Going-Concern Opinion and CEO consequences

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Abstract

Prior research finds negative abnormal stock returns after a company received a Going-Concern Opinion (GCO). Since GCOs usually get issued to financially distressed firms, these firms are probably not able to create value for their shareholders, because they probably cannot pay dividends and the value of the stocks decrease after the receipt of a GCO. This study aims to find an answer to the question what consequences CEOs face after their financially distressed company received a GCO. The results show (1) an increased probability of observing a forced CEO turnover within 12 months after the receipt of a GCO, (2) a decrease in total compensation in the year after the year of receiving a GCO and (3) a decrease in the number of stock options granted to the CEO in the year after the year of receiving a GCO. Overall, it appears that CEOs do face consequences after their financially distressed company received a GCO.

Key words: Going-Concern Opinion (GCO), Forced CEO Turnover, CEO Compensation, Cash Based Compensation, Total Compensation, Number of Stock Options Granted, Financially Distressed

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1. Introduction

One responsibility of the auditor is to assess whether an entity is able to continue as a going-concern for a reasonable period of time, typically one year after the financial statements have been audited. If the auditor has significant doubt about the entity's ability to continue as a going-concern for a reasonable period of time, taken everything into consideration, the auditor will include a going concern modification in the audit opinion (PCAOB, 2002). This is often referred to as a Going-Concern Opinion (GCO). Auditors usually only issue GCOs to companies that are financially distressed, make losses or use doubtful accounting policies (Zhang and Xian, 2014). When a firm is financially distressed, it often cannot pay dividends to their shareholders. Besides this, Taffler et al. (2004) found that there are abnormal negative stock returns after a company received a GCO. Their results show a negative stock price reaction between 24% and 31% in the year after the receipt of a GCO.

According to Friedman (1970) the social responsibility of a company is to create value for their shareholders, since the company is using the money of their shareholders. More specific, the Chief Executive Officer (CEO) would be spending the money of the shareholders to create value by paying dividends or trying to increase the stock price. As shown in the paper of Taffler et al. (2004) this responsibility is difficult to meet after a company received a GCO, because the stock price could decrease. Besides this, as mentioned above, companies often receive a GCO when they are financially distressed. When a company is financially distressed they are probably not able to pay dividends to their shareholders. So after the receipt of a GCO, it is likely that a company is not able to meet their responsibility: creating value for their shareholders by paying dividends or trying to increase the stock price. Therefore it could be expected that a company would take measures to fulfill this responsibility.

The CEO is often regarded as the most powerful and responsible person within an organization, because the CEO is ultimately responsible for company processes and success of the company (Daily and Johnson, 1997). If something goes wrong within the company, it could reasonably be expected that the CEO will be held liable. Therefore it would be interesting to see whether a company does take measures against their CEO after receiving a GCO. This will be investigated with the following research question:

What are the consequences for CEOs of financially distressed companies after receiving a Going-Concern Opinion?

Two hypotheses are used to come to an answer to the research question. The data has been limited to financially distressed observations. The first hypothesis investigates whether the receipt of a GCO has an effect on the probability of a forced CEO turnover within 12 months after the receipt of the audit opinion. The expectation is that there is no effect, because it could reasonably be expected that the shareholders demand action against the CEO if the company is not able to meet their responsibility (creating value) to the shareholders, but on the other hand forcing a CEO out can be very costly (Yermack, 2006) and the CEO can us the CFO as a scapegoat in case of irregularities (Leone and Liu, 2010). However, the main results show that there is a significant increased probability of a forced CEO turnover within 12 months after receiving a GCO. These results are robust when looking at turnover windows of 6 and 24 months instead of 12 months. This indicates that companies do take measures against their CEO after the receipt of a GCO, by forcing the CEO out of the position. The additional results do not provide any evidence of a stronger or weaker relation between a GCO and a forced turnover when looking at CEO power and the pool of possible CEO replacements.

The second hypothesis investigates whether the receipt of a GCO has an effect on CEO compensation. Three proxies are used for compensation; *Cash Based Compensation, Total Compensation* and the number of *Stock Options Granted*. The expectation is that the receipt of a GCO will have a negative effect on CEO compensation in the year after the year of the audit opinion. The main results show no significant effect of the receipt of a GCO on Cash Based Compensation. The results do show a significant effect (at the 10% level) of a GCO on *Total Compensation* and a significant effect of the receipt of a GCO on the number of stock options granted to the CEO in the year after the year of the audit opinion. So it appears that besides the increased probability of a forced turnover, CEOs get punished by receiving less total compensation and by a significant reduction in the number of stock options granted to the CEO. The additional analyses do not provide any additional evidence of an even stronger or weaker relation between the receipt of a GCO and the total compensation and number of stock options granted to the CEO.

So overall, it appears that companies do take measures against their CEO after the receipt of a GCO. CEOs have an increased probability of getting forced out of the position within 12 months after the receipt of a GCO, and CEOs also receive fewer stock options as compensation in the year after the year of the receipt of a GCO.

This study will contribute to the existing literature in several ways. First, to my knowledge this is the first study that investigates consequences for CEOs after receiving a GCO. The results provide evidence that a GCO is an important determinant in CEO replacement and compensation cut decisions for financially distressed companies. Second, as mentioned before, the responsibility of a company is to create value for their shareholders. Therefore, this study finds evidence that companies take measures against their CEOs when the CEOs are not able to create value for their shareholders. This might be useful for shareholders and other stakeholders, because the CEO is using the money of shareholders and shareholders want the value of their investment to increase. If the CEO fails in creating value for the shareholders, the shareholders might lose money and demand action against the CEO hoping that the (new) CEO will generate value for the shareholders in the future.

The remainder of this paper is organized as follows. Chapter 2 discusses prior literature and shows how this paper fits in the existing literature. Chapter 3 shows the hypotheses and the reasoning behind them. Chapter 4 explains how the data is collected, how the variables are calculated and shows the descriptive statistics. Chapter 5 shows the research design, explaining what models are used. Chapter 6 discusses the main results and gives an answer to the hypotheses. Chapter 7 shows additional analyses. Chapter 8 concludes the paper by giving an answer to the research question.

2. Theoretical Framework

This part of the paper reviews some theory and literature. First, this section will explain what a Going-Concern Opinion (GCO) is and how the auditor decides whether to issue a Going-Concern Opinion or not. Second, some background about GCOs will be discussed, explaining what kind of mistakes might happen when issuing or not issuing a GCO. Third, this section will explain why a GCO is bad to a company and why action is required after a company received a GCO. Fourth, some measures taken by companies after the receipt of a GCO will be discussed. The last part of this chapter will show causes, other than a GCO, of CEO turnovers and compensation cuts.

2.1 What is a Going-Concern Opinion?

The main objective of an audit is to enable the auditor to express an opinion whether the financial statements are free from material misstatements. During the audit, the auditor will also evaluate whether an entity is able to continue as a going-concern for a reasonable period of time, typically one year after the financial statements have been audited. This will

be evaluated in a certain manner. First, the auditor needs to evaluate whether the results of procedures performed during the planning, gathering evidence and completion of the audit give an indication that there could be significant doubt about the entity's ability to continue as a going-concern for a reasonable period of time. Examples are negative trends (e.g. decreases in sales, increases in costs, recurring losses, negative cash flows from operating activities), loss of key employees, loss of a key license or patent, legal proceedings against the company and more.

Second, if there is significant doubt about the entity's ability to continue as a going-concern, the auditor needs to discuss with management what management's plans are to make sure the entity is able to continue as a going-concern. After this, the auditor makes an assessment about the probability that these plans will prevent a possible bankruptcy.

Third, after evaluating management's plans to tackle going-concern issues, the auditor concludes whether there is significant doubt about the entity's ability to continue as a going-concern for a reasonable period of time. If the auditor has significant doubt about the entity's ability to continue as a going-concern for a reasonable period of time, taken everything into consideration, the auditor will include a going-concern modification in the audit opinion (PCAOB, 2002). This type of modified report is often referred to as a Going-Concern Opinion (GCO). The date of signing and issuing the audit opinion by the auditors will be referred to as the audit opinion date.

2.2 Background of Going-Concern Opinion

After 2001 the auditing profession was under increased scrutiny from the public, media and regulators after some high-profile companies collapsed, such as the fall of Enron. Because of this increased scrutiny, auditors will probably change their reporting behavior and procedures (Carey et al., 2012). Geiger et al. (2005) investigated whether auditors actually changed their reporting behavior. They looked at companies that went bankrupt before and after 2001 to see if companies after 2001 had a higher probability of receiving a GCO. Their results show increased GCO rates for bankrupt companies after 2001, indicating that auditors were more likely to issue a GCO after 2001 than before. Because of these results they state that auditors changed their reporting decisions after the collapse of some high-profile companies and increased scrutiny.

But the fact that auditors were more likely to issue GCOs after 2001 than before does not necessarily mean that the quality of the going-concern assessment increased (Carey et al., 2012). Some research has been done about whether the reporting quality of auditors with

regards to GCOs actually increased. Before discussing those papers, two types of possible mistakes with regard to GCOs need to be explained. The first one is a Type 1 error, which occurs when the auditor issues a GCO but the client remains viable/does not go bankrupt. The second one is a Type 2 error, which occurs when a client goes bankrupt but did not receive a GCO from the audit firm (Geiger et al., 2005). Both types of errors are associated with potential costs for the audit firm. The cost for an audit firm associated with Type 1 errors is the risk of losing clients, because a client that remains viable but received a GCO would not appreciate the receipt of a GCO and could therefore switch auditors. The costs for an audit firm associated with a Type 2 error are litigation risk and reputation loss because the auditors failed to warn investors for an upcoming bankruptcy. The choice of an auditor to issue a GCO is partly based on a trade off between those costs (Berglund et al., 2018).

As mentioned earlier, some research has been done about the quality of going-concern reporting. Those papers mostly used Type 1 and Type 2 errors as a proxy for the audit quality with regards to going-concern reporting. Carey et al. (2012) investigated whether there was a lower type 1 reporting error rate after 2001. To investigate this they limited their sample to companies that received a GCO and looked at the probability of bankruptcy depending on the time period (before or after 2001). Their results show that there was no increased type 1 reporting error rate after 2001 than before, indicating that the audit quality with regard to going-concern reporting had not improved.

Geiger et al. (2005) investigated whether there were fewer type 2 errors after December 2001 than before. They limited their sample to companies that went bankrupt somewhere in their sample period (2000-2003). Next, they looked at the probability that this company received a GCO depending on the Time dummy variable, which takes the value of 1 when the GCO date was after 2001 and 0 if the GCO date was in 2000 or 2001. Their results show that in the pre-December 2001 period 40% of bankrupt companies received a GCO while in the post-December 2001 period 70% of bankrupt companies received a GCO, indicating improved going-concern reporting accuracy. So it appears that auditors report more conservatively after 2001 than before. Nogler (2008) found similar results. Comparing GCO rates between pre-Enron and post-Enron periods, they found that in the pre-Enron period the GCO rate was around 44%, where in the post-Enron period this was 62%. This indicates that auditors became more conservative in their judgments about an entity's ability to continue as a going concern. Feldmann and Read (2010) replicated and extended the research of Geiger et al. (2005) by using a sample period of 2000-2008. They found similar results when comparing 2002-2003 with 2000-2001, namely an increase in GCOs for bankrupt companies and

therefore less type 2 errors. However, by 2006-2007, the probability of a type 2 error returned to pre-2001 levels. This indicates that the more conservative reporting of auditors seems to be temporary rather than persistent.

2.3 Why is a Going-Concern Opinion bad to a company?

According to Friedman (1970) the social responsibility of a company is to create value for their shareholders, since the company is using the money of their shareholders. More specific, the Chief Executive Officer (CEO) would be spending the money of the shareholders to create value by paying dividends or trying to increase the stock price, because the primary role of the CEO is to create value for shareholders (Friedman, 2014). After the receipt of a GCO, companies may have difficulties to pay dividends because auditors usually only issue GCOs to companies that are financially distressed, make losses or use doubtful accounting policies (Zhang and Xian, 2014). When a company makes losses, it is highly unlikely that they are able to pay dividends. Since companies that received a GCO probably generate losses, there is one possibility left to generate value for shareholders: trying to increase stock prices. One of the first papers that investigated the stock market reaction was the one of Firth (1978). He found a negative abnormal stock return of 4.1% right after the release of the audit report including the GCO. This indicates that investors react negatively to a GCO and therefore the stock price decreases.

In line with these findings Jones (1996) also found negative abnormal stock returns after a company received a GCO. He limited his sample to financially distressed companies (companies with a negative net income and either negative retained earnings or negative working capital), which left him with 68 companies that received a GCO and 86 companies with an unqualified (‘clean’) opinion. The abnormal stock market return was calculated as the difference between the actual stock return and the expected stock return based on a market index. The financially distressed companies that received a GCO had negative abnormal stock returns while financially distressed companies with an unqualified opinion actually had positive abnormal stock returns.

Taffler et al. (2004) also investigated the stock market reaction to the receipt of a first-time GCO. Their results show a negative abnormal return of 3% right after the issuance of the audit report including the GCO, which is similar to the results of Firth (1978). Their results also show that this negative reaction continues throughout an entire year after the GCO. At the end of the year the cumulative negative abnormal return was 31%.

So a GCO is costly to companies in the way that the stock prices can decrease after the receipt of a GCO, which makes the company less attractive to investors. This indicates that a GCO is not only bad for companies, but also for investors. If investors do not want to invest in a company, this company will lose a part of it's financing.

According to Chen et al. (2013) these prior studies' findings of significant negative stock market responses to the issuance of a GCO indicate that GCOs convey bad news to investors. When a company receives a GCO this can be a real indication that the company needs to take measures or else it will probably go bankrupt. Chen et al. (2013) found some significant differences between financially distressed companies that received a GCO and companies that did not receive a GCO. Companies that received a GCO have a negative predicted change in sales, while non-GCO companies actually have a positive expected change in sales. Besides this, they also found that companies with a GCO have a lower probability of new external financing in the next year compared to non-GCO companies. Because both shareholders and financial institutions are less interested in financing GCO companies, these companies will almost be unable to grow and improve their financial position. Furthermore, they found that companies that received a GCO have lower stock returns, lower operating cash flow and higher leverage (debt to assets), which are all indications that a company needs to take action before going bankrupt.

The CEO is often regarded as the most powerful and responsible person within an organization, because the CEO is ultimately responsible for company processes and success of the company (Daily and Johnson, 1997). If something goes wrong within the company, it could reasonably be expected that the CEO will be held liable. Therefore, it would be interesting to see whether a company does take measures against their CEO after receiving a GCO.

2.4 Measures taken by companies after the receipt of a Going-Concern Opinion

In the previous section a consequence of a GCO was explained, namely negative stock returns, which can be an indication that a company needs to take action. This section will show some papers that investigated measures taken by companies after the receipt of a GCO other than negative stock returns. This section will also show some literature about the probability of bankruptcy after the receipt of a GCO.

One measure taken by companies after the receipt of a GCO that has been widely investigated is switching audit firms. Citron and Taffler (1992) investigated whether there was a higher frequency of companies switching from audit firm after receiving a GCO

compared to firms that received a clean opinion. Their results show that companies that received a GCO have a higher switching rate of audit firms compared to companies with a clean opinion, while there was no difference in the probability of going bankrupt in the following year between these two sets of companies. Of companies that received a GCO, 13% switched from audit firm where only 3% of companies that did not receive a GCO switched from audit firm. When looking at the probability of going bankrupt after the receipt of a GCO, they found that only 24% of companies that received a GCO subsequently failed, while a matched sample of companies that did not receive a GCO 26% subsequently failed.

In line with the findings of Citron and Taffler (1992), Carey et al. (2008) also found a higher percentage of auditor switching among companies that received a GCO (17%) than auditor switching among companies that did not receive a GCO (10%). The results of their regression show a significant increased probability of GCO companies switching auditor compared to non-GCO companies when looking at companies that remained viable. With regards to the probability of going bankrupt after the receipt of a GCO, Carey et al. (2008) also found no significant difference. Of companies that received a GCO, 12% subsequently failed (went bankrupt), where companies that did not receive a GCO 10% failed. But the results of the regression show that the coefficient of GCO is not significant, indicating no significant increased probability of bankruptcy after the receipt of a GCO.

Carcello and Neal (2003) also investigated the relation between GCO and auditor dismissal, but in contrast to prior literature they only included companies that remained viable after receiving a GCO in their sample. The idea behind this is that bankruptcy could explain the auditor dismissal rather than the receipt of a GCO. They found a higher rate of auditor dismissal in the year subsequent to a GCO for clients that did not go bankrupt than for non-GCO clients. Chow and Rice (1982) give a possible explanation for the positive association between GCO and audit firm turnover. They state that managers wish to avoid receiving a qualified opinion (such as a GCO), because a qualified opinion may affect the stock price and manager's compensation. Managers often have stock options granted as a part of compensation, which will decline in value if the company receives a GCO (Firth, 1978; Chow and Rice, 1982; Jones, 1996; Taffler et al., 2004). Because management wants to maximize their own compensation, companies switch from audit firms after receiving a qualified opinion hoping that the next audit firm will issue a clean opinion (Chow and Rice, 1982).

Prior literature about consequences of GCOs mainly looked at measures taken by companies against their audit firms after the receipt of a GCO, the probability of bankruptcy after receipt of a GCO and the stock market reaction to a GCO (Gissel, 2010). But to my

knowledge there is no research about internal measures, such as actions against the CEO or other top management, restructuring the board of directors or if those companies issued new debt or equity. Therefore it is interesting to see what actions a company takes against their CEO after the receipt of a GCO.

2.5 Causes of CEO turnover and CEO compensation cuts

Since this study focuses on the effect of a GCO on CEO consequences, it is interesting to show literature that investigated other causes of CEO consequences.

Such a research is the one of Farrell and Whidbee (2003). They investigated whether meeting firm performance expectations rather than the firm performance itself had an effect on CEO turnover. The results show that CEOs are not only held liable for the firm performance, but that the board of directors also look if the performance expectations have been met in evaluating the CEOs performance. When the deviation in earnings per share (EPS) compared to analyst forecasts is larger, there is a higher probability of CEO turnover. In accordance with these findings Lee et al. (2012) investigated whether there is an increased probability of CEO turnover after another type of forecast error: management forecast errors. They find an increased probability of CEO turnover when the absolute value of the management forecast error is higher. This effect is even stronger when the company is performing poorly.

Desai et al. (2006) examined whether there was an increased probability of CEO turnover after earnings restatements. Their results show a higher probability of CEO turnover after the earnings had to be restated. Of companies that needed to restate the earnings 51 percent experienced a CEO turnover within 24 months compared to 23% of a matched sample of companies that did not receive a GCO. Hennes et al. (2008) build further on prior research about financial statement restatements and CEO turnover. They stated that prior research found often relatively low CEO turnover percentages after a financial restatement. A possible explanation for those findings could be that a restatement is not necessarily intentional, but could also be a mistake. In the case of irregularities they expect that the turnover rate would be higher than for mistakes. Their results support this thought. Financial statement restatements because of irregularities are associated with higher CEO turnover rates than the association between CEO turnover and restatements because of mistakes. Land (2010) also stated that not every restatement is the same. She stated that more severe restatements, based on the amount of income restated and the number of quarterly earnings the restatement captures, should be associated with a higher CEO turnover. Her results support this thought.

She found that both the larger the amount of income restated as the more quarterly earnings are involved the larger the probability of a CEO turnover is.

Farrell and Whidbee (2002) investigated whether increased scrutiny from the press when a company is performing poorly increases the likelihood of a forced CEO turnover. When comparing a sample with forced CEO turnovers to a matched sample of companies that did not force their CEO to leave the company, the results suggest that increased scrutiny of the financial press when the company's performance is bad increases the probability of forced CEO turnover.

Gao et al. (2012) investigated another consequence for CEOs following firm performance, namely compensation cuts. Their findings show an increased probability of CEOs receiving lower total compensation after bad performance, measured by abnormal stock returns and abnormal return on assets. Their results also show that after this compensation cut, the CEO pay sensitivity is abnormally high, indicating that CEOs can restore their compensation by improving the company's performance. They state that a compensation cut can be used to motivate CEOs to improve company performance. Gilson and Vetsuypens (1993) also found compensation cuts when companies were performing badly. Their results show that around 33% of CEOs left the company, either voluntary or forced, after bad performance and CEOs that stayed often had large cuts in salary and bonuses. Besides this, they also found that newly appointed CEOs that had connections with prior management were paid 35% less than their predecessor. On the other hand new CEOs from outside the company earn 36% more than the outgoing CEO.

So, prior research investigated consequences for companies after the receipt of a GCO, by looking at the stock market reaction and the probability of bankruptcy, consequences for audit firms after issuing a GCO to a client and causes of CEO turnovers and compensation cuts, but not what the consequences are for CEOs after receiving a GCO. This study will contribute to the existing literature by investigating what consequences CEOs face after receiving a GCO, which may be interesting to shareholders. The next chapter will discuss the hypotheses development.

3. Hypotheses Development

3.1 Hypothesis 1: GCO and forced CEO turnover

Receiving a GCO is a bad thing to a company and could result in a negative stock market reaction (Taffler et al, 2004). Since auditors usually only issue GCOs to companies that are financially distressed, make losses or use doubtful accounting policies (Zhang and Xian, 2014), a company will probably fail in creating shareholder value, because they are most likely both generating losses and failing in increasing the stock price. The main responsibility of a company is to create value for their shareholders (Friedman, 1970) and the CEO is often the most powerful and responsible person within a company (Daily and Johnson, 1997), therefore it could reasonably be expected that the CEO will be held liable when something went wrong. Prior research shows that there is an increased probability of CEO turnover after bad things happen to a company, such as not meeting forecasts, when the financial statements had to be restated, increased scrutiny from the press and bad performance in general (Desai et al., 2006; Farrell and Whidbee, 2002; Farrell and Whidbee, 2003; Lee et al., 2012). Therefore it could be expected that the CEO will be punished after the receipt of a GCO by a forced turnover.

On the other hand, forcing a CEO turnover can be very costly to a company, because companies often need to pay separation costs when the CEO is leaving the company (Yermack, 2006). Yermack (2006) finds an average payment of $15.1 million when the CEO is forced out of his function compared to an average payment of $2.3 million when the CEO turnover is voluntary. Gao et al. (2012) state that forced CEO turnover and CEO pay cuts have similar causes and outcomes. Because of this, compensation cuts will be used more often as a substitute for forced turnover, which might explain why forced CEO turnovers are observed only in few cases. Their results also show that after a compensation cut, the performance of a company actually improves and subsequently the CEO compensation also increases. In contrast, the improvement of performance is significantly smaller in the case of a forced CEO turnover although the CEO takes similar actions. This can also be a reason why companies would choose a compensation cut instead of a forced turnover, because according to Gao et al. (2012) the performance improves significantly more after a compensation cut than after a forced CEO turnover.

Another reason why forced CEO turnovers might be rare is that because the CEO is often the most powerful person in the company (Daily and Johnson, 1997), it can occur that

the CEO points someone else as the scapegoat when something went wrong, for example blaming the CFO (Leone and Liu, 2010). Leone and Liu (2010) examined whether CEOs could use their power to blame the CFO in case of irregularities. An irregularity in this case is a restatement of the financial statements that occurred because of fraud or irregularities. They made a distinction between two types of CEOs: one group where the CEO is also a founder of the company and another group where the CEO is not a founder of the company. Their results show that when the CEO is a founder, 29% of CEOs leave the company after an irregularity while the CFO turnover rate is 83%. The CEO turnover rate for the non-founder group is 49% and 65% of CFOs leave the company. The difference between 83% and 65% is significant, indicating that when the CEO is a founder of the company there is an increased probability of using the CFO as a scapegoat. Feng et al. (2011) also conducted a research about CEOs blaming their CFOs. They state that while the CEO is responsible for creating shareholder value, he or she can blame the CFO when something goes wrong. Their results show that around 60% of CFOs of manipulating companies faced consequences such as employment restrictions, fines or even criminal charges. The CFOs of these manipulating companies had no different equity incentives than CFOs of matched companies that did not manipulate. It is notable that the CEOs of manipulating companies, compared to their matched sample, did have more equity incentives to manipulate earnings for their own benefits. Therefore it seems that CFOs engage in accounting manipulations because the CEO was able to put pressure on the CFOs, rather than CFOs manipulating earnings for their own benefit. Friedman (2014) gives an explanation for these observations. He states that CFOs mainly manage information and reporting systems, while the primary role of CEOs is generating value for shareholders. Since the CFO also has a certain duty to the shareholders, he or she also has a responsibility to the CEO. This enables the CEO to pressure the CFO to manipulate numbers to achieve shareholders' goals. Therefore it is imaginable that CEOs can also use this power to blame the CFO after the receipt of a GCO.

Since it is not one-folded what the effect of a GCO on the probability of a forced CEO turnover will be, this will be investigated with the following hypothesis (stated in null-form):

Hypothesis 1: The receipt of a Going-Concern Opinion has no effect on the probability of a forced CEO turnover in the subsequent year for financially distressed firms

To test this hypothesis, it will be examined whether there is an increased probability of a forced CEO turnover within 12 months after the receipt of a GCO compared to companies

that did not receive a GCO. The Data and Research Design chapters will explain what model is used and what control variables are included.

3.2 Hypothesis 2: GCO and CEO compensation cut

As mentioned earlier, Gao et al. (2012) found a decrease in total CEO compensation following bad performance. Their results show significant decreases in total compensation of CEOs. This decrease in total compensation is mainly due to a reduction in the number of stocks and stock options granted to the CEO, rather than the decline in stock prices. The cash based part of compensation also stayed approximately the same, so the reduction in compensation is because of a change in compensation design, namely granting less stocks and stock options. Therefore it seems that the CEO is being punished for the bad performance.

According to Zhang and Xian (2014) auditors usually only issue modified opinions (such as GCOs) to companies that are financially distressed, make losses or use doubtful accounting policies. Therefore, CEO compensation should be lower because the CEO will probably get punished for the bad performance. Their results show a reduction in CEO cash compensation and total compensation after the receipt of a modified opinion. They found that cash compensation is 98% of previous cash compensation and total compensation is 96% of prior total compensation after the receipt of a modified opinion. The coefficient of the effect of a modified opinion on both cash as total compensation is negative and significant, indicating that the CEO is being punished for the bad performance/receipt of a modified opinion. Next to these findings, they also found that companies change the compensation design after the receipt of a GCO. CEOs receive more current incentive compensation relative to total compensation than before the receipt of a GCO. This could be an incentive for CEOs to improve the company's performance.

Lennox (1998) also finds that modified opinions are negatively associated with CEO compensation. He stated that prior literature mainly focused on the costs associated with unfavorable reports, by investigating the effect of modified reports on the stock market reactions and probability of bankruptcy. Because prior literature mainly focused on the costs associated with unfavorable reports it would be interesting to see what the effect is of an unfavorable report on CEO compensation. His results show a significant negative effect of modified opinions on total compensation.

Since a GCO is a type of modified report and because of the results and expectations of prior literature, the expectation is that a GCO will have a negative effect on CEO compensation in the subsequent year. This will be tested for both new CEOs who replace the

outgoing CEO in case of a turnover and CEOs that remained in their position with the following hypothesis:

Hypothesis 2: The receipt of a Going-Concern Opinion has a negative effect on the CEO's compensation for both new and remaining CEOs of financially distressed firms

The next chapter will discuss how the data has been collected and prepared and the descriptive statistics will be shown.

4. Data

4.1 Data collection

The data for this study is retrieved from Wharton Research Data Services (WRDS). Financial statements data for U.S. listed companies, such as net income and operating cash flow are retrieved from Compustat. CEO data, such as age, compensation, dates of becoming and leaving as CEO are collected from Execucomp. The data of going-concern opinions and other auditor data are accessed through Audit Analytics. The sample period used for all data is 2002-2017. This is because according to Carey et al. (2012) auditors changed their reporting behavior after 2001. They state that auditors were more likely to issue Going-Concern Opinions after some high-profile companies collapsed in 2001. The latest year used is 2017, because then it could be determined whether the companies remained viable for at least two years until 2019.

4.2 Data preparation

To make the data usable for this study different datasets needed to be merged and some variables needed to be created. This section explains how the datasets are merged and how the main variables of interested and control variables are determined. For a full overview of all variables and the definitions, see Appendix A.

4.2.1 Data merging

To create a dataset with all available information to test the hypotheses, different datasets need to be merged. As mentioned earlier, data is retrieved from Compustat, Execucomp and Audit Analytics, which all contain data that is used to test the hypotheses. To create a database containing all data, the data of Compustat and Execucomp are merged based on gvkey codes and fiscal year. The gvkey code is a unique company code, which makes it

possible to link data from different sets. The data has also been merged based on fiscal year to ensure that the CEO's data is linked to the right company and right fiscal year. The third set, Audit Analytics, is merged with the other merged dataset, which includes Execucomp and Compustat data. Audit Analytics has been merged based on cik code, which is another unique company code, and fiscal year end date.

4.2.2 Main variables of interest

The main variables of interest are *Forced CEO Turnover, GCO* and *CEO Compensation.* To proxy for the main dependent variable of the first hypothesis, *Forced CEO Turnover,* this study follows mixed steps of Parrino (1997) and Farrell and Whidbee (2003). First, it is determined whether there was a turnover within 12 months after the audit opinion date. Second, all turnovers where the CEO got fired, forced from the position, or because of policy differences as reported in the *Wall Street Journal, Bloomberg, Reuters, SEC filings* or the company's press release are classified as forced CEO turnovers. Third, when it is clearly stated that the CEO left voluntarily, this is classified as a voluntary turnover. Fourth, when it is not clear whether the CEO got fired, forced from the position, left because of policy differences or left voluntarily the next criteria are applied: turnovers where the CEOs age is 63 or under and his departure is not because of death, health issues, accepting another job or retirement are also classified as forced CEO turnover. In case of a forced turnover, the variable *Forced CEO Turnover* will take the value of 1 and 0 otherwise. Additional tests will investigate whether the results are robust when looking at turnover windows of 6 and 24 months instead of 12 months.

The main independent variable of interest, *GCO*, is a dummy variable that will take the value of 1 when the company received a GCO for the financial statements of the financially distressed year (both negative net income and operating cash flow) and 0 otherwise, as reported in Audit Analytics.

The main dependent variable of the second hypothesis is *CEO Compensation*. To proxy for this, this study will use three different proxies of *CEO compensation*. The first one is *Cash Based Compensation*, which is the sum of salary and bonus as reported in Execucomp. The second one is *Total Compensation*, which is the sum of salary, bonus, value of stock awards, value of option awards, value of non-equity incentive plan, change in pension value and other compensation as reported in Execucomp. The third one is *Stock Options Granted*, which equals the number of stock options granted to the CEO as reported in Execucomp. To capture the effect of a GCO on compensation, the compensation data of the

year after the receipt of the audit opinion is used. The natural logarithms of compensation are used to mitigate the effect of outliers in accordance with Gao et al. (2012) and Zhou (2002).

4.2.3 Control variables

The control variables that are included are firm performance (*ROA*), age of the CEO (*Age*), CEO tenure (*Tenure*) and firm size (*Size*). As mentioned earlier, according to prior studies firm performance can have an effect on CEO turnovers and CEO compensation (Farrell and Whidbee, 2003; Lee et al., 2012; Gao et al., 2012). According to Zhang and Xian (2014) audit firms usually only issue GCOs to bad performing companies. This study includes return on assets (*ROA*) as a measure for firm performance. *ROA* is calculated as net income divided by total assets.

The inclusion of CEO age is based on Farrell and Whidbee (2003) who suggest that age affects the likelihood of a CEO turnover, because when the CEO is closer to retirement this will decrease the likelihood of a turnover. The age of the CEOs is retrieved from Execucomp.

CEO tenure may have an effect on CEO turnover, because the longer the CEO has been in place, the higher the probability that he or she has a designated successor and therefore the probability of a forced turnover should be lower (Farrell and Whidbee, 2003). In case of the effect on CEO compensation, CEO tenure can also have an effect. Zheng (2010) found that in the early years a CEO gets an increase of compensation, while in the later years it decreases. The length of the CEO's tenure has been determined by taking the difference (in years) between the fiscal year to which the GCO belongs and the year that the CEO became CEO as reported in Execucomp.

Several studies include firm size as a control variable when investigating the effects on CEO consequences, because firm size is positively associated with CEO turnover and positively aligned with CEO compensation (Parrino, 1997; Zhou, 2000). To proxy for firm size, this study will use the natural logarithm of total assets, which is also used by Zhou (2000).

The only control variable that seems to be correlated with both the dependent as the independent variable is firm performance. But the other control variables will still be included because they are correlated with the dependent variable and their inclusion will reduce the overall error term.

4.3 Sample selection

The sample selection procedure is shown in Table 1. The procedure starts with collecting all available data of U.S. listed companies from Compustat from 2002-2019. Next, the Compustat database was merged with the Execucomp database, as mentioned earlier. This left 32,584 unique firm year observations and 2,907 unique firms. After merging this set with Audit Analytics 26,743 unique firm year observations were left.

This study will only include observations of financially distressed companies, because companies that are financially distressed have a higher chance of receiving a GCO (Berglund et al., 2018) and a higher chance of observing CEO compensation cuts or forced turnovers (Farrell and Whidbee, 2003; Gao et al., 2012). Including only financially distressed observations therefore allows comparing observations that received a GCO to a comparable group that did not receive a GCO. To determine whether a company is financially distressed this study follows the definition of Callaghan et al. (2009). They define financially distressed companies as a company that has both a negative income as well as a negative operating cash flow. After dropping all observations that were not financially distressed, 1,442 unique firm-year observations were left, which represents 562 unique firms.

The last restriction is that only observations that remained viable for two years after the financially distressed year. This is determined by looking whether there was data available in Compustat for the two years after the financially distressed year. This is done because a bankruptcy could explain why no forced turnover is observed and could therefore influence the results, similar to Carcello and Neal (2003). This leaves 1,177 unique firm year observations and 480 unique firms, which provides the population used to test both hypotheses.

For hypothesis 1, only the observations with data available to test this hypothesis are left, which equals 1,006 unique firm year observations. Also for the second hypothesis observations with missing data are dropped.

Table 1: Sample selection

Sample selection	Unique firms	Unique firm-years
All observations on Compustat with CEO data on Execucomp for 2002-2019	2,907	32,584
All observations on Compustat with CEO data on Execucomp for 2002-2019 and available Auditor data on Audit Analytics	2,828	26,743
Observations after dropping Non Distressed firms	562	1,442
Observations that remained viable	480	1,177
Final sample Hypothesis 1	**439**	**1,006**
Final sample Hypothesis 2	**440**	**1,016**

4.4 Descriptive statistics

4.4.1 Sample Hypothesis 1

The descriptive statistics of the full sample of hypothesis 1 are shown in Table 2 Panel A. What can be retrieved from Table 2 Panel A is that the average of *Forced CEO Turnover* equals 0.049, which represents (0.049 x 1,006 observations =) 49 forced turnovers and that and that the average of *GCO* equals 0.084, which shows that (0.084 x 1,006 observations =) 85 of the observations received a GCO from their auditor. Table 2 Panel A also shows that the average age of the CEOs in this sample is approximately 54 years and the average tenure is slightly more than 6 years.

Panel B shows the descriptive statistics for observations that received a GCO and Panel C shows the descriptive statistics for observations that did not receive a GCO. Most interesting is that within the GCO group 14.1% of the observations observed a forced CEO turnover within 12 months from the audit opinion date versus 4.0% for the observations that did not receive a GCO. The results chapter will show the results of a t-test to see if these two averages are significantly different.

The correlation matrix for the sample of hypothesis 1 is shown in Table 2 Panel D. From the correlation matrix it can be noticed that the highest correlation is between *Size* and *ROA*, which equals 0.406. To make sure that this dataset does not suffer from multicollinearity and heteroskedasticity, some tests will be executed. Multicollinearity will be tested with a Variance Inflator Factors (VIF) test and heteroskedasticity will be tested with a Breusch-Pagan test (Chen et al., 2003).

Table 2: Descriptive statistics and correlation matrix Hypothesis 1

Panel A: Descriptive statistics Hypothesis 1

Variable	N	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Forced CEO Turnover$_{i,t}$	1,006	0.049	0.215	0	0	0	0	1
GCO$_{i,t-1}$	1,006	0.084	0.278	0	0	0	0	1
ROA$_{i,t-1}$	1,006	–0.345	1.291	-33	–0.330	-0.157	-0.061	0
Age$_{i,t-1}$	1,006	53.909	7.669	31	38	54	59	88
Tenure$_{i,t-1}$	1,006	6.144	7.037	0	1	4	8	41
Size$_{i,t-1}$	1,006	5.921	2.125	-6.908	4.645	5.976	7.103	14.986

Panel B: Descriptive statistics Hypothesis 1 GCO group

Variable	N	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Forced CEO Turnover$_{i,t}$	85	0.141	0.350	0	0	0	0	1
GCO$_{i,t-1}$	85	1	0	1	1	1	1	1
ROA$_{i,t-1}$	85	–1.475	4.173	-33	–0.848	-0.370	-0.116	0
Age$_{i,t-1}$	85	54.694	6.381	36	50	55	59	72
Tenure$_{i,t-1}$	85	4.376	6.326	0	0	2	5	28
Size$_{i,t-1}$	85	5.055	3.815	-6.908	2.988	5.088	8.017	10.504

Panel C: Descriptive statistics Hypothesis 1 non-GCO group

Variable	N	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Forced CEO Turnover$_{i,t}$	921	0.040	0.196	0	0	0	0	1
GCO$_{i,t-1}$	921	0	0	0	0	0	0	0
ROA$_{i,t-1}$	921	–0.241	0.319	-3.247	–0.306	-0.142	-0.056	0
Age$_{i,t-1}$	921	53.836	7.776	31	48	54	59	88
Tenure$_{i,t-1}$	921	6.307	7.080	0	1	4	8	41
Size$_{i,t-1}$	921	6.001	1.878	1.250	4.722	5.803	7.023	14.986

Panel D: Correlation matrix Hypothesis 1

	Forced CEO Turnover$_{i,t}$	*GCO$_{i,t-1}$*	*ROA$_{i,t-1}$*	*Age$_{i,t-1}$*	*Tenure$_{i,t-1}$*	*Size$_{i,t-1}$*
Forced CEO Turnover$_{i,t}$	1					
GCO$_{i,t-1}$	0.131	1				
ROA$_{i,t-1}$	-0.002	-0.266	1			
Age$_{i,t-1}$	-0.031	0.031	0.049	1		
Tenure$_{i,t-1}$	-0.099	-0.076	-0.003	0.396	1	
Size$_{i,t-1}$	-0.018	-0.124	0.406	0.078	-0.116	1

Table 2 presents descriptive statistics for all variables used to test hypothesis 1. Panel A shows the descriptive statistics for the full sample. Panel B shows the statistics for the sample of firms that received a GCO (GCO=1). Panel C shows the statistics for the sample of firms that did not receive a GCO (GCO=0). Panel D shows the correlations between the variables. Forced CEO Turnover is a dummy variable that takes the value of 1 when the CEO got forced out of the firm within 12 months after receiving the audit opinion, 0 otherwise. GCO is a

dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

4.4.2 Sample Hypothesis 2

The descriptive statistics of the full sample of hypothesis 2 are shown in Table 3 Panel A. The average cash based compensation equals 814,051 dollars and the total compensation is on average 3,032,996 dollars. Panel A also shows that CEOs received on average 309 stock options and that 80 observations received a GCO. The average ROA equals -0.282 and the maximum is (slightly less than) 0, which shows that all observations had a negative net income. The average age of the CEO is approximately 54 years and the average tenure is approximately 6 years, which is similar to the sample of hypothesis 1.

Table 3 Panel B shows the descriptive statistics for observations that received a GCO and Panel C shows the descriptive statistics for observations that did not receive a GCO. Panel B shows that the average cash based compensation and total compensation for observations that received a GCO are respectively 818,576 and 3,285,271 dollars. For the observations that did not receive a GCO these averages are respectively 813,664 and 3,011,434 dollars, which seem very similar to the GCO group. However, the average number of stock options granted to the CEO is lower for the GCO group (approximately 87) compared to the non-GCO group (approximately 328), which can indicate that the CEOs of companies that received a GCO get punished. The results chapter will discuss this further.

What can be retrieved from Table 3 Panel D is that *Cash Based Compensation* and *Size* (apart from cash based compensation and total compensation) have the highest correlation. To make sure that this dataset does not suffer from multicollinearity and heteroskedasticity, a VIF test and Breusch-Pagan test will be executed (Chen et al., 2003).

Table 3: Descriptive statistics and correlation matrix Hypothesis 2

Panel A: Descriptive statistics Hypothesis 2								
Variable	N	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Cash Based Compensation$_{i,t}$	1,016	814.051	760.998	0.001	441.985	615.650	957.125	9900
Total Compensation$_{i,t}$	1,016	3032.996	4317.733	0.001	771.176	1654.262	3494.318	47152.96
Stock Options Granted$_{i,t}$	1,016	309.155	3806.556	0	0	0	181.512	120000
GCO$_{i,t-1}$	1,016	0.079	0.269	0	0	0	0	1
ROA$_{i,t-1}$	1,016	–0.282	0.498	-10.669	–0.336	-0.157	-0.058	0
Age$_{i,t-1}$	1,016	54.212	7.640	30	49	54	59	88
Tenure$_{i,t-1}$	1,016	6.410	7.260	0	1	4	9	45
Size$_{i,t-1}$	1,016	5.963	1.957	0.067	4.631	5.802	7.111	14.986
Panel B: Descriptive statistics Hypothesis 2 GCO group								
Variable	N	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Cash Based Compensation$_{i,t}$	80	818.576	799.724	0.001	270.167	510.321	1053.750	3977.500
Total Compensation$_{i,t}$	80	3285.271	5126.515	0.001	431.360	1319.595	3660.135	26997.35
Stock Options Granted$_{i,t}$	80	87.206	275.204	0	0	0	0	2000
GCO$_{i,t-1}$	80	1	0	1	1	1	1	1
ROA$_{i,t-1}$	80	–0.678	1.320	-10.669	-0.716	-0.328	-0.117	-0.001
Age$_{i,t-1}$	80	55.363	5.986	36	51.5	56	59	72
Tenure$_{i,t-1}$	80	5.125	6.830	0	1	2	7	27
Size$_{i,t-1}$	80	5.839	2.837	0.067	3.190	6.194	8.334	10.504
Panel C: Descriptive statistics Hypothesis 2 non-GCO group								
Variable	N	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Cash Based Compensation$_{i,t}$	936	813.664	758.043	0.001	450	620	950	9900
Total Compensation$_{i,t}$	936	3011.434	4243.992	0.001	796.371	1683.704	3488.554	47152.96
Stock Options Granted$_{i,t}$	936	328.125	3964.678	0	0	24.5	196.025	120000
GCO$_{i,t-1}$	936	0	0	0	0	0	0	0
ROA$_{i,t-1}$	936	–0.248	0.328	-3.247	–0.316	-0.143	-0.056	0
Age$_{i,t-1}$	936	54.113	7.760	30	49	54	59	88
Tenure$_{i,t-1}$	936	6.520	7.288	0	1	4	9	45
Size$_{i,t-1}$	936	5.973	1.864	1.250	4.706	5.796	7.002	14.986

Table 3 (Continued)

Panel D: Correlation matrix Hypothesis 2

	Cash Based Compensation$_{i,t,t}$	*Total Compensation*$_{i,t}$	*Stock Options Granted*$_{i,t}$	*GCO*$_{i,t-1}$	*ROA*$_{i,t-1}$	*Age*$_{i,t-1}$	*Tenure*$_{i,t-1}$
Cash Based Compensation$_{i,t}$	1						
Total Compensation$_{i,t}$	0.519	1					
Stock Options Granted$_{i,t}$	0.313	0.318	1				
GCO$_{i,t-1}$	0.002	0.017	-0.017	1			
ROA$_{i,t-1}$	0.101	0.104	-0.011	-0.233	1		
Age$_{i,t-1}$	0.109	0.072	0.044	0.044	0.026	1	
Tenure$_{i,t-1}$	0.000	-0.036	-0.024	-0.052	-0.035	0.395	1
Size$_{i,t-1}$	0.498	0.436	0.040	-0.018	0.368	0.065	-0.099

Table 3 presents descriptive statistics for all variables used to test hypothesis 2. Panel A shows the descriptive statistics for the full sample. Panel B shows the statistics for the sample of firms that received a GCO (GCO=1). Panel C shows the statistics for the sample of firms that did not receive a GCO (GCO=0). Panel D shows the correlations between the variables. Cash Based Compensation is the sum of salary and bonus compensation of the year after the year of the audit opinion. Total Compensation is the sum of salary, bonus, value of stock awards, value of option awards, value of non-equity incentive plan, change in pension value and other compensation of the year after the year of the audit opinion. Stock Options Granted is the number of stock options granted to the CEO in the year after the year of the audit opinion. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

The next chapter will discuss how the hypotheses will be tested, by showing the models that are used.

5. Research Design

5.1 Hypothesis 1

In order to investigate the first hypothesis, the effect of a GCO on the probability of a forced CEO turnover in the subsequent year, a probit regression will be used. Lee et al. (2012) also use a probit analysis to investigate the effect of the management forecast error at time t-1 on the CEO turnover at time t. The first hypothesis will be tested with the following model:

$$\text{Pr(ForcedCEOTurnover=1)}_t = \beta 0 + \beta 1 GCO_{t-1} + \beta 2 ROA_{t-1} + \beta 3 Age_{t-1} + \beta 4 Tenure_{t-1} + \beta 5 Size_{t-1} + \beta n YearFixedEffects + \varepsilon_t \quad (1)$$

The dependent variable, *Forced CEO Turnover*, is a dummy variable that takes the value of 1 when there was a forced turnover within 12 months from the audit opinion date as described in the data part. The main independent variable, *GCO*, is a dummy variable that takes the value of 1 when the company received a going-concern opinion and 0 otherwise. Besides the control variables *ROA*, *Age*, *Tenure* and *Size* the probit regression will also include year fixed effects to control for time trends that could influence the relation between the probability of a forced CEO turnover and a GCO.

5.2 Hypothesis 2

To investigate the second hypothesis, the effect of a GCO on CEO compensation for both new and remaining CEOs, an OLS regression will be used. This hypothesis will be investigated with the following equation:

$$\text{Ln(CEOCompensation)}_t = \beta 0 + \beta 1 GCO_{t-1} + \beta 2 ROA_{t-1} + \beta 3 Age_{t-1} + \beta 4 Tenure_{t-1} + \beta 5 Size_{t-1} + \beta n YearFixedEffects + \varepsilon_t \quad (2)$$

Three different forms of compensation are used as dependent variables. These variables are *Cash Based Compensation*, *Total Compensation* and the number of *Stock Options Granted*. The values of the variables used are the compensation data of the year after the year of the audit opinion. The variable *GCO* is a dummy variable that takes the value of 1 when the company received a going-concern opinion and 0 otherwise. This regression also includes year fixed effects to control for trends over time. The natural logarithm of compensation is used to mitigate the effect of outliers in accordance with Gao et al. (2012) and Zhou (2000).

6. Results

6.1 Multicollinearity and heteroskedasticity tests

This section will discuss the results of the VIF and Breusch-Pagan tests to check for multicollinearity and heteroskedasticity. The results of both tests for the sample of hypothesis 1 are shown in Appendix B and the results for the sample of hypothesis 2 are shown in

Appendix C. Appendix B and C show that for both samples (hypothesis 1 and 2) all explanatory variables have a VIF score slightly higher than 1. Since all values are smaller than 10 these samples will not suffer from multicollinearity (Chen et al., 2003).

The results of the Breusch-Pagan test all show a p-value of 0.000. This means that the null-hypothesis is rejected. The null-hypothesis states a constant variance, or in other words that the error terms are homoskedastic. Since the null-hypothesis is rejected, this means that the error terms are heteroskedastic. This does not result in biased coefficients, but it makes it harder to determine the right standard errors, which can influence the interpretation of the results. To control for this, robust standard errors are used to obtain unbiased standard errors (Stock and Watson, 2015).

6.2 Results Hypothesis 1

This part of the paper presents and discusses the results of the first hypothesis. The first hypothesis is:

Hypothesis 1: The receipt of a Going-Concern Opinion has no effect on the probability of a forced CEO turnover in the subsequent year for financially distressed firms

To test this hypothesis a t-test and three probit regressions are executed. The results of the t-test are presented in Table 4.

Table 4: t-test Results Comparing GCO to non-GCO group on Forced CEO Turnover

Group	N	Mean	Difference	P-value	Decision
GCO	85	0.141	-0.101***	0.000	Reject H0
Non-GCO	921	0.040			

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.***

Table 4 presents the results of a t-test performed to compare the average Forced CEO Turnover rate between firms that received a GCO (GCO=1) and firms that did not receive a GCO (GCO=0).

As shown in Table 4, and also shown in the descriptive statistics (Table 2, Panel B and Panel C), the forced CEO turnover percentage for GCO firms is 14.1% versus 4.0% for non-GCO firms. Table 4 shows that the difference between those percentages is statistically significant, indicating that financially distressed companies that received a GCO have a higher percentage of forced CEO turnovers than financially distressed companies that did not receive a GCO. Besides the t-test a number of probit regressions are executed. The results of these regressions are presented in Table 5.

Table 5: Probit Regression Results Hypothesis 1

	Univariate Forced CEO Turnover$_{i,t}$ (1)	*Multivariate Forced CEO Turnover$_{i,t}$* (2)	*Multivariate Forced CEO Turnover$_{i,t}$* (3)
Constant	-1.749***	-1.195**	-1.505**
	(-23.37)	(-2.13)	(-2.32)
GCO$_{i,t-1}$	0.674***	0.659***	0.697***
	(3.65)	(3.30)	(3.33)
ROA$_{i,t-1}$	-	0.084	0.080
		(0.77)	(0.76)
Age$_{i,t-1}$	-	-0.003	0.002
		(-0.25)	(0.21)
Tenure$_{i,t-1}$	-	-0.049***	-0.052***
		(-2.79)	(-2.97)
Size$_{i,t-1}$	-	-0.028	-0.032
		(-0.80)	(-0.86)
Year Fixed Effects	No	No	Yes
Observations	1,006	1,006	1,006
Unique firms	439	439	439

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.***

Table 5 presents the probit regression results of the effect of a GCO on the probability of a Forced CEO Turnover within 12 months from the audit opinion date. Column 1 shows the results for the univariate model. Column 2 shows the results for the multivariate model without year fixed effects. Column 3 shows the results for the multivariate model including year fixed effects. Forced CEO Turnover is a dummy variable that takes the value of 1 when the CEO got forced out of the firm within 12 months after receiving the audit opinion, 0 otherwise. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

Table 5 column 1 shows the univariate probit regression. The coefficient of *GCO* is positive and significant, indicating that the receipt of a GCO for financially distressed firms leads to a higher probability of a forced CEO turnover within 12 months from the audit opinion date compared to financially distressed companies that did not receive a GCO.

Table 5 column 2 presents the results of the multivariate model, which includes the control variables but not the year fixed effects. The coefficient of the main independent variable of interest, *GCO*, is still positive and significant which indicates that keeping everything else constant, financially distressed companies that received a GCO have a higher probability of a forced CEO turnover compared to companies that did not receive a GCO. The

coefficient of *Tenure* is negative and significant which indicates that keeping everything else constant, the longer the CEO has been in place, the lower the chance of a forced turnover, which is in line with the expectations based on Farrell and Whidbee (2003).

Table 5 column 3 shows the multivariate model with year fixed effects. The coefficient of *GCO* is still significant and positive, indicating an increased probability of a forced CEO turnover after the receipt of a GCO. The coefficient of 0.697 indicates that the receipt of a GCO increases the Z-score with 0.697. A higher Z-score means a higher probability of a forced CEO turnover.

So overall the results show an increased probability of a forced CEO turnover after the receipt of a GCO for financially distressed firms, which means that hypothesis 1 is rejected and it can be assumed that the effect of a GCO on forced CEO turnover is significantly different from zero. A possible explanation for the increased probability of a forced turnover is that the shareholders demand action against the CEO after the receipt of a GCO. When a company is financially distressed and receives a GCO the company is not able to create value for their shareholders by paying dividends or increasing the stock prices. It could be the case that the costs for shareholders are larger than the costs of forcing the CEO out of his or her position. This could be an explanation why there is an increased probability of a forced CEO turnover for financially distressed companies after the receipt of a GCO.

6.3 Results Hypothesis 2

This section will present the results for the second hypothesis. Hypothesis 2 is:

Hypothesis 2: The receipt of a Going-Concern Opinion has a negative effect on the CEO's compensation for both new and remaining CEOs of financially distressed firms

To test this hypothesis multiple OLS regressions are executed. The regressions are executed for a univariate model, a multivariate model without year fixed effects and a multivariate model with year fixed effects for all three dependent compensation variables (*Cash Based Compensation*, *Total Compensation* and *Stock Options Granted*). To control for outliers, the natural logarithms of all three variables are used. The results are presented in Table 6.

Table 6: OLS Regression Results Hypothesis 2

Panel A: Cash Based Compensation			
	Univariate Cash Based Compensation$_{i,t}$ (1)	*Multivariate Cash Based Compensation*$_{i,t}$ (2)	*Multivariate Cash Based Compensation*$_{i,t}$ (3)
Constant	6.435***	4.866***	4.900***
	(106.60)	(13.96)	(13.82)
$GCO_{i,t-1}$	-0.274	-0.312	-0.291
	(-0.84)	(-0.99)	(-0.92)
$ROA_{i,t-1}$	-	-0.126	-0.085
		(-1.50)	(-1.17)
$Age_{i,t-1}$	-	0.000	0.001
		(0.02)	(0.06)
$Tenure_{i,t-1}$	-	0.012	0.012
		(1.49)	(1.53)
$Size_{i,t-1}$	-	0.232***	0.226***
		(5.62)	(5.38)
Year Fixed Effects	No	No	Yes
Observations	1,016	1,016	1,016
Unique firms	440	440	440
Panel B: Total Compensation			
	Univariate Total Compensation$_{i,t}$ (1)	*Multivariate Total Compensation*$_{i,t}$ (2)	*Multivariate Total Compensation*$_{i,t}$ (3)
Constant	7.474***	5.311***	4.365***
	(133.32)	(14.64)	(12.75)
$GCO_{i,t-1}$	-0.006	-0.153	-0.304*
	(-0.04)	(-1.00)	(-1.86)
$ROA_{i,t-1}$	-	-0.068	-0.193**
		(-0.89)	(-1.98)
$Age_{i,t-1}$	-	0.003	-0.001
		(0.35)	(-0.15)
$Tenure_{i,t-1}$	-	0.003	0.003
		(0.38)	(0.43)
$Size_{i,t-1}$	-	0.318***	0.336***
		(9.21)	(8.96)
Year Fixed Effects	No	No	Yes
Observations	1,016	1,016	1,016
Unique firms	440	440	440

Table 6 (Continued)

Panel C: Stock Options Granted			
	Univariate Stock Options Granted$_{i,t}$ (1)	*Multivariate Stock Options Granted*$_{i,t}$ (2)	*Multivariate Stock Options Granted*$_{i,t}$ (3)
Constant	2.590***	1.509*	2.406***
	(22.05)	(1.83)	(2.79)
$GCO_{i,t-1}$	-1.197***	-1.319***	-1.276***
	(-5.05)	(-5.25)	(-5.05)
$ROA_{i,t-1}$	-	-0.445***	-0.312**
		(-3.84)	(-2.36)
$Age_{i,t-1}$	-	0.001	0.012
		(0.09)	(0.79)
$Tenure_{i,t-1}$	-	-0.007	-0.004
		(-0.44)	(-0.29)
$Size_{i,t-1}$	-	0.151**	0.135**
		(2.40)	(2.16)
Year Fixed Effects	No	No	Yes
Observations	1,016	1,016	1,016
Unique firms	440	440	440

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.***

Table 6 presents the OLS regression results of the effect of a GCO on CEO Compensation. Panel A shows the results for the univariate model (column 1), multivariate model without year fixed effects (column 2) and the multivariate model including year fixed effects (column 3) of the dependent variable Cash Based Compensation. Panel B shows the results for the univariate model (column 1), multivariate model without year fixed effects (column 2) and the multivariate model including year fixed effects (column 3) of the dependent variable Total Compensation. Panel C shows the results for the univariate model (column 1), multivariate model without year fixed effects (column 2) and the multivariate model including year fixed effects (column 3) of the dependent variable Stock Options Granted. Cash Based Compensation is the natural logarithm of the sum of salary and bonus compensation of the year after the year of the audit opinion. Total Compensation is the natural logarithm of the sum of salary, bonus, value of stock awards, value of option awards, value of non-equity incentive plan, change in pension value and other compensation of the year after the year of the audit opinion. Stock Options Granted is natural logarithm of the number of stock options granted to the CEO in the year after the year of the audit opinion. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

Table 6 Panel A shows the results of the OLS regressions on the dependent variable *Cash Based Compensation*. All columns show a negative but insignificant coefficient of the variable *GCO* on *Cash Based Compensation*. This is in line with the expectations, except that

the coefficient is insignificant. Gao et al. (2012) also found no significant reduction in the cash based compensation after bad performance. Zhang and Xian (2014) found a reduction in cash based compensation following a modified opinion, but the difference was rather small: 98% versus 96%.

Table 6 Panel B shows the results of the regressions on *Total Compensation*. Columns 1 and 2 show a negative coefficient, which is in line with the expectations, but the coefficient is not significant. However, when controlling for year fixed effects the coefficient of *GCO* on *Total Compensation* becomes significant at the 10% level. This is shown in column 3. The coefficient tells us that keeping everything else constant, the receipt of a GCO will lead to a reduction of 26.2% of total compensation for financially distressed companies compared to financially distressed companies that did not receive a GCO. So it appears that the CEO gets less total compensation after the receipt of a GCO. This reduction however is not because of a reduction in cash based compensation, so it could be that the CEO gets punished in another way, for example the number of stock options granted.

Table 6 Panel C shows the OLS regressions on the dependent variable *Stock Options Granted*. Column 1 presents the univariate model. This model shows that a GCO has a negative effect on the number of stock options granted to the CEO in the year after the year of the audit opinion. When adding control variables but no year fixed effects, presented in column 2, this result still holds. Column 3 presents the results of the model including year fixed effects. The coefficient of *GCO* is still negative and significant which indicates that keeping everything else constant, the receipt of a GCO for financially distressed firms leads to a reduction in the number of stock options granted to the CEO in the year after the year of the audit opinion compared to financially distressed firms that did not receive a GCO. The coefficient of -1.276 reported in column 3 equals a reduction in the number of stock options granted of approximately 72.1% after the receipt of a GCO. Besides the coefficient of *GCO*, the coefficients of *ROA* and *Size* are also significant. The sign of *ROA* is negative as expected based on the results of Farrell and Whidbee (2003) and Lee et al. (2012). The coefficient of *Size* is positive, which is also in line with the expectations based on Parrino (1997) and Zhou (2000).

Overall, there is a small reduction in total compensation when controlling for time trends, which is probably because of a reduction in the number of stock options granted to the CEO. This result is similar to the findings of Gao et al. (2012). Besides the reduction in the number of stock options granted to the CEO, they also found no significant effect on the cash based part of compensation. The null-form of hypothesis 2 (no effect of *GCO* on *CEO*

compensation) can be rejected, indicating that the receipt of a GCO has a negative effect on CEO's compensation for financially distressed companies. So it appears that (both new and old) CEOs get punished, because they receive fewer stock options in the year after the receipt of a GCO. The next chapter will discuss and present additional analyses.

7. Additional Analyses

7.1 Hypothesis 1: 6 and 24 months turnover windows

This part of the chapter will present the additional analyses for the first hypothesis. As mentioned earlier, it will be investigated whether the results of the first hypothesis are robust when looking at turnover windows of 6 and 24 months instead of 12 months. The dependent variables that are used are determined in almost the same way as the CEO Turnover variable for the 12 months turnover window. The only difference is that for the 6 (24) months turnover window a forced turnover must be observed within 6 (24) months from the audit opinion date instead of within 12 months. Equation 1 will be used to estimate the effects of a GCO on forced CEO turnovers within 6 and 24 months. The results are presented in Table 7. For comparative purposes, the probit regression results of the multivariate model with fixed effects from Table 5 are included in Table 7 Column 1.

Table 7: Probit Regression Results Additional Analyses Hypothesis 1

	12 months turnover (original)	*6 months turnover*	*24 months turnover*
	(1)	(2)	(3)
Constant	-1.505**	-1.045	-1.527**
	(-2.32)	(-1.28)	(-1.97)
$GCO_{i,t-1}$	0.697***	0.743***	0.970***
	(3.33)	(2.97)	(3.76)
$ROA_{i,t-1}$	0.080	0.186	0.082
	(0.76)	(0.86)	(0.60)
$Age_{i,t-1}$	0.002	-0.005	-0.003
	(0.21)	(-0.39)	(-0.19)
$Tenure_{i,t-1}$	-0.052***	-0.031	-0.071***
	(-2.97)	(-1.58)	(-3.34)
$Size_{i,t-1}$	-0.032	-0.051	-0.022
	(-0.86)	(-1.03)	(-0.45)
Year Fixed Effects	Yes	Yes	Yes
Observations	1,006	1,006	1,006
Unique firms	439	439	439

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.***

Table 7 presents the probit regression results of the effect of a GCO on the probability of a Forced CEO Turnover within 6, 12 and 24 months from the audit opinion date. Column 1 shows the results for the

multivariate model including year fixed effects for the 12 months turnover window variable. Column 2 shows the results for the multivariate model including year fixed effects for the 6 months turnover window variable. Column 3 shows the results for the multivariate model including year fixed effects for the 24 months turnover window variable. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

What can be retrieved from Table 7 is that the results of the first hypothesis are robust when looking at different turnover windows. Column 2 shows the results when looking at a 6-month turnover window. The coefficient of *GCO* is significant and positive, indicating that the receipt of a GCO for financially distressed firms leads to a higher probability of a forced CEO turnover within 6 months from the audit opinion date compared to financially distressed firms that did not receive a GCO.

Column 3 shows the results of the 24-month turnover window. The coefficient of *GCO* is positive and significant, which indicates that keeping everything else constant the Z-score of a forced CEO turnover within 24 months increases with 0.970 when a financially distressed firm received a GCO compared to a financially distressed firm that did not receive a GCO.

Overall, these additional analyses tell us that the results of the first hypothesis are robust when looking at other turnover windows. It appears that the consequences for CEOs, looking at the increased probability of a forced turnover, are already visible within 6 months after the receipt of a GCO.

7.2 CEO Power

Since the results presented in Chapter 6 show an increased probability of a forced CEO turnover and a reduction in some compensation components after the receipt of a GCO, it would be interesting to see whether these results are stronger or weaker under certain circumstances. To investigate this, a proxy for CEO power will be added to the models for hypotheses 1 and. Jensen (1993) states that the responsibilities of the chairman are to lead board meetings and to oversee the process of hiring, firing and rewarding the CEO. If the CEO is also the chairman, the internal control systems of those processes will probably fail. When the CEO is also the chairman it is arguable whether the board can effectively replace

the CEO or not. Therefore, to have an effective board the chairman needs to be independent, or else the CEO will have too much power.

Goyal and Park (2002) predicted that firms where the CEO is also the chairman would have a weaker relation between firm performance and CEO turnover. This is because when the CEO is also the chairman, he or she would have too much power and would be less likely to get fired. Their results indeed show a weaker relation between firm performance and CEO turnover when the CEO is the chairman at the same time.

Based on the findings above, the expectation is that when the CEO is also the chairman the effect of a GCO on CEO consequences (forced turnover and compensation cuts) will be weaker. To investigate this, a dummy variable *Chairman* is added to equations 1 and 2. This dummy will take the value of 1 when the CEO is also the chairman or president as reported in Execucomp and 0 otherwise. To test this, equation 1 plus an interaction effect will be used to test the effect on the results of the first hypothesis, and equation 2 plus an interaction effect will be used to investigate the effect on the results of the second hypothesis. The results are presented below.

7.2.1 Hypothesis 1

To test the effect of CEO power on the relation between a GCO and a forced CEO turnover the following model will be used:

$$\Pr(\text{ForcedCEOTurnover}=1)_t = \beta 0 + \beta 1 GCO_{t-1} + \beta 2 Chairman_{t-1} + \beta 3 GCO_{t-1} * Chairman_{t-1} + \beta 2 ROA_{t-1} + \beta 3 Age_{t-1} + \beta 4 Tenure_{t-1} + \beta 5 Size_{t-1} + \beta n YearFixedEffects + \varepsilon_t \quad (3)$$

This model is the same as equation 1, except that the dummy variable *Chairman* and an interaction effect are added. As mentioned earlier the value of the variable *Chairman* will take a value of 1 when the CEO is also the chairman or president and 0 otherwise. The results are presented in Table 8.

Table 8: Probit Regression Results Hypothesis 1 including Chairman variable

	Forced CEO Turnover$_{i,t}$ (1)	*Forced CEO Turnover$_{i,t}$* (2)	*Forced CEO Turnover$_{i,t}$* (3)
Constant	-1.615***	-1.109*	-1.410**
	(-11.72)	(-1.94)	(-2.12)
GCO$_{i,t-1}$	0.798***	0.757**	0.753**
	(2.69)	(2.46)	(2.35)
Chairman$_{i,t-1}$	-0.184	-0.104	-0.090
	(-1.12)	(-0.62)	(-0.50)
*GCO$_{i,t-1}$*Chairman$_{i,t-1}$*	-0.241	-0.188	-0.118
	(-0.63)	(-0.48)	(-0.29)
ROA$_{i,t-1}$	-	0.078	0.074
		(0.70)	(0.71)
Age$_{i,t-1}$	-	-0.003	0.002
		(-0.29)	(0.18)
Tenure$_{i,t-1}$	-	-0.046***	-0.050***
		(-2.63)	(-2.84)
Size$_{i,t-1}$	-	-0.028	-0.033
		(-0.79)	(-0.87)
Year Fixed Effects	No	No	Yes
Observations	1,006	1,006	1,006
Unique firms	439	439	439

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level***

Table 8 presents the probit regression results of the effect of a GCO in combination with a proxy for CEO Power on the probability of a Forced CEO Turnover within 12 months from the audit opinion date. Column 1 shows the results for the model without control variables and year fixed effects. Column 2 shows the results for the multivariate model without year fixed effects. Column 3 shows the results for the multivariate model including year fixed effects. Forced CEO Turnover is a dummy variable that takes the value of 1 when the CEO got forced out of the firm within 12 months after receiving the audit opinion, 0 otherwise. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. Chairman is a dummy variable that takes the value of 1 when the CEO is also the chairman or president during the fiscal year to which the audit opinion belongs. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

Table 8 Column 1 shows the results for the regression where only the variables *GCO*, *Chairman* and the interaction effect are included. The results show a positive and significant sign for *GCO*, which indicates that financially distressed companies that received a GCO and where the CEO is not the chairman have a higher probability of a forced CEO turnover compared to financially distressed companies that did not receive a GCO and where the CEO

is not the chairman. The coefficient of *Chairman* is negative, as expected, but insignificant. This indicates that on average there is a smaller probability of observing a forced CEO turnover for firms where the CEO is the chairman compared to firms where the CEO is not the chairman. However, this difference is not significantly different from zero. The coefficient of the interaction effect is also negative and insignificant. This means that on average there is a smaller probability of observing a forced CEO turnover for firms that received a GCO compared to firms that did not receive a GCO when the CEO is also the chairman compared to when the CEO is not the chairman. However, since the coefficients are insignificant, the difference is not significantly different from 0.

Column 2 shows the results including all control variables, but excluding year fixed effects. The coefficient of *GCO* is positive and significant at the 5% level. Again the coefficients on *Chairman* and the interaction effect are negative and insignificant. This means that on average there is a smaller chance of observing a forced CEO turnover when the CEO is also the chairman, but the difference is not statistically significant from zero.

When including year fixed effects, as shown in Column 3, the results stay approximately the same. Keeping everything else constant, the Z-score probability of a forced CEO turnover is (0.753 - 0.090 - 0.118=) 0.545 higher for firms that received a GCO and where the CEO is also the chairman compared to firms that did not receive a GCO and where the CEO is not the chairman.

Overall the coefficients of the variable *Chairman* and the interaction effect are negative and insignificant, indicating that there is no significant difference in the probability of a forced CEO turnover when the CEO is also the chairman compared to when the CEO is not the chairman. This could be because a GCO is so bad to a company that stakeholders demand action, regardless of the CEO's power.

7.2.2 Hypothesis 2

This part will show the effect of the inclusion of the *Chairman* variable on the relation between *GCO* and *CEO compensation*. To test this, the variable *Chairman* and an interaction effect will be added to equation 2, similar to equation 3 and 1. The model is as follows:

$$\text{Ln(CEOCompensation)}_t = \beta 0 + \beta 1 GCO_{t-1} + \beta 2 Chairman_{t-1} + \beta 3 GCO_{t-1} * Chairman_{t-1} + \beta 2 ROA_{t-1} + \beta 3 Age_{t-1} + \beta 4 Tenure_{t-1} + \beta 5 Size_{t-1} + \beta n YearFixedEffects + \varepsilon_t \quad (4)$$

The expectation is that when the CEO has more power, there will be a positive effect on compensation and that this will weaken the negative effect of a GCO on compensation. The expectation that the effect of a GCO will be less negative when the CEO has more power is because when the CEO is the chairman at the same time, he or she will have a say in how the CEO gets rewarded. When there is a case where the compensation should go down, but the CEO has a lot of power, the compensation will probably drop less than when the CEO is not the chairman. Table 9 presents the results of the full model for all three compensation proxies: *Cash Based Compensation*, *Total Compensation* and *Stock Options Granted*.

Table 9: Regression Results Hypothesis 2 including Chairman variable

	Cash Based Compensation$_{i,t}$	*Total Compensation*$_{i,t}$	*Stock Options Granted*$_{i,t}$
	(1)	(2)	(3)
Constant	4.864***	4.231***	2.722***
	(11.74)	(12.99)	(3.38)
$GCO_{i,t-1}$	-0.071	-0.241	-1.911***
	(-0.25)	(-1.05)	(-3.62)
$Chairman_{i,t-1}$	0.061	0.176**	-0.481**
	(0.55)	(2.00)	(-2.23)
$GCO_{i,t-1}$*$Chairman_{i,t-1}$	-0.328	-0.094	0.956
	(-0.98)	(-0.34)	(1.51)
$ROA_{i,t-1}$	-0.085	-0.194**	-0.313*
	(-0.89)	(-2.41)	(-1.77)
$Age_{i,t-1}$	0.000	-0.001	0.012
	(0.07)	(-0.19)	(0.90)
$Tenure_{i,t-1}$	0.012	0.001	-0.001
	(1.56)	(0.25)	(-0.10)
$Size_{i,t-1}$	0.225***	0.337***	0.139**
	(7.99)	(16.21)	(2.45)
Year Fixed Effects	Yes	Yes	Yes
Observations	1,016	1,016	1,016
Unique firms	440	440	440

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level***

Table 9 presents the OLS regression results of the effect of a GCO in combination with a proxy for CEO Power on CEO Compensation. Column 1 shows the results for the multivariate model including year fixed effects of the dependent variable Cash Based Compensation. Column 2 shows the results for the multivariate model including year fixed effects of the dependent variable Total Compensation. Column 3 shows the results for the multivariate model including year fixed effects of the dependent variable Stock Options Granted. Cash Based Compensation is the natural logarithm of the sum of salary and bonus compensation of the year after the year of the audit opinion. Total Compensation is the natural logarithm of the sum of salary, bonus, value of stock awards, value of option awards, value of non-equity incentive plan, change in pension value and other compensation of the year after the year of the audit opinion. Stock Options Granted is natural logarithm of the number of stock options granted to the CEO in the year after the year of the audit opinion. GCO is a dummy variable that takes

the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

Column 1 shows the results for the dependent variable *Cash Based Compensation*. The main results for this dependent variable were insignificant, indicating no effect of a GCO on the cash based part of the CEO's compensation. Here again the coefficient of *GCO* is negative and insignificant, indicating no significant effect of a GCO on the cash based compensation part of the CEO. The coefficients of the variable *Chairman* and the interaction effect are positive and insignificant, indicating no significant effect of CEO power on the cash based compensation part and on the relation between a GCO and cash based compensation.

The results for the *Total Compensation* are presented in Column 2. The main results showed a small reduction in CEO's total compensation after the receipt of a GCO (Table 6, Panel B, Column 3). With the inclusion of the *Chairman* variable and the interaction effect there still is a negative effect of a GCO on the total compensation, but the effect is now insignificant. The coefficient of the *Chairman* variable is positive and significant on the 5% level, indicating that keeping everything else constant the total compensation of a CEO will be higher when the CEO is also the chairman compared to when the CEO is not the chairman. The interaction effect is insignificant, which indicates that the CEO power does not weaken or strengthen the effect of a GCO on *Total Compensation*.

In Column 3, the results for the number of *Stock Options Granted* are presented. The main results are shown in Table 6 Panel C Column 3 and showed a significant negative effect of a GCO on the number of stock options granted to the CEO in the year after the year of the audit opinion. Table 9 Column 3 shows that with the inclusion of the variable *Chairman* and the interaction effect there still is a significant negative effect of a GCO on the number of stock options granted to the CEO in the year after the year of the audit opinion. The variable of interest here is the interaction effect. The coefficient of the interaction effect is positive, which indicates that on average the effect of a GCO on the number of stock options granted is weaker when the CEO is also the chairman. However the coefficient is insignificant, which indicates that this effect is not statistically different from zero.

Overall the coefficients of the interaction effect are insignificant, which means that the inclusion of a proxy for CEO power does not influence the relation between a GCO and CEO consequences significantly. This is not in line with the expectations but can be explained by

the fact that this study only looks at financially distressed firms. When a firm is financially distressed (negative net income and negative operating cash flow) this firm is probably not able to pay their shareholders dividends. When the firm also receives a GCO, this will possibly lead to a reduction in the value of the shares. Therefore a financially distressed firm that received a GCO is not able to create value for their shareholders in both possible ways (by paying dividends or increasing the value of the shares). Therefore it is reasonable to assume that shareholders (and other stakeholders) demand action against the CEO, regardless of his or her power.

7.3 Costs of replacing the CEO

Section 7.2 investigates whether CEO power has any influence on the relation between a GCO and CEO consequences. This part will look at another concept that could possibly influence the relation between a GCO and CEO consequences, namely the costs of replacing a CEO.

Gao et al. (2017) state that differences in possible new CEO pools might lead to differential costs associated with CEO turnovers. According to Cremers and Grinstein (2009) the CEO pool is highly industry-specific, this means that for every industry there is a different group of possible CEOs, which can be larger for one industry than for other industries depending on multiple factors, such as the level of knowledge required within certain industries. Berry et al. (2000) state that having a smaller pool of possible CEO replacements will raise the cost of replacing the existing CEO. They found that higher costs of replacing the CEO are associated with a lower sensitivity of CEO turnover to firm performance, this means that when the possible CEO pool is smaller (costs of replacing the CEO are higher), there is a less strong relation between firm performance and CEO turnover. Therefore it is reasonable to assume that the inclusion of an industry-specific cost proxy will also have an effect on the relation between a GCO and the probability of a forced CEO turnover. Based on the expectations and results of Berry et al. (2000), who expect a higher probability of CEO turnovers when the costs of replacing a CEO are lower, it is expected that when the CEO pool is relatively large this will increase the probability of a forced CEO turnover, because of the lower costs associated with a forced turnover. Besides this, it is also expected that the effect of a GCO on forced CEO turnover will be larger when the CEO pool is relatively large. This is examined with an interaction effect.

To proxy for the costs of replacing a CEO, this study uses a dummy variable that takes that value of 1 when the firm operates in an industry that has a relatively high number of

CEOs and 0 when the firm operates in an industry that has a relatively low number of CEOs. When the firm is operating in an industry with a relatively high number of CEOs it can be expected that the pool of possible new CEOs is larger than in other industries, which will make it less costly compared to other industries to fire the current CEO and search for a new CEO. To determine which industries have a relatively large CEO pool, it has been calculated which industries had the highest average number of CEOs as reported in Execucomp based on the first two digits of the Standard Industrial Classification (SIC) codes. Based on these rankings the industries are divided in high and low CEO pool. The results are presented in Tables 10 and 11.

7.3.1 Hypothesis 1

To test the effect of a high or low CEO pool on the relation between a GCO and forced CEO turnover, the following model will be used:

$$\Pr(\text{ForcedCEOTurnover}=1)_t = \beta 0 + \beta 1 GCO_{t-1} + \beta 2 CEOPool_{t-1} + \beta 3 GCO_{t-1} * CEOPool_{t-1} + \beta 2 ROA_{t-1} + \beta 3 Age_{t-1} + \beta 4 Tenure_{t-1} + \beta 5 Size_{t-1} + \beta n YearFixedEffects + \varepsilon_t \quad (5)$$

Table 10: Probit Regression Results Hypothesis 1 including CEO Pool

	Forced CEO Turnover$_{i,t}$ (1)	*Forced CEO Turnover*$_{i,t}$ (2)	*Forced CEO Turnover*$_{i,t}$ (3)
Constant	-1.826***	-1.367**	-1.725**
	(-13.05)	(-2.22)	(-2.42)
$GCO_{i,t-1}$	0.606**	0.579*	0.627**
	(2.13)	(1.94)	(2.03)
$CEOPool_{,t-1}$	0.111	0.110	0.127
	(0.67)	(0.62)	(0.68)
$GCO_{i,t-1}*CEOPool_{,t-1}$	0.175	0.197	0.187
	(0.46)	(0.51)	(0.46)
$ROA_{i,t-1}$	-	0.075	0.072
		(0.65)	(0.66)
$Age_{i,t-1}$	-	-0.002	0.003
		(-0.17)	(0.31)
$Tenure_{i,t-1}$	-	-0.050***	-0.054***
		(-2.84)	(-3.02)
$Size_{i,t-1}$	-	-0.019	-0.022
		(-0.52)	(-0.56)
Year Fixed Effects	No	No	Yes
Observations	1,006	1,006	1,006
Unique firms	439	439	439

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level***

Table 10 presents the probit regression results of the effect of a GCO in combination with a proxy for possible CEO replacements on the probability of a Forced CEO Turnover within 12 months from the audit opinion date. Column 1 shows the results for the model without control variables and year fixed effects. Column 2 shows the results for the multivariate model without year fixed effects. Column 3 shows the results for the multivariate model including year fixed effects. Forced CEO Turnover is a dummy variable that takes the value of 1 when the CEO got forced out of the firm within 12 months after receiving the audit opinion, 0 otherwise. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. CEO Pool is a dummy variable that takes the value of 1 when the company operates in an industry with a relatively high number of possible CEO replacements, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

Column 1 shows the results of the regression without control variables and year fixed effects. The coefficient of *GCO* is significant at the 5% level, which indicates that keeping everything else constant firms that received a GCO have a higher probability of a forced CEO turnover compared to firms that did not receive a GCO. The coefficient of the interaction effect is positive, as expected, but insignificant. Therefore, it seems that the number of possible new CEOs does not have an effect on the relation between a GCO and the probability of a forced turnover.

Column 2 presents the results of equation 5, only without the year fixed effects. The coefficient of interest is the coefficient of the interaction effect. This coefficient is positive, as expected, but insignificant. Based on the results presented in column 2 it can be concluded that the effect of a GCO on the probability of a forced CEO turnover does not get significantly influenced by the number of possible new CEOs.

The results presented in column 3 show similar results as those presented in column 1 and 2. The coefficient of the variable *GCO* is significant at the 5% level and the coefficient of the interaction effect is insignificant. The positive coefficient of the interaction effect indicates that when a firm receives a GCO and the firm operates in an industry with a relatively high number of possible new CEOs the probability of a forced CEO turnover is even higher than for firms that only received a GCO or operate in an industry with a relatively large CEO pool. On average, a firm that received a GCO and operates in an industry with a relatively high number of CEOs will have a higher Z-score probability of (0.627+0.127+0.187=) 0.941 higher than a firm that did not receive a GCO and does not operate in an industry with a relatively high number of CEOs.

Overall, the results indicate that there is a significant effect of a GCO on the probability of a forced CEO turnover. This result does not get significantly influenced when the firm is operating in an industry with a relatively high or low number of CEOs. Again, this can be explained by the fact that a financially distressed firm that received a GCO will have a hard time creating value for their shareholders. Therefore, it can be expected that shareholders demand action against the CEO despite the costs associated with attracting a new CEO.

7.3.2 Hypothesis 2

The effect of the possible new CEO pool on the results of hypothesis 2 will be tested with the following model:

$$\text{Ln(CEOCompensation)}_t = \beta 0 + \beta 1 GCO_{t-1} + \beta 2 CEOPool_{t-1} + \beta 3 GCO_{t-1} * CEOPool_{t-1} + \beta 2 ROA_{t-1} + \beta 3 Age_{t-1} + \beta 4 Tenure_{t-1} + \beta 5 Size_{t-1} + \beta n YearFixedEffects + \varepsilon_t \quad (6)$$

The expectation is that when a firm operates in an industry with a relatively high number of CEOs that these CEOs earn less compensation because of the higher level of CEO competition. It is also expected that firms that operate in an industry with a relatively high level of CEOs will experience a greater loss of compensation after the receipt of a GCO compared to firms that operate in an industry with a relatively low number of CEOs. This is because more options to choose a new CEO should enable a company to lower the compensation, or else they can more easily find a new CEO.

Table 11: Regression Results Hypothesis 2 including CEO Pool variable

	Cash Based Compensation$_{i,t}$ (1)	*Total Compensation$_{i,t}$* (2)	*Stock Options Granted$_{i,t}$* (3)
Constant	4.970***	4.408***	2.012**
	(11.26)	(12.69)	(2.34)
$GCO_{i,t-1}$	0.111	-0.084	-0.822*
	(0.43)	(-0.39)	(-1.66)
$CEOPool_{,t-1}$	-0.044	-0.031	0.294
	(-0.36)	(-0.34)	(1.18)
$GCO_{i,t-1}*CEOPool_{,t-1}$	-0.680**	-0.392	-0.730
	(-2.02)	(-1.42)	(-1.14)
$ROA_{i,t-1}$	-0.096	-0.207**	-0.324*
	(-1.01)	(-2.57)	(-1.82)
$Age_{i,t-1}$	0.001	-0.001	0.013
	(0.10)	(-0.19)	(1.00)
$Tenure_{i,t-1}$	0.012	0.003	-0.005
	(1.54)	(0.51)	(-0.32)

Table 11 (Continued)

$Size_{i,t-1}$	0.218***	0.332***	0.146**
	(7.50)	(15.49)	(2.49)
Year Fixed Effects	Yes	Yes	Yes
Observations	1,016	1,016	1,016
Unique firms	440	440	440

******Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level***

Table 11 presents the OLS regression results of the effect of a GCO in combination with a proxy for possible CEO replacements on CEO Compensation. Column 1 shows the results for the multivariate model including year fixed effects of the dependent variable Cash Based Compensation. Column 2 shows the results for the multivariate model including year fixed effects of the dependent variable Total Compensation. Column 3 shows the results for the multivariate model including year fixed effects of the dependent variable Stock Options Granted. Cash Based Compensation is the natural logarithm of the sum of salary and bonus compensation of the year after the year of the audit opinion. Total Compensation is the natural logarithm of the sum of salary, bonus, value of stock awards, value of option awards, value of non-equity incentive plan, change in pension value and other compensation of the year after the year of the audit opinion. Stock Options Granted is natural logarithm of the number of stock options granted to the CEO in the year after the year of the audit opinion. GCO is a dummy variable that takes the value of 1 when the auditors included a going-concern modification in the audit opinion, 0 otherwise. CEO Pool is a dummy variable that takes the value of 1 when the company operates in an industry with a relatively high number of possible CEO replacements, 0 otherwise. ROA represents firm performance and is calculated as net income divided by total assets. Age is the age of the CEO in the fiscal year to which the audit opinion belongs. Tenure is the amount of years the CEO is in the position in the fiscal year to which the audit opinion belongs. Size represents the size of the company and is calculated as the natural logarithm of total assets in the fiscal year to which the audit opinion belongs.

Table 11 Column 1 shows the results for the dependent variable *Cash Based Compensation*. The coefficient of the variable *GCO* is insignificant, just as the main results. The coefficient of the interaction term is significant at the 5% level, which indicates that the level of possible new CEOs significantly influences the relation between a GCO and the cash based part of the CEO's compensation. When a firm received a GCO and operates in an industry with a high number of CEOs, the cash based compensation is significantly lower than when the firm only received a GCO or operates in an industry with a relatively high number of CEOs.

Column 2 shows the results for the dependent variable *Total Compensation*. The coefficients of *GCO, CEOPool* and the interaction effect are all insignificant. This indicates that there is no significant effect of a GCO on the total compensation earned by CEOs in the year after the year of the audit opinion. The insignificant coefficient of the interaction term

indicates that the level of possible new CEOs does not influence the relation between a GCO and total compensation

In Column 3, the results for the number of *Stock Options Granted* are presented. The main results are shown in Table 6 Panel C Column 3 and showed a significant negative effect of a GCO on the number of stock options granted to the CEO in the year after the year of the audit opinion. Table 11 Column 3 shows that with the inclusion of the variable *CEOPool* and the interaction effect there still is a significant negative effect of a GCO on the number of stock options granted to the CEO in the year after the year of the audit opinion. The variable of interest here is the interaction effect. The coefficient of the interaction effect is negative, which indicates that on average the effect of a GCO on the number of stock options granted is stronger when the firm operates in an industry with a relatively high number of possible new CEOs. However, the coefficient is insignificant, which indicates that this effect is not statistically different from zero.

The only significant interaction effect is on the dependent variable *Cash Based Compensation*. This indicates that the inclusion of the variable *CEOPool* only significantly influences the relation between a GCO and *Cash Based Compensation*, but not *Total Compensation* or the number of *Stock Options Granted* to the CEO. The results of Table 11 column 3 again indicate that firms take action against their CEO after the receipt of a GCO by granting fewer stock options in the year after the year of the audit opinion, but the pool of possible CEO replacements does not significantly influence this relation. CEOs do not get more or less total compensation or stock options granted when the firm operates in an industry with a relatively high or low number of possible CEO replacements. However, it seems that CEOs of firms that both received a GCO and operate in an industry with a relatively high number of possible CEO replacements do receive less cash based compensation.

8. Conclusion

This study investigated whether CEOs face consequences after their company received a Going-Concern Opinion (GCO). A company has the responsibility to create value for their shareholders by either paying dividends or trying to increase the stock price (Friedman, 1970). When a company receives a GCO, they can have difficulties in meeting this responsibility, because companies that receive a GCO are often financially distressed (Zhang and Xian, 2014) and therefore they are probably unable to pay dividends to their shareholders.

Besides this, Taffler et al. (2014) found that companies had abnormal negative stock returns after receiving a GCO. So, it seems that after receiving a GCO, companies cannot meet their responsibilities to the shareholders. Since the CEO is often the most powerful person within a company and responsible for the success of the company (Daily and Johnson, 1997), it could reasonably be expected that shareholders demand action against the CEO after the company received a GCO. This is investigated with the following research question:

What are the consequences for CEOs of financially distressed companies after receiving a Going-Concern Opinion?

To answer this question, this study limits the sample to financially distressed observations (both negative net income and negative operating cash flow), because those companies probably cannot pay dividends to their shareholders. By limiting the sample to only financially distressed companies, a situation is created where the receipt of a GCO would lead to failure of creating shareholder value in both possible ways (paying dividends or increasing the stock price). This allows to investigate what the effect of a GCO is compared to comparable companies that did not receive a GCO.

Two hypotheses are used to provide an answer for the research question. The first hypothesis investigates whether the receipt of a GCO has an effect on the probability of a forced CEO turnover within 12 months after the receipt of the audit opinion. The first hypothesis is:

Hypothesis 1: The receipt of a Going-Concern Opinion has no effect on the probability of a forced CEO turnover in the subsequent year for financially distressed firms

The results of this hypothesis are presented in Chapter 6, Tables 4 and 5. The results of Table 4 provide evidence that the forced CEO turnover rate is significantly different between observations that received a GCO and observations that did not receive a GCO. Table 5 presents the results for the probit regressions. It can be concluded from Table 5 column 3 that, after including control variables and year fixed effects, there seems to be a significant effect of the receipt of a GCO on the probability of a forced CEO turnover within 12 months after the receipt of the audit opinion. Based on this, the null hypothesis (no significant effect of a GCO on forced CEO turnover) can be rejected and it can be assumed that there is an increased probability of observing a forced CEO turnover within 12 months after receiving a

GCO that is significantly different from zero. These results are robust when looking at turnover windows of 6 and 24 months instead of 12 months. The additional results, presented in Chapter 7, do not provide any additional evidence that would make the effect of a GCO on the probability of a forced CEO turnover weaker or stronger. Based on the results of the first hypothesis, it can be concluded that CEOs do face consequences after their company received a GCO by having an increased probability of getting forced out of the CEO position.

The second hypothesis investigates whether the receipt of a GCO has an effect on CEO compensation. Three proxies are used for compensation; *Cash Based Compensation, Total Compensation* and the number of *Stock Options Granted*. The second hypothesis is:

Hypothesis 2: The receipt of a Going-Concern Opinion has a negative effect on the CEO's compensation for both new and remaining CEOs of financially distressed firms

The main results of this hypothesis are presented in Chapter 6, Table 6. The results of Table 6, Panel A do not provide any evidence that a GCO has any significant effect on the cash based compensation of CEOs in the year after the year of the audit opinion. Panel B shows the results for the dependent variable *Total Compensation*. These results show that the receipt of a GCO has a significant effect (at the 10% level) on the total compensation that CEOs receive in the year after the year of the audit opinion. The additional analyses, presented in Chapter 7, do not provide any evidence of an additional factor that significantly influences the relation between a GCO and *Total Compensation*. Finally, Table 6, Panel C provides evidence that the number of stock options granted to the CEO in the year after the year of the audit opinion is significantly lower after the company received a GCO. The coefficient of -1.276 reported in column 3 equals a reduction in the number of stock options granted of approximately 72.1% after the receipt of a GCO. The additional analyses, presented in Chapter 7, show that the relation between a GCO and the number of stock options granted does not get significantly influenced by the inclusion of CEO Power or a variable representing the number of possible new CEO replacements within the same industry. Based on these results the null-form hypothesis (no effect of a GCO on CEO Compensation) can be rejected and it can be assumed that the receipt of a GCO has a significant negative effect on CEO compensation in the year after the year of the audit opinion when looking at total compensation and the number of stock options granted to the CEO.

So, the answer to the research question is: the consequences for CEOs of financially distressed companies after receiving a Going-Concern Opinion are an increased probability of getting forced out of the CEO position within 12 months from the audit opinion date and a reduction in total compensation and the number of stock options granted for both remaining and new CEOs in the year after the year of the audit opinion.

When reading this study it should be noted that there are some limitations. First, the identification of forced and voluntary turnovers is as careful as possible identified, but not all companies report a precise reason for the turnover. Therefore, the *Forced CEO Turnover* variable might contain errors. Second, the additional analyses do not provide any additional evidence of a stronger or weaker relation between a GCO and CEO consequences. This could be because the sample has been limited to financially distressed observations, while the effect of CEO Power or CEO Pool might be visible when using a full sample that is not limited to financially distressed observation.

Despite the limitations, this study does provide useful information to shareholders and other stakeholders. First, to my knowledge this is the first study that investigates consequences for CEOs after receiving a GCO. The results provide evidence that a GCO is an important determinant in CEO replacement and compensation cut decisions for financially distressed companies. Second, as mentioned before, the responsibility of a company is to create value for their shareholders. Therefore, this study finds evidence that companies take measures against their CEOs when the CEOs are not able to create value for their shareholders. This might be useful for shareholders and other stakeholders, because the CEO is using the money of shareholders and shareholders want the value of their investment to increase. If the CEO fails in creating value for the shareholders, the shareholders might lose money and demand action against the CEO hoping that the (new) CEO will generate value for the shareholders in the future.

A suggestion for further research would be to look at a full sample, instead of a financially distressed sample. It would be interesting to see if the results still hold for both financially distressed and healthy companies. Another suggestion is to use different proxies for the costs of replacing a CEO as additional analyses. One suggestion would be to divide industries in industries that require the CEO to have industry-specific knowledge and industries that do not require industry-specific knowledge. Another proxy could be to look at the individual skills of the CEO. If the CEO has more skills, based on a number of characteristics (such as number of different industries worked in, education, etc.), the CEO will be harder to replace than if the CEO has less skill. Another suggestion is that it would be

interesting to include the effect of earnings management on the effect of a GCO on forced CEO turnovers and compensation cuts. If for example the financial statements needed to be reissued, because the prior financial statements were wrong, this could lead in combination with a GCO maybe to more severe consequences for CEOs. The last suggestion is to investigate other internal measures after the receipt of a GCO. Instead of looking at the consequences for CEOs, it might be interesting to look at consequences for other top management positions and other measures taken to prevent a possible bankruptcy, such as the issuance of new debt or equity.

9. References

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10. Appendices

Appendix A: Variable Definitions

Variable	Description
Forced CEO Turnover	Dummy variable. Equals 1 when the CEO got forced out of the position within 12 months from the audit opinion date, 0 otherwise
Cash Based Compensation	Sum of salary and bonus compensation as reported in Execucomp. Equals cash based compensation in the year after the year of the audit opinion
Total Compensation	Sum of salary, bonus, value of stock awards, value of option awards, value of non-equity incentive plan, change in pension value and other compensation as reported in Execucomp. Equals total compensation in the year after the year of the audit opinion
Stock Options Granted	Number of stock options granted to the CEO as reported in Execucomp. Equals the number of stock options granted in the year after the year of the audit opinion
GCO	Dummy variable. Equals 1 when the auditor included a going-concern opinion paragraph in the modified opinion about the given fiscal year, 0 otherwise
ROA	Calculated as net income divided by total assets
Age	Age of the CEO in the fiscal year to which the audit opinion belongs
Tenure	Length of the CEO's tenure. Calculated as the difference between the year of becoming CEO and the current fiscal year of the given observation
Size	Natural logarithm of total assets
Chairman	Dummy variable. Equals 1 when the CEO is also the Chairman or President of the company, 0 otherwise
CEOPool	Dummy variable. Equals 1 when the company operates in an industry with a relatively high level of CEOs working in that industry, 0 otherwise

Appendix B: Results VIF and Breusch-Pagan Tests Hypothesis 1 Multivariate Samples

Variable	*No Fixed Effects* *VIF values* (1)	*Fixed Effects* *VIF values* (2)
GCO	1.09	1.11
ROA	1.27	1.29
Age	1.22	1.24
Tenure	1.24	1.24
Size	1.24	1.26
Mean VIF	1.18	1.52
P-value Breusch-Pagan test	0.000	0.000
Decision	Reject H0	Reject H0

Appendix C: Results VIF and Breusch-Pagan Tests Hypothesis 2 Multivariate Samples

Variable	*No Fixed Effects* *VIF values* (1)	*Fixed Effects* *VIF values* (2)
GCO	1.07	1.09
ROA	1.23	1.27
Age	1.21	1.23
Tenure	1.21	1.23
Size	1.18	1.22
Mean VIF	1.18	1.56
P-value Breusch-Pagan test	0.000	0.000
Decision	Reject H0	Reject H0