compared to their senior counterparts. This puts into perspective what the difference is, measured in dollars. In order to test for this case, the following hypothesis has been formulated:

Hypothesis 2*: Goodwill impairment losses are greater in relative size under first-year CEOs compared to CEOs who are longer in a company, on average.*

The third hypothesis focuses on the 'horizon problem' problem which states that voluntary departing CEOs overstate earnings to favorably influence their final year pay and other associated benefits (Ali and Zhang, 2015). This implies that for goodwill impairments, which is a form of earnings management (see Section 2), that it should be lower in that year. In order to test this, the following hypothesis has been formulated:

Hypothesis 3*: Goodwill impairment losses are smaller in relative size in the final year of a CEOs' service, as compared to the earlier years.*

3. Data

This section provides insights into the data that is used in order to test the hypotheses stated in subsection 2.6. The section starts with subsection 3.1 which discusses the sample selection of the thesis. Afterwards, subsection 3.2 focuses on the transformations that have taken place in the dataset. It concludes with the descriptive statistics in subsection 3.3, accompanied by a table.

3.1 Sample selection

All the data that are necessary to conduct this study is obtained from the Wharton Research Data Services (WRDS), specifically in the database of Compustat. Compustat is a database that provides financial statement data of North American, active and inactive, publicly traded companies (Wharton Research Data Services, n.d.-b). Compustat North America is a database within Compustat that is used to include the annual fundamentals of each publicly listed companies in the US and Canada, such as the impairment losses on goodwill for each company per year. This research uses the impairment loss on goodwill after tax, as it is assumed that the impairment test of goodwill is performed on post-tax basis, similarly to the impairment test of goodwill under IFRS (EFRAG, 2020). The information on CEOs is retrieved from Execucomp, which provides data regarding the specific date each CEO started in their role as CEO. The sample period in this research will cover the years from 2014 to 2023. This timeframe is chosen as it offers the thesis the opportunity to investigate the average CEO tenure, as many CEOs mention a seven-year average as their ideal tenure for the role, while directors suggest that CEOs should leave the job after 9.5 years (Citrin et al., 2019). Moreover, it ensures that the research does not overlap with prior research of Jordan and Clark (2015) which covers the sample period from 2003 to 2013. Similarly, the research of Masters-Stout et al. (2008) covers a sample period from 2003 to 2005 which shows that the literature on CEO tenure is relatively outdated, giving this study the ability to investigate whether the effects of CEO tenure on goodwill impairments have evolved since then.

3.2 Data transformations

In order to test the hypotheses, several new variables need to be created. The first new variable, *Relative Size Impairment*, comes in the form of dividing the goodwill impairment losses by the total assets of the company in that year, such that a relative size of the goodwill impairment losses arises, which provides the opportunity to compare the goodwill impairments between companies of all different sizes. Also, to test the first hypothesis, a dummy variable *Impairment Event* is created that

takes the value of one when an impairment of goodwill has taken place in that year, and zero otherwise.

Moreover, there are also new variables for the data on CEO tenure. There is a variable, *Years as CEO*, that calculates the number of years a CEO is in that company, that increases each year that CEO is in charge of that company, up until a new CEO is in charge of that company, and the variable then goes back to the value of 1 again. However, for all the CEOs that are in charge in (the fiscal year of) 2014, one needs to be careful and look at complementary data to assess how long this CEO has already been in that company. Execucomp also provides data on the date when he or she became CEO at that company, and hence the number of years a CEO is in that company can be computed. Next to that, there is a dummy variable created which is denoted as *Early Years*, equivalent to one for all the observations for the first three years as a CEO in a company, and zero otherwise. The dummy variables are also created independently for the first five years. Observations that do not contain data about goodwill or other variables used in statistical tests (see table 1), in the timeframe of 2014 to 2023, are removed from the sample. All continuous variables are winsorized at the 1st and 99th percentiles, removing the outliers from the sample. The final sample counts 11,706 observations, which includes 2,891 CEOs from 1,732 companies.

Table 1

Sample selection

	Observations
Companies with all required COMPUSTAT goodwill impairment data per firm	128,407
Less:	
Observations without necessary CEO data	(109,147)
Observations without necessary data of control variables	(7,554)
Total observations meeting full sample criteria	***11,706***

3.3 Descriptive statistics

Table 2 presents an overview of the variables that are used in the regression models. The descriptive statistics show several interesting elements in the data sample. Firstly, the average CEO tenure, which is presented as the mean value of the variable *Years as CEO*, is equal to approximately 7.9 years. This value sits slightly above the previously mentioned value of 7.2 years (see subsection 2.1) from a recent study conducted by Equilar (Chen, 2023). This slight increase can be attributed to the way the data is formatted in this sample as the first year of a CEO is coded as 1, whereas this could have also

been coded as 0 as a CEO has not served a full year yet. Secondly, the mean of the dummy variable *Early Years* shows that approximately 35.4 percent of the total observations, which is almost one-third, refer to the first three years of the serving of a CEO life cycle. Similarly, an analysis of 87,000 first-time and newly appointed CEOs by Korn Ferry found out that nearly a third had left their posts within three years (Stevenson & Orr, 2023). Thirdly, the mean value of the variable *Impairment Event* highlights that in approximately 11.7 percent of the total observations a goodwill impairment occurs. As a goodwill impairment appears in only one of six historical years (16.7 percent), a value of 11.7 percent is not too distant (DeChasere, 2024). Lastly, the high standard deviation of the variable *Impairment loss* implies that the dataset contains goodwill impairments of many different sizes. This justifies the reason to scale the goodwill impairments by total assets in order to get relative sizes of the impairment losses. Appendix A contains a description of all the variables used in the thesis.

Table 2

Descriptive statistics of the Variables in the Regression Models

	Mean	Std. Dev.	Median	Minimum	Maximum
Years as CEO	7.923	7.518	5.000	1.000	36.000
Early Years	0.354	0.478	0.000	0.000	1.000
Final Year	0.248	0.432	0.000	0.000	1.000
Impairment Event	0.117	0.322	0.000	0.000	1.000
Impairment Loss	13.733	70.950	0.000	0.000	573.000
Relative Size Impairment	0.003	0.014	0.000	0.000	0.103
BookMarketRatio	0.516	0.480	0.386	0.020	3.036
ROA	0.105	0.123	0.121	-0.314	0.432
Leverage	0.545	0.209	0.557	0.096	0.987
CEO Age	57.288	6.888	57.000	41.000	77.000
Loss	0.209	0.407	0.000	0.000	1.000
LnMVEquity	8.086	1.724	7.993	3.831	12.369
CFO	0.092	0.085	0.090	-0.265	0.324
Lagged Accruals	-0.038	0.077	-0.038	-0.288	0.260
Number of observations			11,706		

4. Methodology

The hypotheses in this thesis are tested with the help of multiple regression models and logistic regression models. Hypothesis 1 is tested by two models with a logistic regression analysis, thereby using the dummy variable *Impairment Event* as its dependent variable. Hypothesis 2 and hypothesis 3 are tested by models with a linear regression analysis, using ordinary least-squares (OLS) with *Relative Size Impairment* as its dependent variable This section provides more insights into how and why the tests are used.

4.1 Hypothesis 1

Hypothesis 1 (H1 hereafter) examines whether the event of a goodwill impairment loss is more likely to occur under first-year CEOs, compared to CEOs that are longer in the company, thereby focusing purely on the event that a goodwill impairment takes place. To investigate H1, a logistic regression analysis takes place. The choice to incorporate a logistic regression in this part of the thesis comes from the fact that the dependent variable, *Impairment Event*, is known to be a binary outcome variable (Castro & Ferreira, 2022). The logistic regression is preferred over the probit regression as the logit model has an easier interpretation than the probit model. The following model is used to test this H1:

$$Logit(p) = log(\frac{p}{1-p}) =$$

$$B_0 + \beta_1 Early\ Years_{it} + \beta_2 CEO\ Age_{it} + B_3 LnMVEquity_{it} + \beta_4 BookMarketRatio_{it} + \beta_5 Leverage_{it} + \beta_6 ROA_{it} + \beta_7 Loss_{it} + \beta_8 CFO_{it} + \beta_9 Lagged\ Accruals_{it} + IndustryFE_{it} + YearFE_{it} + \varepsilon_{it} \quad (1)$$

Where the p stands for the variable $Impairment\ Event_{it}$, which is equal to the probability of a goodwill impairment loss taking place for firm *i* in year *t*. Based on H1, I predict that the coefficient on $Early\ Years_{it}$ is positive, which would indicate that the event of a goodwill impairment loss is more likely to occur under in the first three years of a CEO tenure, as compared to the other years. The other explanatory variables in equation (1) are control variables, based on the prior study of Ali and Zhang (2015), and the availability of the items available in Compustat. The model also controls for the industrial and yearly fixed effects.

The control variables of Ali and Zhang (2015) will be introduced in this paragraph. The thesis uses eight control variables for all the different equations and models in Section 4. $CEO\ Age_{it}$ is the age of the executive as reported in the annual proxy statement, which refers to the CEO's age at the beginning of year *t*. The models control for the age of a CEO as, in the context of R&D expenses that CEOs closer to retirement will not invest as much in R&D as the effect on higher earnings will likely

show up after they have retired (Cheng, 2004). For goodwill impairments, this could imply that older CEOs are also less likely to impair goodwill as they will not profit as much from the 'big bath accounting', hence a negative coefficient is suspected. $LnMVEquity_{it}$ is the log of market value of equity at the beginning of year *t*. Larger firms tend to report less aggressively due to greater political costs, hence for goodwill impairments a negative coefficient is suspected (Watts and Zimmerman, 1986). $BookMarketRatio_{it}$ is the book value of equity divided by the book value of equity at the beginning of year *t*. Ali and Zhang (2015) use the market-to-book ratio and provide evidence that high growth prospects (high market-to-book) are concerned about missing earnings benchmarks, which means a smaller place for goodwill impairments, hence a negative coefficient for market-to-book, and thus a positive coefficient for $BookMarketRatio_{it}$. $Leverage_{it}$ is total debt divided by total assets at the beginning of year *t*. Leverage is an important variable to control for, as findings in Becker et al. (1998) find that highly leveraged firms tend to be distressed companies undergoing contractual renegotiations, providing them incentive to reduce earnings, for example via goodwill impairments, hence a positive coefficient is expected. ROA_{it} is earnings before extraordinary items in year *t* divided by total assets at the beginning of year *t*. In the context of R&D and advertising expenses, it is more required to report in the current period, hence a positive coefficient is expected for ROA_{it} (Roychowdhury, 2006). $Loss_{it}$ is a dummy variable that equals one if the firm reports a net loss for year *t*, and zero otherwise. Most companies that report a net loss, will also most likely have an impairment loss (positive coefficient), hence we control for it so that we can estimate the effect on goodwill impairment more accurate. CFO_{it} is the net change in cash from all items classified in the Operating Activities section on a Statement of Cash Flows, scaled by total assets at the beginning of year *t*. According to Ashbaugh et al. (2003) discretionary accruals model do not completely extract out nondiscretionary accruals that are negatively correlated with cash flows from operations, hence we expect a positive coefficient in the case of goodwill impairments. $Lagged\ Accruals_{it}$ is total accruals in year *t-1* scaled by total assets at the beginning of year *t*. Ali and Zhang (2015) provide no explanation for the use of the variable $Lagged\ Accruals_{it}$.

In order to justify the cutoff for the period of three years, there will also be a model that estimates the influence of each of the first five years of CEOs' service on the goodwill impairment losses. The other variables remain the same, hence the following model supports model 1:

$$Logit(p) = log(\frac{p}{1-p}) =$$

$$B_0 + \beta_1 Year\ One_{it} + \beta_2 Year\ Two_{it} + \beta_3 Year\ Three_{it} + \beta_4 Year\ Four_{it} + \beta_5 Year\ Five_{it} + \beta_6 CEO\ Age_{it} + B_7 LnMVEquity_{it} + \beta_8 BookMarketRatio_{it} + \beta_9 Leverage_{it} + \beta_{10} ROA_{it} + \beta_{11} Loss_{it} + \beta_{12} CFO_{it} + \beta_{13} Lagged\ Accruals_{it} + IndustryFE_{it} + YearFE_{it} + \varepsilon_{it} \quad (2)$$

Where the p stands for the variable *Impairment Event*$_{it}$, which is equal to the probability of a goodwill impairment loss taking place for firm *i* in year *t*. To be in line with H1, I predict that the coefficients on the first three years are positive, indicating that goodwill impairment losses are more likely to occur in the first three years, as compared to the fourth and fifth year.

4.2 Hypothesis 2

Hypothesis 2 (H2 hereafter) examines whether goodwill impairment losses are greater in relative size under first-year CEOs, compared to CEOs that are longer in the company. To investigate H2, multiple linear regression models are estimated with OLS. A multiple linear regression model is chosen as the dependent variable, *Relative Size Impairment*, is known to be a continuous outcome variable (Castro & Ferreira, 2022). Moreover, an OLS regression is used as it provides the smallest variance among all linear unbiased estimators, making it the best (efficient) estimator (Zhu, 2022). An OLS regression is allowed as the outliers have been removed, and due to the focus on the mean values. The following model is used to test H2:

$$\begin{aligned}\textit{Relative Size Impairment}_{it} = \\ \beta_0 + \beta_1 \textit{Early Years}_{it} + \beta_2 \textit{CEO Age}_{it} + B_3 \textit{LnMVEquity}_{it} + \beta_4 \textit{BookMarketRatio}_{it} + \beta_5 \textit{Leverage}_{it} + \\ \beta_6 \textit{ROA}_{it} + \beta_7 \textit{Loss}_{it} + \beta_8 \textit{CFO}_{it} + \beta_9 \textit{Lagged Accruals}_{it} + \textit{IndustryFE}_{it} + \textit{YearFE}_{it} + \varepsilon_{it} \quad (3)\end{aligned}$$

Where *Relative Size Impairment*$_{it}$ is the dependent variable, known as the goodwill impairment loss of firm *i* scaled by the total assets of firm *i* in year *t*. I predict that the coefficient on *Early Years*$_{it}$ is positive, which would indicate that the relative goodwill impairment losses are greater under the first three years of a CEO tenure, compared to the other years in a tenure. The other explanatory variables are similar to the ones used in equation (1) and (2).

Furthermore, the linear regression also needs to justify its cutoff period for variable *Early Years*$_{it}$ of three years, hence a fourth model is estimated. This model supports model 3 in testing H2, parallel to how model 2 supports model 1 for the testing of H1. Model 4 is specified as follows:

$$\begin{aligned}\textit{Relative Size Impairment}_{it} = \\ B_0 + \beta_1 \textit{Year One}_{it} + \beta_2 \textit{Year Two}_{it} + \beta_3 \textit{Year Three}_{it} + \beta_4 \textit{Year Four}_{it} + \beta_5 \textit{Year Five}_{it} + \beta_6 \textit{CEO Age}_{it} \\ + B_7 \textit{LnMVEquity}_{it} + \beta_8 \textit{BookMarketRatio}_{it} + \beta_9 \textit{Leverage}_{it} + \beta_{10} \textit{ROA}_{it} + \beta_{11} \textit{Loss}_{it} + \beta_{12} \textit{CFO}_{it} + \\ \beta_{13} \textit{Lagged Accruals}_{it} + \textit{IndustryFE}_{it} + \textit{YearFE}_{it} + \varepsilon_{it} \quad (4)\end{aligned}$$

Similarly, *Relative Size Impairment* is the dependent variable, where the goodwill impairment loss of firm *i* is scaled by the total assets of firm *i* in year *t*. To be in line with H2, I predict that the

coefficients on the first three years are positive, indicating that the relative goodwill impairment losses are greater under the first three years, as compared to the fourth and fifth year.

4.3 Hypothesis 3

Hypothesis 3 (hereafter H3) examines the relationship between the final year of a CEO tenure and the relative size of goodwill impairment losses. Similar to H2, this hypothesis will also be analyzed with the help of an OLS linear regression analysis. The following model is used to test H3:

$$\textit{Relative Size Impairment}_{it} = B_0 + \beta_1 \textit{Final Year}_{it} + \beta_2 \textit{CEO Age}_{it} + B_3 \textit{LnMVEquity}_{it} + \beta_4 \textit{BookMarketRatio}_{it} + \beta_5 \textit{Leverage}_{it} + \beta_6 \textit{ROA}_{it} + \beta_7 \textit{Loss}_{it} + \beta_8 \textit{CFO}_{it} + \beta_9 \textit{Lagged Accruals}_{it} + \textit{IndustryFE}_{it} + \textit{YearFE}_{it} + \varepsilon_{it} \quad (5)$$

Equation (5) is virtually the same as equation (1), except that the variable $\textit{Early Years}_{it}$ is replaced by the variable $\textit{Final Year}_{it}$. This variable is known to be a dummy variable that equals one for all the observations which are prior to a CEO change, which is also known as the final year of a CEO, and zero otherwise. It is predicted that the coefficients of the variable $\textit{Final Year}_{it}$ is negative, suggesting that there are earnings overstated in the final years of a CEO tenure, which is line with the horizon problem (Ali and Zhang, 2015).

There is a final model that is used to assist equation (5) in order to test H3:

$$\textit{Relative Size Impairment}_{it} = B_0 + \beta_1 \textit{Early Years}_{it} + \beta_2 \textit{Final Year}_{it} + \beta_3 \textit{CEO Age}_{it} + B_4 \textit{LnMVEquity}_{it} + \beta_5 \textit{BookMarketRatio}_{it} + \beta_6 \textit{Leverage}_{it} + \beta_7 \textit{ROA}_{it} + \beta_8 \textit{Loss}_{it} + \beta_9 \textit{CFO}_{it} + \beta_{10} \textit{Lagged Accruals}_{it} + \textit{IndustryFE}_{it} + \textit{YearFE}_{it} + \varepsilon_i \quad (6)$$

Equation (6) is essentially the same as equation (5), however it includes an extra control in the form of the variable $\textit{Early Years}_{it}$. This offers the horizon problem to be studied better, as it now controls for expenses overstatement in the early years of CEOs' service (Ali and Zhang, 2015).

5. Results

This section presents the results from the models discussed in the previous section of the methodology. Subsection 5.1 discusses the results from models 1 and 2 for the findings related to H1, whereas subsection 5.2 discusses the results from models 3 and 4 for H2. The last subsection 5.3 discusses the results from models 5 and 6 for H3. The evidence is supported by tables 3, 4 and 5.

5.1 Hypothesis 1

The first hypothesis relates to the effect of the first years of CEOs' service on the event that a goodwill impairment is occurring in a year. Table 2 presents the results of the logistic regression analysis of equations (1) and (2), in columns (1) and (2) respectively. In column (1), the coefficient on *Early Years*$_{it}$ is significantly positive at a level of five percent, and equal to 0.1456 (z-score = 2.00). However, in order to interpret the given coefficients in a logistic regression, one needs to understand how a logistic regression works. In the methodology, the dependent variable in the regressions of H1 are stated as $log(\frac{p}{1-p})$, where p equals the probability of a goodwill impairment occurring. The equation $\frac{p}{1-p}$ is better known as the odds ratio (OR hereafter). The OR can be computed from a logistic regression with the help of the following equation: OR = $\frac{e\text{^}(b0+b1(x+1)}{e\text{^}(b0+b1x)}$ = e^{b1} (Harris, 2021). For the coefficient of *Early Years*$_{it}$ this translates to an OR of approximately 1.16 ($e^{0.1456}$), the other ORs are also displayed in table 2. This can be interpreted as follows: for every observation in the first three years of a CEOs' service, the odds of a goodwill impairment occurring are approximately 1.16 times higher in this sample. This finding is consistent with H1, and with the prediction in the methodology. As for the eight variables that are controlled for in equation (1), four of them are significant. Only the predicted coefficient of the variable *LnMVequity*$_{it}$ is contrary to the literature.

Additionally, the estimated logistic regression of equation (2) is displayed in column (2). This model replaces the variable *Early Years*$_{it}$ by variables for all the first five years of a CEO tenure. It is estimated to show if it is justified that the cutoff period for the early years of a CEO tenure is equal to three years. The results show that the coefficient of *Year One*$_{it}$ is positively significant (0.2973), while all of the other coefficients are insignificant. These findings do not suggest that the cutoff period is justified, and do not support the notion of H1. However, the positively significant coefficient of *Year One*$_{it}$ does provide evidence that goodwill impairments are more likely to occur under first-year CEOs. The coefficient of the first year equals 0.2973 which gives an OR of 1.3462, thus for every observation that is subject to a first-year CEO, the odds of a goodwill impairment occurring are approximately 1.35 times higher in this sample. Also, while this study uses 11,706 observations, the

logistic regression analysis has 10,795 observations. This is caused by the fact that some observations are removed when controlling for the industrial and yearly fixed effects, due to collinearity.

To summarize the findings of equation (1) and (2), the positive and significant coefficient for the variable *Early Years*$_{it}$ in column (1) of table 2 only in combination with the positive and significant coefficient for the variable *Year One*$_{it}$ in column (2) of table 2 show that the event of goodwill impairment loss is more likely to occur under first-year CEOs compared to CEOs who are longer in a company, on average, and hence the findings support H1.

Table 3

Early Years of CEOs' Service and Goodwill Impairment Event: Logistic Regression Results

Dependent variable = *Impairment Event*$_{it}$

	(1)			(2)		
	Coefficient	z-score	OR [95% CI]	Coefficient	z-score	OR [95% CI]
Intercept	-6.6947***	-5.85	0.0012 [0.0001-0.0116]	-6.6944***	-5.82	0.0012 [0.0001-0.0118]
Early Years$_{it}$	0.1456**	2.00	1.1568 [1.0033-1.3338]			
Year One$_{it}$				0.2973***	2.98	1.3462 [1.1071-1.6368]
Year Two$_{it}$				0.0256	0.23	1.0260 [0.8223-1.2801]
Year Three$_{it}$				-0.0094	-0.08	0.9906 [0.7837-1.2522]
Year Four$_{it}$				-0.0850	-0.66	0.9186 [0.7144-1.1811]
Year Five$_{it}$				-0.0087	-0.06	0.9913 [0.7606-1.2920]
CEO Age$_{it}$	0.0041	0.75	1.0041 [0.9934-1.0150]	0.0042	0.75	1.0042 [0.9933-1.0152]
LnMVEquity$_{it}$	0.2475***	9.08	1.2808 [1.2142-1.3511]	0.2483***	9.10	1.2819 [1.2151-1.3523]
BookMarketRatio$_{it}$	0.8807***	11.32	2.4126 [2.0715-2.8098]	0.8790***	11.30	2.4085 [2.0681-2.8051]

$Leverage_{it}$	0.6183***	3.02	1.8557	0.6223***	3.04	1.8631
			[1.2420-2.7725]			[1.2468-2.7841]
ROA_{it}	0.4061	0.70	1.5010	0.4128	0.71	1.5111
			[0.4815-4.6791]			[0.4849-4.7085]
$Loss_{it}$	1.8643***	19.97	6.4515	1.8569***	19.86	6.4039
			[5.3725-7.7472]			[5.3314-7.6921]
CFO_{it}	0.0333	0.05	1.0339	0.0064	0.01	1.0064
			[0.2898-3.6886]			[0.2817-3.5957]
$Lagged\ Accruals_{it}$	0.0492	0.11	1.0504	0.0427	0.09	1.0437
			[0.4815-4.6791]			[0.4191-2.5989]
$IndustryFE_{it}$	YES			YES		
$YearFE_{it}$	YES			YES		
Pseudo-R^2		0.2125			0.2135	
Observations		10,795			10,795	

The sample period is from 2014 to 2023. The models are estimated with pooled time series and cross sectional data. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

5.2 Hypothesis 2

The second hypothesis relates to the effect of the first years of CEOs' service on the relative size of goodwill impairment losses. Table 3 presents the results of the OLS regression of equations (3) and (4), in columns (1) and (2) respectively. In column (1), the coefficient on $Early\ Years_{it}$ is positive and shows significance at a one percent level (0.010, t-statistic = 3.82). The coefficient can be interpreted as follows: for every observation during the first three years of the CEOs' service, the relative size of the impairment increases with 0.0010, which is almost equal to triple the mean value of the variable $Relative\ Size\ Impairment_{it}$ (0.003). So, for every 1000 observations, the relative impairment loss is 1 US dollar greater on average. This result implies that goodwill impairment losses in relative size are significantly greater in the early years of a CEOs' service, than in the latter stages of a CEOs' service. Hence, the results from model 1 are in line with hypothesis H1. This finding is consistent with the results in studies of Ali and Zhang (2015) and Masters-Stout (2008).

It is also interesting to include the control variables of model 3 in this section as six of the eight control variables are significant, at a level of one percent. Firstly, the coefficient on $LnMVEquity_{it}$ is significantly positive, contradictory to the argument of Watts and Zimmerman (1986) that larger firms are less likely to report aggressively, which would mean that the coefficient should

be negative. Secondly, $BookMarketRatio_{it}$ is significantly positive which is line with the thoughts of Ali and Zhang (2015) concerning the use of their variable $MarketBookRatio_{it}$. Thirdly, $Leverage_{it}$ is significantly positive, consistent with findings from Becker et al. (1998) which conclude that highly leveraged companies have an incentive to reduce earnings, for example via goodwill impairments. Fifthly, the dummy variable of $Loss_{it}$ has the largest t-statistic and this can obviously be linked to the fact that firms who already have a loss, could then also decide to impair a loss on goodwill, showing consistency with findings from Massoud and Raiborn (2003). Lastly, the significant positive coefficient of CFO_{it} is also as expected.

Furthermore, in order to justify the cutoff period for three years for the variable *Early* $Years_{it}$, we look at the results from equation (4) in which that variable is replaced by the dummy variables for years one to five, displayed in column (2) of table 3. The coefficients on $Year\ One_{it}$ is 0.0015 (t-statistic = 4.02), while the other coefficients are insignificant, similar to the results of the logistic regression in table 2. The coefficient can be interpreted as follows: for every observation during the first year of the CEOs' service, the relative size of the impairment increases with 0.015, which is equal to five times the mean value of the variable $Relative\ Size\ Impairment_{it}$ (0.003). So, for every 1000 observations, the relative impairment loss is 1.5 US dollar greater on average. The findings imply that the cutoff period is not fully justified at a statistically significant level. On the other hand, as hypothesis H2 focuses on the relative size of goodwill impairment losses being greater under first-year CEOs specifically, the significant coefficient of $Year\ One_{it}$ is consistent with hypothesis H2.

To summarize the findings of equation (3) and (4), the positive and significant coefficient for the variable $Early\ Years_{it}$ in column (1) of table 2 only in combination with the positive and significant coefficient for the variable $Year\ One_{it}$ in column (2) of table 2 show that the relative size of goodwill impairment losses is greater under first-year CEOs, compared to CEOs that are longer in the company, and hence the findings support H2.

Table 3

Early Years of CEOs' Service and Goodwill Impairment Losses: Linear Regression Results (OLS)

Dependent variable = *Relative Size Impairment*$_{it}$

	(1)		(2)	
	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.0127***	-2.72	-0.0125***	-2.65
Early Years$_{it}$	0.0010***	3.82		
Year One$_{it}$			0.0015***	4.02
Year Two$_{it}$			0.0005	1.16
Year Three$_{it}$			0.0004	0.97
Year Four$_{it}$			-0.0006	-1.26
Year Five$_{it}$			-0.0004	-0.80
CEO Age$_{it}$	0.0000	1.15	0.0000	-0.98
LnMVEquity$_{it}$	0.0003***	3.56	0.0003***	3.61
BookMarketRatio$_{it}$	0.0047***	14.16	0.0047***	14.17
Leverage$_{it}$	0.0024***	3.41	0.0024***	3.45
ROA$_{it}$	0.0099***	5.10	0.0099***	5.15
Loss$_{it}$	0.0121***	32.62	0.0121***	32.55
CFO$_{it}$	0.0095***	4.22	0.0094***	4.16
Lagged Accruals$_{it}$	-0.0002	-0.15	-0.0003	-0.17
Industry FE$_{it}$	YES		YES	
Year FE$_{it}$	YES		YES	
Adj. R^2	0.1701		0.1705	
Observations	11,706		11,706	

The sample period is from 2014 to 2023. The models are estimated with pooled time series and cross sectional data. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

5.3 Hypothesis 3

The third hypothesis focuses on the influence of the last year of a CEOs' service on the relative size of goodwill impairment losses. Table 4 displays the results of the linear regression, in which the dependent variable is the *Relative Size Impairment*$_{it}$. The estimated coefficients of equations (5) and (6) are presented in columns (1) and (2) respectively. Column (1) shows that the coefficient of *Final Year*$_{it}$ is significantly positive, and equivalent to 0.0026 (t-statistic = 5.75). This coefficient can be

interpreted as follows: for every observation that takes place in the year prior to a CEO change, differently put; during the final year of a CEO, the relative size of a goodwill impairment increases by 0.0026 on average, which is more than 6 times the mean value of our data sample (0.004). This finding is not in line with the hypothesis, as it stated that goodwill impairments should be lower in the final year.

Table 4

Final year of CEOs' Service and Goodwill Impairment Losses: Linear Regression Results (OLS)

Dependent variable = *Relative Size Impairment*$_{it}$

	(1)		(2)	
	Coefficient	t-statistic	Coefficient	t-statistic
Intercept	-0.0108**	-2.32	-0.0125***	-2.68
Early Years$_{it}$			0.0011***	4.05
Final Year$_{it}$	0.0022***	6.81	0.0023***	6.94
CEO Age$_{it}$	-0.0000	-0.75	0.0000	0.34
LnMVEquity$_{it}$	0.0004***	3.74	0.0004***	3.85
BookMarketRatio$_{it}$	0.0046***	13.89	0.0045***	13.82
Leverage$_{it}$	0.0022***	3.10	0.0020***	2.87
ROA$_{it}$	0.0099***	5.12	0.0096***	4.98
Loss$_{it}$	0.0120***	32.46	0.0120***	32.29
CFO$_{it}$	0.0094***	4.16	0.0096***	4.27
Lagged Accruals$_{it}$	-0.0002	-0.12	-0.0000	-0.05
IndustryFE$_{it}$	YES		YES	
YearFE$_{it}$	YES		YES	
Adj. R^2	0.1724		0.1735	
Observations	11,706		11,706	

The sample period is from 2014 to 2023. The models are estimated with pooled time series and cross sectional data. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively.

6. Conclusion

The main purpose of this thesis is to investigate the relationship between CEO tenure and goodwill impairments in the form as earnings management, in the context of publicly listed companies in the US and Canada. The paper tries to achieve this by testing several hypotheses in order to answer the central research question *"What is the impact of CEO tenure on goodwill impairments in publicly listed companies in the US and Canada, during the time period of 2014 to 2023?"*

This section includes a summary of the main findings displayed in subsection 6.1, whereas subsection 6.2 is a discussion that contains the interpretations, limitations and recommendations for future research.

6.1 Summary and main findings

The first hypothesis examines the relationship between CEO tenure and the event of a goodwill impairment taking place. Prior literature of Strong and Meyer (1987) investigated the decision for groups to write down assets and concluded that the most significant difference between writedown firms and non-writedown firms included a change in senior management. Pourciau (1993) then showed that the decision for executive management to write off results in lower earnings in the year of executive change, with increasing earnings in the subsequent years. More recent research from Masters-Stout (2008) and Jordan and Clark (2015) provided evidence that new CEOs impair more goodwill than their senior counterparts. Hence, it was suspected that the event of a goodwill impairment loss would be more likely to occur under first-year CEOs. This relationship was investigated with the help of a logistic regression due to the binary form of the dependent variable *Impairment Event*. The results of the logistic regressions are presented in table 3, in columns (1) and (2). The findings demonstrate that the goodwill impairment event takes significantly (p-value < 0.05) more place in the early years of the tenure, with an even greater significance (p-value < 0.01) under first-year CEOs. Hence, these findings combined are in line with H1.

The second hypothesis focused on the relationship between CEO tenure and the relative size of the goodwill impairments, by focusing on the notion that goodwill impairment losses are greater in relative size under first-year CEOs, compared to CEOs that have been in the company for a longer period. The results of the OLS regressions from table 4 are presented in both columns (1) and (2). The findings suggest that, similar to the logistic regression, that the goodwill impairment losses in relative size are significantly greater in the early years of the tenure, with the significance (p-value < 0.01) present under first-year CEOs. Hence, these findings combined are in line with H2.

The third and final hypothesis delved into the last years of a CEO tenure, and whether this year influences the relative size of a goodwill impairment. Similarly, there was a significant effect displayed in table 4 (variable *Final Year*$_{it}$) with and without the extra control variable for the early years of the tenure. This was not in line with H3.

To summarize, it can be concluded that the tenure of a CEO does influence the goodwill impairments, both the event itself and relatively. The results of the hypotheses suggest that there is strong evidence that there are significantly more goodwill impairments under first-year CEOs, compared to their senior counterparts, on average for this data sample. However, CEOs in their final year impair significantly more goodwill than in their other years, whereas the horizon problem suggested that goodwill impairment should have been lower in the final year of a CEOs' service.

6.2 Discussion

The summary of the thesis concludes with the fact that there are significantly more goodwill impairments under first-year CEOs compared to their senior counterparts. These results build on existing evidence of work from Masters-Stout (2008) and Jordan and Clark (2015) which also concluded with compelling evidence that that new CEOs impair more goodwill than their senior counterparts. The following paragraphs will discuss the theoretical and practical implications, before moving onto the limitations and recommendations for future research.

First of all, the findings support the phenomenon of 'big bath accounting' which implies that executive management make accounting choices such that it is favorable for their own position. These findings provide empirical evidence that CEOs try to achieve this by impairing goodwill early in their tenure, in this case in their very first year, which results in overstated expenses, and thus lowers earnings. Consequently, this lowers the bar for future performance and the company is able to report higher earnings in the future, which a CEO might take credit for (Kirschenheiter & Melumad, 2002).

Moreover, looking at the practical implications of this study, it provides insights for regulatory bodies, board of directors of companies and investors. Firstly, the findings could be of importance to regulatory bodies such as the FASB, to examine ways how the impairment test can be modified in the future such that it cannot be used as a form of earnings management, especially during CEO transitions. Secondly, it gives a board of directors extra reasoning to scrutinize the timing and rationale for goodwill impairments, particularly when there is a CEO transition. This could lead to an enhanced oversight, which can help mitigate potential manipulative practices and ensure that an impairment reflects its true economic value. Lastly, it also raises more awareness for investors as they could better understand the underlying financial health of a company, and make more informed investment decisions, in the case of a change in CEO.

However, this study is also subject to several limitations. To begin with, the database of Compustat North America has some missing data concerning the control variables. This study uses the control variables of Ali and Zhang's (2015) research, in which they control for 14 variables, while the hypotheses in this thesis make use of only 8 control variables. This is caused by the fact that there is no information on variables such as the litigation risk of a company or whether a merger or acquisition has taken place, in the database of Compustat. Next to these variables, there could also be more variables that have an influence on goodwill impairments which are not considered as control variables. Hence, the findings of this study are subject to omitted variable bias, which makes it difficult to establish a direct causal relationship between the first year of a CEO tenure and goodwill impairments.

Also, this study relies on publicly available data, which may be incomplete or inaccurate, potentially affecting the validity of the findings. Initially, after merging the data files of Compustat North America and Execucomp, the sample contained 19,260 yearly observations regarding data of CEO tenure and goodwill impairments. But, after gathering data for the control variables, there were a lot of missing values which resulted in 7,554 deleted observations and a final sample of 11,706 observations. To combat this for future research, it is recommended to either use a different database or make use of data that is privately available, such that it is complete and reviewed.

Additionally, this paper, unlike the paper of Ali and Zhang (2015) does not have provide enough justification to use a cutoff period of three years for the variable *Early Years*$_{it}$, as can be concluded from table 3 and 4. Hence, the analyses with *Early Years*$_{it}$ as its independent variable, equations (1) and (3), do not provide enough evidence to support H1 and H2, on their own. For future research, it could be recommended to only use regression analyses that focus on the first year of a CEOs' service period. Next to that, the study was also not able to confirm the horizon problem in hypothesis 3.

Next to all the improvements of the current study that is stated at the end of the previous paragraphs, future research could also aim to expand the scope and diversity of the sample by including private companies and firms from various other countries to test the generalizability of our findings. Within such research, it could be interesting to investigate if there are significant differences between the regulatory environment of the US (FASB) or the accounting standard of IFRS that is mostly used in Europe.

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8. Appendix

Appendix A. Variables in Regression descriptions

Variable	Description
Years as CEO	The number of years a CEO has served in the company.
Early years	Dummy variable that equals 1 for all observations that correspond to the first three years of service of the firm's CEO, and 0 otherwise.
Year One	Dummy variable that equals 1 for all observations that correspond to the first year of service of the firm's CEO, and 0 otherwise.
Year Two	Dummy variable that equals 1 for all observations that correspond to the second year of service of the firm's CEO, and 0 otherwise.
Year Three	Dummy variable that equals 1 for all observations that correspond to the third year of service of the firm's CEO, and 0 otherwise.
Year Four	Dummy variable that equals 1 for all observations that correspond to the fourth year of service of the firm's CEO, and 0 otherwise.
Year Five	Dummy variable that equals 1 for all observations that correspond to the fifth year of service of the firm's CEO, and 0 otherwise.
Impairment event	Dummy variable that equals 1 for all observations that have a goodwill impairment, and 0 otherwise.
Impairment loss	The sum of all impairment of goodwill special items reported after taxes, in millions.
Impairment loss / assets	The relative size of the impairment of goodwill, calculated as impairment loss divided by total assets.
Book to market ratio	Identifies undervalued or overvalued securities by taking the book value and dividing it by the market value.
Return on assets	Earnings before extraordinary items divided by total assets.
Leverage	Total debt divided by total assets.
Age of CEO	The current age of the CEO in charge, in years.

Loss	Dummy variable that equals 1 if the firm reports a net loss for that year, and zero otherwise.
LnMVEquity	The log of the market value of equity at the beginning of the year.
CFO	The net cash flow from operating activities in millions, divided by total assets at the beginning of the year.
Lagged Accruals	The total accruals in year t-1 scaled by total assets at the beginning of the year. The total accruals are computed as follows: ΔCurrent Assets – ΔCash – ΔCurrent Liabilities – Depreciation and amortization expenses, where the delta uses the data of years t-1 and t-2.
Final year	Dummy variable that equals 1 for all of the observations that are in years prior to change in CEO, and zero otherwise.

Appendix B. Correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Early Years	1											
2. Final Year	-0.014	1										
3. Impairment Event	0.041***	0.061***	1									
4. Relative size impairment	0.058***	0.080***	0.580***	1								
5. Book to market ratio	0.026***	0.070***	0.180***	0.196***	1							
6. Return on assets	-0.026***	-0.015	-0.075***	-0.092***	-0.283***	1						
7. Leverage	0.092***	0.080***	0.072***	0.029***	-0.054***	-0.020**	1					
8. Age of CEO	-0.263***	0.112***	-0.003	-0.014	0.033***	0.026***	-0.032***	1				
9. Loss	0.069***	0.060***	0.233***	0.324***	0.315***	-0.521***	0.005	-0.051***	1			
10. LnMVEquity	-0.021**	-0.021**	-0.043***	-0.121***	-0.383***	0.326***	0.212***	0.011	-0.353***	1		
11. CFO	-0.045***	-0.055***	-0.071***	-0.067***	-0.234***	0.741***	-0.066***	0.013	-0.401***	0.306***	1	
12. Lagged Accruals	-0.033***	0.010	-0.015	-0.035***	-0.087***	0.007	-0.129***	-0.000	-0.086***	0.049***	-0.026***	1

*, **, and *** indicate significance at the 10, 5 and 1% level, respectively.