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# The impact of a going- concern opinion on corporate governance

Master thesis Accounting, Auditing & Control

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**Abstract**

Although literature shows what the effect of a going-concern opinion on a company's financial position is, little is known about the actions that companies take to strengthen their financial position and restore investors' confidence after a going-concern opinion. This study examines the impact of a going-concern opinion (GCO) on corporate governance, which is proxied by corporate ownership, board structure and CEO turnover. The relation is examined using a panel data regression and in addition a propensity score matching analysis. Using a sample of U.S. based firms in the period 2014-2018, the results indicate that the issuance of a going-concern opinion leads to a reduction in board size and CEO compensation in the subsequent year. I find no significant association between a going-concern opinion and management ownership. As expected, management ownership decreases in the year after the issuance of a going-concern opinion, but results indicate that this could be due to other factors than a going-concern opinion. Furthermore, the results show that the issuance of a going-concern opinion does not have a significant effect on CEO turnover in the subsequent year.

**Keywords:** *Going-concern opinion (GCO), Corporate Governance, Management Ownership, Board Size, CEO Compensation, CEO Turnover*

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## 1. Introduction

The current audit guidance 'Statement on Auditing Standards no. 59' (AICPA, 1988) requires the external auditor to express an opinion on whether there is substantial doubt regarding the ability of a company to continue as a going-concern in the year after the balance sheet end date (AICPA, 2012). If the auditor believes that management is not going to be able to overcome negative trends in the company, a going-concern opinion (here after: GCO) must be issued. When deciding whether to issue a GCO, the auditor must take into account the consequences of issuing a GCO to a client that does eventually not fail (Type 1 error) against the consequences of not issuing a GCO to a client that does eventually fail (Type 2 error) (Tucker et al., 2003). Between 2000 and 2010, most of the firms that received a GCO survived for at least one year after (Carson et al., 2013). This could suggest that a GCO has limited predictive value, because of Type 1 errors. However, prior research on the impact of a GCO, show that the stock market reacts negatively to GCO announcements and that companies who receive a GCO usually experience a loss of investors, loss of market positions and loss of reputation (Lee and Yeh, 2004; Chen et al., 2013; Taffler et al., 2004). According to a study by Taffler et al. (2004), the issuance of a GCO negatively impacts stock price between 24 and 31% in the subsequent year.

The main responsibility of a company is to create value for their shareholders. Companies can create value by paying out dividends or through an increase in stock price (Friedman, 1970). Auditors often issue a GCO to companies in bad financial conditions. Financially troubled companies are often unable to pay out dividends to their shareholders. As described, a GCO is also associated with a decline in stock price (Taffler et al., 2004). These two combined leads to difficulty for companies to meet their main responsibility after the issuance of a GCO: create value for their shareholders. As a result, a company can be expected to make changes in the company, in order to be able to create value for their shareholders again. Although literature shows what the effect of a GCO on a company's financial position is, little is known about the actions that companies take to strengthen their financial position and restore investors' confidence. Ways to improve a company's financial position after receiving a GCO could be a change in corporate governance factors, such as CEO compensation, board structure or corporate ownership. The Standard & Poor report (2002) state that in financial markets, poor corporate governance is one of the main reasons why investors are not willing to invest their money in certain companies. Poor corporate governance can also cause shares of companies to be traded at a significant discount to their true value (Standard & Poor, 2002). The aim of this study is to investigate whether a GCO leads to changes in corporate governance.

More specifically, this study first examines the impact of a GCO on management ownership. Second, the impact of a GCO on board size. Third, the impact of a GCO on CEO compensation. And finally, the impact of a GCO on CEO turnover.

In order to investigate the aforementioned relations, the following research question is formulated:

*Does an auditor's going-concern opinion leads to changes in the corporate governance?*

This study uses a unique data set of 843 U.S. firms in the period 2014-2018, leading to 4.215 firm-year observations. The firms are present in both the Audit Analytics, BoardEx, ThomsonOne and Compustat database. Data from the Audit Analytics database is used to measure whether a company received a GCO and for data on CEO turnover. Data from BoardEx is used as a proxy for board size. ThomsonOne is used for data on management ownership. To measure CEO compensation, I use data from the ExecuComp database, which is part of the Compustat database.

A panel data OLS regression examines the relation between GCO and corporate governance. In addition, to overcome possible endogeneity issues, I examine the treatment effect of a GCO on corporate governance using propensity score matching (PSM). The results of my analysis show that the issuance of a GCO leads to a reduction in board size and CEO compensation in the subsequent year. The results show no significant effect on the relation between a GCO and management ownership and the relation between a GCO and CEO turnover.

This paper contributes to the ongoing research related to GCO and corporate governance in several ways. Many studies have identified corporate governance factors to predict GCO. (Parker, 2005; Wang & Deng, 2006; Lee and Yeh, 2004). Despite this widespread academic interest, there are little studies which examine the opposite relation, the impact of a GCO on the corporate governance of a company. This study is among the first to illustrate the importance of using GCO to predict possible changes in the corporate governance structure of a company. Second, previous studies on the impact of GCO on corporate governance used a time frame which contained years before 2008. After the global financial crisis in 2008, the OECD reviewed corporate governance mechanisms. The OECD proposed a new recommendation report in 2008 for improving corporate governance mechanisms. This study uses a time frame after 2008, in order to take in account the reviewed corporate governance mechanism by the OECD.

The remainder of this study is as follows: the next section provides a theoretical background and develops hypotheses on the relation between GCO and corporate governance. Section 3 describes the research method, followed by the presentation of the results in section 4. In section 5, I discuss the interpretation of the results, and I come to conclusions.

## 2. Literature review

This part of the paper reviews theory and literature on GCO's and corporate governance. First, this section will explain what a GCO is and when it is issued. After that, I discuss the value relevance of a GCO. Third, I will discuss corporate governance and how the issuance of a GCO affects corporate governance.

### 2.1 Going-concern opinion

SAS No. 59, which was issued in 1988 and adopted by the PCAOB in 2003, requires the auditor to evaluate whether there is a 'substantial doubt about the entity's ability to continue as a going concern for a reasonable period of time, not to exceed one year beyond the date of the financial statements being audited' (AICPA, 1988). The auditor's evaluations are based on knowledge obtained in the audit procedures. When assessing the going concern status of a company, auditors should consider problems as negative financial trends, default on loans and non-financial internal and external matters. If after performing the necessary audit procedures, there is substantial doubt about the entity's ability to continue as a going concern, the auditor must obtain information about management's plans to mitigate the concerns and assess whether this can be successfully implemented. If after this, the auditor believes that management is not going to be able to overcome negative trends in the company and the auditor still has substantial doubt about the entity's ability to continue as a going-concern, the auditor must issue a GCO by including an explanatory paragraph in which it describes the reasons for concern, followed by the opinion paragraph (Carson et al., 2013).

In practice, the decision to issue a GCO to a distressed client or not is one of the most difficult judgments for an auditor to make. It has been argued that the going-concern opinion goes beyond the traditional role of the auditor, as it requires judgment about future prospects of a client (Campbell & Mutchler, 1988). When deciding whether to issue a GCO, the auditor must take into account the consequences of issuing a GCO to a client that does eventually not fail (Type 1 error) against the consequences of not issuing a GCO to a client that does eventually fail (Type 2 error). Both types of errors can lead to additional costs for the audit firm (Tucker et al., 2003). The issuance of a GCO to a company that subsequently does not fail is an indicator of poor quality audit work for society, regulators and financial press (Ruiz-Barbadillo et al., 2007). From the perspective of the auditor, the misclassification of a going-concern opinion can be costly, as this can lead to the loss of clients. The board of a company may strongly disagree with the going-concern opinion, which could increase their motivation to switch auditors. In addition, the marginal cost of falsely issuing a going-concern to a client can be very high in terms of the auditor's reputation (Carey et al., 2008). Geiger et al. (2005) found that only half of the companies that had filed for bankruptcy, received an auditor's going-concern opinion before the bankruptcy.

Lenard et al. (1998) describes that the evaluation of a going-concern decision involves several analytical procedures for the auditor. These analytical procedures consist of assessing a firm's profitability, the firm's capability to pay their debt, liquidity needs in the future and economic conditions that can affect the firm. In addition, the going-concern decision has been described as a two-stage process by Ruiz-Barbadillo et al. (2007). The first stage is the identification of a company in financial distress. This stage depends on two factors: the financial distress of a company and the

ability of an auditor to identify a company in financial distress. In the second stage, the auditor should determine whether to issue a qualified audit report. This stage is related to the auditor's independence.

## **2.2 The impact of a going-concern opinion**

The main objective of a going-concern audit opinion is to provide users of financial statements with an early warning of financial problems in a company. A GCO offers users of financial statements an opportunity to take actions in order to reduce potential losses linked to the company's failure (Ruiz-Barbadillo et al., 2007). Menon and Schwartz (1987) state that the information can serve as inside knowledge for investors about a client's future. Several empirical studies provide evidence that GCOs are associated with a significant decline in stock prices (Jones, 1996; Carlson, Glezen and Benefield, 1998; Taffler et al., 2004). Results show that the issuance of a GCO negatively impacts stock price between 24% and 31% in the subsequent year. These results can serve as evidence that a GCO signals valuable information to investors. However, in order for a GCO to provide useful signals to investors, the GCO must possess information new to the market (Hughes, 1986). Previous studies that examine the stock price reaction to new audit information provide evidence that most information given out by the auditor is anticipated by the market, suggesting that a GCO could have little effect on investors decisions (Healy and Palepu, 2001; Dopuch et al., 1986). O'Reilly (2008) experimentally investigates whether investors perceive GCO as valuable for valuing stocks. He finds that a GCO should be useful to investors, as it is a negative signal about the company's viability. Results in his study suggest that investors do perceive the auditor's GCO to be relevant for pricing stocks. Due to the auditor's access to inside company information and expertise in assessing going-concern issues, the auditor is able to provide a useful signal to the market (O'Reilly, 2008). Holder-Webb and Wilkins (2000) examine the market reaction to company failures. Their results show that markets react less to a company's failure if prior to the bankruptcy a GCO is given out by the auditor. This suggests that a GCO provides valuable signals to the market.

One potential problem of an auditor's GCO is the self-fulfilling prophecy effect. Mutchler (1984) describes this effect as the belief that a client will go bankrupt as a result of a GCO. Some auditors recognize the self-fulfilling prophecy effect, while others believe that the effect does not exist. The reason that some auditors do not recognize this effect is because it is difficult to determine whether a company going bankrupt is the consequence of the auditors GCO or other factors causing financial distress (Mutchler, 1984).

## **2.3 Corporate governance and agency theory**

The Advisory Board of the National Association of Corporate Directors defines corporate governance as 'the process to ensure that long-term strategic objectives and plans are established and that the proper management structure is in place to achieve those objectives while at the same time making sure that the structure function to maintain the corporations, integrity, reputation, and responsibility to its various constituencies' (Bleicher 1986). Corporate governance refers to the mode of structure and power that determines the rights and responsibilities of groups involved in running an organization (Alkhajafi, 1989).



The agency theory consists of two parties, the so-called principal and the agent. The principal delegates work for the agent. In a firm, the principal stands for the owners and shareholders, and the agents are the managers of the firm (Guilding et al., 2005). Between these two parties, problems can arise which can result in poor firm performance, mainly due to the difference in interest between principal and agent (Hill & Jones, 1992). The relationship between managers and shareholders consists of conflicting interests that arise due to the separation of ownership and control, divergent management and shareholder objectives and information asymmetry between managers and shareholders (Jensen and Meckling 1976; Coase, 1937). These so-called 'agency conflicts' give managers the incentives and ability to maximize their self-interest, instead of maximizing the interest of the corporate shareholders (Watts and Zimmerman, 1986). In order to minimize these agency conflicts, a company can establish corporate governance mechanisms. Corporate governance mechanisms are established to monitor managerial behavior and limit them in maximizing their self-interest. As a result, a corporate governance structure arises. Healy and Palepu (2001) come up with solutions to the agency problems arising from managers maximizing their self-interest. They state that solutions are contracts between managers and shareholders that ensure full disclosure of private information, regulation that requires managers to fully disclose information, a board of directors which can monitor management, and information intermediaries to engage in private information production (Healy and Palepu, 2001).

## **2.4 Corporate governance attributes**

Studies on the impact of corporate governance tend to focus on one attribute of corporate governance, instead of studying the impact on a broad set of governance attributes. (Bhagat and Black, 2000; Hermalin and Weisbach, 1991). A limitation of this is that some governance attributes may serve as complements to each other, whereas others may serve as substitutes. In 2002, Standard & Poor's developed a comprehensive framework for evaluating corporate governance. This framework is based on four governance components: ownership structure, financial stakeholders rights and relations, financial transparency and disclosure, and board structure (Standard & Poor, 2002). I use the Standard & Poor's framework, along with the oft-cited study of Cohen et al. (2004) to identify corporate governance mechanisms that are likely to be affected by an auditor's GCO. I identify three dimensions of corporate governance. I discuss the dimensions and their empirical proxies below.

### **2.4.1 Ownership structure**

Since the study of Berle and Means (1932), corporate ownership is considered as a key corporate governance factor. In their study, they show that ownership structure was already a wide-spread mechanism at the beginning of the twentieth century. Berle and Means (1932) conclude that companies can face a principal-agent problem if they lack powerful shareholders, as this gives managers the opportunity to pursue their own interest, instead of the best interest of the shareholders. Corporate ownership structure is considered a key corporate governance variable because it determines who has the ultimate decision-making power in an organization (Zattoni, 2011).

For many years, organizations were led by a small and closely related group of people who shared the profits. Most of the business activity was conducted by partnerships or closed corporations.

However, in the previous century, a new form of corporate ownership arose. Professional managers, who typically own a small part of the organization, lead modern organizations. In this non-concentrated ownership, many shareholders own a piece of the organization and profits are shared among all shareholders (Jensen & Meckling, 1976). There are numerous advantages to this modern form of ownership. It relieves companies from financing problems and allows them to utilize economies of scale. It further allows companies to attract and hire the best-skilled managers, even if these managers do not have enough equity to own a large part of the organization (Morck et al., 1988). Based on these arguments, one could argue that this new type of corporate ownership could potentially perform better than closed ownership businesses.

However, the exact nature of the relation between ownership structure and firm performance has been the subject of considerable debate. The discussion on the relation focuses mainly on the agency problem between managers and shareholders (Jensen and Meckling, 1976). The agency problem can have a negative impact on firm value. Increased managerial ownership in a firm can be a potential solution to this problem, because managers that own a bigger stake of the firm are more aligned with the best interest of the firm. Jensen and Meckling (1976) find a positive relation between managerial ownership and firm performance. This finding is supported by Kumar and Singh (2003), who argue that there is a positive and significant relation between the share of the company that managers own and firm performance. In contrast, Morck et al. (1988) state that the relation between managerial ownership and firm performance is likely to be non-linear. A negative consequence of increased managerial ownership could be the so-called entrenchment effect, as described in the study of Florackis et al. (2008). Managers that own a larger part of the company can tend to exert insufficient effort and collect private benefits, leading to a negative relation between managerial ownership and firm performance. The results of a study by Stulz's (1988) indicate that as management ownership increases, firm performance increases at first as well. However, when management ownership gets to a certain level, firm performance decreases. Moreover, larger ownership of managers means more managerial power, which makes firing the CEO more difficult (Huang & Tompkins, 2010).

Demsetz (1985) argues that ownership structure and firm performance are not related. He confirms that the modern ownership structure allows managers to pursue their personal benefits, as there are no investors willing to accept the monitoring costs to ensure managers behave in the best interest of shareholders. However, he argues that these personal benefits are part of the managers' compensation scheme. Therefore, managers that pursue their personal benefits will experience a decrease of their salary. In addition, because the firm needs to maintain their competitiveness, the amount of personal benefits that may be taken by managers are constrained, as this could eventually lead to the managers being removed from the firm.

I capture the ownership effect of governance with the variable Management Ownership. This variable measures the fraction of the firm that management owns. The issuance of a GCO might affect the level of managerial ownership. A higher percentage of the firm that management owns might be a solution to the agency problem, because managers that own a bigger stake of the firm are more aligned with the best interest of the firm. However, managers that own a larger part of the company can tend to exert insufficient effort and collect private benefits. I expect that the issuance of a GCO will lead to firms that want to improve their level of monitoring, and as a consequence reduce management ownership. This results in the following hypothesis:

**H1:** *The issuance of a going-concern opinion has a negative effect on management ownership in the subsequent year*

#### **2.4.2 Board structure**

The Standard & Poor's framework for evaluating corporate governance describes that board structure addresses the role of the corporate board and its ability to hold management accountable for their actions and make sure that they act in the best interest of shareholders (Standard & Poor, 2002). This component of corporate governance deals with things as: (1) the board structure and independence, (2) the role and effectiveness of the board and (3) the director and senior executive compensation.

Fama and Jensen (1983) mention the importance of the establishment of a board of directors. The board of directors is the highest internal control mechanism used to control actions of top management. This is supported by Healy and Palepu (2001), who state that a solution to the agency problem can be the composition of a board of directors. Effective boards have a large fraction of outside directors, directors that own a large amount of company stocks and CEOs that have only limited value in the composition of the board (Yermack, 1996). Another important element is the size of the board. Several studies have been conducted regarding the association between board size and firm value. Jensen (1993) finds that boards with more than seven members are likely to be ineffective. He concludes that larger boards are less effective in decision-making, communication, and are more likely to be controlled by the CEO. Yermack (1996) finds, based on a U.S. sample, that large boards are associated with lower firm value. An increase in board size is associated with a decrease of financial ratios related to profitability and operating efficiency. His results suggest that the largest decline in firm value occurs as boards grow from small to medium size. Lipton and Lorsch (1992) state that 'the norms of behavior in most boardrooms are dysfunctional'. There are problems in boardrooms because directors rarely criticize policies of top managers. Because problems increase with the number of board members, Lipton and Lorsch (1992) suggest a maximum number of 10 board members, with a preferred size of eight. The benefit assumption that a board's monitoring ability increases with a larger board is outweighed by the costs. These costs consist of slower decision-making, decreased ability of the board to control management, and biases against risk-taking (Lipton and Lorsch, 1992). Another board size effect relates to the composition of the board. As board size increases, the proportion of outside directors is likely to increase as well. (Yermack, 1996). Outside directors mostly own negligible equity stakes in firms. Because outside directors own these negligible equity stakes, they have to bear a reputation if companies face financial difficult times, while their share of gains is limited. This situation could lead to the fact that outside directors have a bias against projects with high variance that increase the probability of bankruptcy, even if the project is profitable for the firm. This leads to a decrease in firm value (Eisenberg et al., 1998).

Klein (1998) finds no association between overall board composition and firm performance. However, she does find a significant and positive association between the percentage of inside directors and stock market performance measures. Inside board members could bring more specialized institutional and industry-specific knowledge to the board. These inside board members can play a useful role in the board, as they have a more operating than a monitoring focus (Klein, 1998).

Based on literature reviewed above, I use the variable Board Size to measure the size of the board. As mentioned, a large board size is often associated with lower firm value, since larger boards are less effective in decision-making and communication. In addition, larger boards are often considered ineffective in monitoring top management (Jensen, 1993). Therefore, I expect that firms receiving a GCO would experience a reduction in board size. This leads to the second hypothesis:

**H2:** *The issuance of a going-concern opinion has a negative effect on the size of board of directors in the subsequent year*

Another corporate governance factor that is established by the Standard & Poor's Framework is the compensation of management and what other benefits managers may enjoy (Standard & Poor, 2002). CEO compensation is a corporate governance mechanism used to align the interests of CEOs with the interests of shareholders through salaries, bonuses and long-term incentives such as stock options. Bognanno (2010) defines CEO compensation as the sum of base salary, cash bonuses, stocks, stock options and other forms of compensation and benefits. CEO compensation packages are an important tool in mitigating the agency conflict between managers and shareholders in companies. Many studies acknowledged that CEO compensation can play an important role to align interests of CEOs with interest of shareholders. In order to do this, executive compensation should be tied to firm performance. However, the appropriate level of CEO compensation has been up to debate, especially in periods of financial distress.

Based on the agency theory, proponents of the current level of CEO compensation argue that the interest of managers and shareholders can be aligned using incentives for managers. Furthermore, they argue that because there is a competitive market for executives, the market determines the level of CEO compensation and it reflects what companies want to pay (Hall & Murphy, 2003; Tervio, 2008). On the other hand, opponents of the current level of CEO compensation argue that because CEOs can play a role in the board-decision process of determining the CEO compensation, they can influence the level of CEO compensation (Bebchuk, Fried & Walker, 2002).

Many studies have empirically examined the relation between CEO compensation and firm performance. The empirical evidence provides mixed results. Some studies find a strong pay-performance relationship, while others find weak pay-performance relationships. Smirnova and Zavertiaeva (2017) study whether the level of CEO compensation and firm performance are related. They use both accounting- and market based measures to estimate firm performance. Their findings indicate that firm performance has a significant impact on CEO compensation, and vice versa. Finkelstein and Boyd (1998) examined the relation between CEO compensation and firm performance and find that the relation is significant and positive. They further conclude that manager discretion and alignment of CEO pay leads to a higher firm performance. In addition, Carpenter and Sanders (2002) find that the pay-performance relation is significant and positive.

Gao and Li (2015) study the effect of CEO compensation on firm performance for public and private firms. Their results indicate that for both public and private firms, the relation between CEO compensation and firm performance is positive. This positive impact is mainly due to CEO compensation contracts (Goa & Li, 2015). Kuo et al. (2013) examine the impact of share-based CEO compensation on firm performance. Their results also indicate a positive relation, due to the fact that share-based payments motivates CEOs to increase their performance, since it can result in

higher compensation through an increase in share price. Ozkan (2011) examines the relation between CEO cash compensation and firm performance using a dataset of UK non-financial firms, and finds a significant and positive relation.

On the other hand, many studies find a negative relation between CEO compensation and firm performance. The study of Core et al. (1999) examines the relation between the level of CEO compensation, quality of corporate governance and the influence on organizational performance. They find a significant negative association between the level of executive compensation and ownership structure and firm performance. According to their results, CEOs at firms with greater agency problems receive greater compensation, and these firms perform worse on average. These results are in line with the thinking of opponents of the current level of CEO compensation. Building on this, Newton (2015) examines the association between CEO-to-employee relative pay, firm performance and the quality of corporate governance. He finds a negative association between CEO-to-employee relative pay and firm performance, indicating that CEO compensation is not determined by firm performance.

In this study, I use the variable CEO Compensation to measure how a CEO is compensated. The issuance of a GCO might affect the level of CEO compensation. Auditors give out a GCO to firms that are financially distressed, make losses or use doubtful accounting policies (Zhang and Xian, 2014). This bad firm performance could result in lower CEO compensation, as the CEO is held liable for this bad firm performance. Directors are likely to reduce executive's compensation (Francis et al., 2015). Results of the study of Lennox (1998) also indicate that a modified audit opinion is negative related to CEO compensation. Taking all the results into account, I expect that a GCO will lead to a company reducing their CEO compensation, leading to the following hypothesis:

**H3:** *The issuance of a going-concern opinion has a negative effect on the CEO compensation in the subsequent year*

### **2.4.3 CEO Turnover**

Corporate boards are an important factor in monitoring top management. The board of shareholders is the first line of defense against poor decisions of top management. In extreme cases of bad management, the board can decide to replace a chief executive officer (CEO) (Weisbach, 1988). Replacing badly performing CEOs is one of the key responsibilities of corporate boards. Jenter and Lewellen (2020) find that, depending on the estimation method, between 38% and 55% of the CEO turnover are a results of underperformance. Many studies have examined the relation between CEO turnover and firm performance, and the evidence is mixed. The association between the probability of CEO turnover and firm performance implies that there is a mechanism causing motivation for the CEO to align his interest with the shareholders (Rachpradit et al., 2010).

Lausten (2002) examines the association between CEO turnover and firm performance. His results are in line with the principal-agency theory. The possibility of CEOs being replaced forces CEOs to align their interest with the interest of the company's shareholders. Kaplan and Minton (2006) divided CEO turnover into forced and unforced turnover, when examining the impact on firm performance. In their study, they aim to explain increased turnover by examining issues on corporate governance. They find that both forced and unforced turnover are related to firm

performance. Moreover, Clayton et al. (2005) examined whether the effect of a CEO turnover on a firm's future stock performance is different for a forced turnover than that of a non-forced one. Their findings show that the effect on the firm's future stock performance is greater when the CEO is forced to leave the company. As their results show that the impact of a forced turnover on stock performance is greater, a forced CEO turnover is more likely to result in company strategy changes than non-forced turnovers (Clayton et al., 2005).

In contrast, there is a stream of literature that argues that replacing a CEO causes significant additional costs to a company. Companies often need to pay separation costs when the CEO is leaving the company (Yermack, 2006). In addition, finding a CEO with the skills needed to lead a specific company is a difficult and time-consuming task. It takes time for a new CEO to get familiar with the company culture and to find out what the best way is to lead the company. This can all result in increased costs for the company (Farrel & Whidbee, 2002). Some argue that the possibility of removal could be enough for a CEO to adjust the way he or she is currently leading the company and this does not lead to additional costs for the company.

I use a dummy variable that equals one if a CEO turnover occurred, and zero otherwise. The issuance of a GCO might facilitate turnover of top executives of companies. The issuance of a GCO indicates financial distress and this imposes financial and personal costs on managers (Sutton & Callahan, 1987). These costs on managers might result in executives resigning from their positions. In addition, literature shows that the issuance of a GCO negatively impacts a company's stock performance. This negative stock performance might be a motivation for the board of directors to replace the executive directors to protect shareholders' wealth (Weisbach, 1988). This information leads to the next hypothesis:

**H4:** *The issuance of a going-concern opinion increases CEO turnover in the subsequent year*

## **2.5 Importance of corporate governance**

Effective corporate governance is an essential part of an efficient market economy. In financial markets, poor corporate governance is seen as one of the reasons why investors are not willing to invest their money in these companies. Poor corporate governance can also cause shares of companies to be traded at a significant discount to their true value (Standard & Poor, 2002). This indicates that in order to restore society's and investors' trust, corporate governance could be a factor to improve for firms in financial distress, and eventually after the issuance of a GCO.

Fich and Slezak (2008) describe two potential effects corporate governance can have on the probability of bankruptcy. Recent scandals, such as Enron and WorldCom, provide clear evidence that financial statements can be manipulated to mask poor financial health. The manipulation of financial accounting data is the result of poor corporate governance. This indicates that corporate governance can influence the accuracy of the financial and accounting statements of firms. Second, the effectiveness of management's response to financial distress will likely depend on a firm's corporate governance structure. A firm's corporate governance structure can be seen as a nexus of incentive contracts. As a result, the likelihood of bankruptcy will likely depend on the efficacy of management's response to the level of distress.

### 3. Research method

This study will use two approaches to examine the effect of a going-concern opinion on corporate governance. I will use a balanced panel data regression and propensity score matching. The setup of these models, the sample, data sources and the variables used will be discussed in this chapter.

#### 3.1 Sample and data sources

In order to examine the impact of a GCO on corporate governance data, I use data on U.S. listed firms in the period 2014 till 2018. Following Mutchler and Williams (1990), the sample is restricted to firms that have survived at least 2 years after receiving a GCO. I do this to exclude the firms that might go bankrupt within a short period of time after receiving the auditor's GCO. As a result, 2018 is the latest year used, as then it could be determined whether the sample companies remained viable for at least two years. I further drop companies that receive two consecutive GCOs. This has two reasons. First, according to Mutchler and Williams (1990), the auditor's decision to issue a first-time GCO is different from the decision to issue multiple GCOs. Second, by deleting subsequent GCOs I delegate the contamination effects caused by overlapping pre- and post-going concern period.

In order to obtain the necessary variables in this study, different databases are being used. The information on the independent variable GCO and the dependent variable CEO turnover is obtained from Audit Analytics. Information on board size is extracted from BoardEx. Corporate ownership data is extracted from the ThomsonOne database. Data on CEO compensation is extracted from the ExecuComp database, which is part of the Compustat database.

Finally, after merging the datasets and deleting firms with missing data, my pooled sample consists of 4.515 firm-year observations for 903 firms during the sample period of 2014 till 2018. 97 of these 903 sample firms have received a going-concern opinion in the years 2014-2018. Table 1 shows the sample selection procedure.

**Table 1** Sample selection

Sample selection	Unique firms	Unique firm-years
Observations on Audit Analytics with data on GCO's for 2014-2018	1.492	7.460
Observations on Audit Analytics with available data on BoardEx for board size, available CEO data on Execucomp and available data on corporate ownership on ThomsonOne database for 2014-2018	888	4.440
Observations after dropping two consecutive GCO's	849	4.245
Observations that remained viable	843	4.215
<b>Final sample</b>	<b>843</b>	<b>4.215</b>

*This table reports the construction of the dataset. Firms that do not have data available for board size, CEO compensation, corporate ownership or CEO turnover are dropped first. Firms that received two or more consecutive GCOs are dropped as well. Observations that did not remain viable for at least 2 years after the GCO are dropped at last.*

## **3.2 Variables**

### **3.2.1. Independent variable**

#### *Going-concern opinion*

The independent variable of interest in this study is the auditor's going-concern opinion. The auditor gives out a going-concern opinion if there is substantial doubt about the company's ability to continue as a going-concern. In order to measure the auditor's going-concern opinion, I create a dummy variable called GCO, which equals one if the firm received a going-concern opinion and zero otherwise. I use data from Audit Analytics for this variable.

### **3.2.2 Dependent variables**

#### *Management Ownership*

The dependent variable to test the first hypothesis of this paper is management ownership. This variable measures the percentage of the firm that management owns. The percentage of the firm that management owns is a ratio of stocks owned by management divided by total outstanding stocks of the firm. Data on management ownership is extracted from the ThomsonOne database.

#### *Board size*

Board size is the main dependent variable in hypothesis 2. Board size is proxied by the total number of directors on the board. This study uses BoardEx to collect data on the size of the board.

#### *CEO compensation*

The main dependent variable I use in hypothesis 3 is CEO compensation. To proxy for this, I use 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. Following the study of Gao and Li (2015), I use the natural logarithm of the variable Total Compensation, in order to mitigate the effect of outliers. Data on CEO compensation is extracted from Execucomp, which is part of the Compustat database.

#### *CEO Turnover*

The proxy for the main dependent variable of the fourth hypothesis is CEO turnover. To measure CEO turnover, I create a dummy variable that equals one if the CEO left, and zero otherwise. The first step is to determine whether a CEO turnover found place within 12 months after the issuance of a going-concern opinion. The next step is to determine whether the CEO turnover was forced or voluntarily. If the CEO was dismissed or his employment was ceased, the dummy variable equals one. If the CEO was not fired or he/she retired himself, the dummy variable equals zero. Data on CEO turnover is extracted from Audit Analytics.

### **3.3 Control variables**

In this study, I control for factors that have been found in previous literature related to corporate governance. The control variables included are firm performance (*ROA*), firm size (*LN\_SIZE*), firm risk (*LEV*), total auditor fees (*LN\_AUDFEES*), CEO age (*AGE*), market-to-book ratio (*MBT*) and firm growth opportunities (*CAP\_EXP*).

According to previous studies, firm performance can have an effect on corporate governance. The study of Zhang and Xian (2014) indicates that auditors only issue GCO's to bad performing companies. In addition, firm performance can affect CEO turnover and CEO compensation. To control for this, firm performance is included as a control variable. I measure firm performance



using return on assets (ROA), which is the net income divided by a company's total year-end assets.

Consistent with the study of Core et al. (1999), firm size is included as a control variable. Bigger firms are expected to have more growth opportunities. More growth opportunities could result in hiring higher quality managers. Those higher quality managers are expected to receive higher payments, which influences CEO compensation. Furthermore, managers in bigger companies are more likely to buy and own shares of the company. This could affect management ownership. This study uses the natural logarithm of total firm revenues to control for firm size.

I control for firm risk using leverage ratio. This could have an influence on the going-concern opinion and CEO compensation. An increase in leverage ratio is often seen as a sign of financial distress, which could affect the issuance of a GCO. However, an increase in leverage ratio could also indicate a sub-optimal level of leverage, and then the increase in the leverage ratio would be beneficial to shareholders. To measure the firm's leverage, I use the debt-to-capital ratio.

Based on Wysocki (2010), I include the total auditor fee as a control variable. Wysocki (2010) provides evidence for a significant association between executive compensation and auditor compensation. Companies with strong corporate governance are likely to demand additional assurance and a higher audit quality, which results in higher audit fees. Auditor fees could also be related to board size. Larger boards are less effective in decision making, communication, and are more likely to be controlled by the CEO (Jensen, 1993). This could result in more work for the auditor, increasing the auditor fee. In order to minimize the influence of outliers, I use the natural logarithm of total audit fees.

I use CEO age as a control variable, based on the study by Farrel and Whidbee (2003). Their study suggests that the CEO age could have an effect on the probability of CEO turnover. As the CEO gets older, the higher the probability of turnover.

Based on the study of Ren and Zhu (2018), I use the control variable market-to-book ratio (MTB). MTB is used to control for companies' financial condition closely related to the default risk.

Finally, I control for firm's growth opportunities using capital expenditures. With more capital investment, more chance is induced to gain profits and to build a larger firm (Long and Malitz, 1985). I use to natural logarithm of capital expenditures to minimize the influence of outliers.

Table 2 presents an overview of all the variables used in this study and their definitions, and in addition the data sources used to collect the variables.

**Table 2** Variable definitions

Variable name	Variable definition and data sources
Going-concern opinion	GCO is a dummy variable that equals one if the firm received a going-concern opinion and zero otherwise. Data source: Audit Analytics
Management ownership	This variable measures the percentage of the firm that management owns. The percentage of the firm that management owns is a ratio of stocks owned by management divided by total outstanding stocks of the of the firm. Data source: ThomsonOne
Board size	Board size is proxied by the total number of directors on the board. Data source: BoardEx
Ln(CEO compensation)	This variable measures the total compensation that the company's CEO receives, 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. Data source: Compustat database
CEO turnover	CEO turnover is a dummy variable that equals one if the CEO left, and zero otherwise. Data source: Audit Analytics
Return on assets (ROA)	Measure of firm performance. ROA is computed by dividing net income by a company's total year-end assets. Data source: Compustat
Ln(Firm sales)	Measure of firm size. Measured as the natural logarithm of total firm sales. Data source: Compustat
Leverage	Measure of firm risk. Leverage is measured using the debt-to-capital ratio. Data source: Compustat
Ln(Audit fees)	The natural logarithm of the total fees paid by firms to their auditor. Data source: Audit Analytics
CEO age	Represents the age of the firm's Chief Executive Officer in the fiscal year to which the audit opinion belongs. Data source: Audit Analytics
Market-to-book (MTB)	The firm's market-to-book ratio. Data source: Compustat
Ln(Growth)	Measure of firm's growth opportunities. Measured as the total capital expenditures in the fiscal year to which the audit opinion belongs. Data source: Compustat

*This table presents an overview of the definitions of all the variables used in this study, as well as the data sources used to collect the data.*

### 3.4 Panel data analysis

This study aims to examine whether the issuance of a going-concern opinion causes change in corporate governance in the subsequent year. In order to do this, I include a time lag of 1 year for all the independent variables. This ensures that the regression results show the effect of a going-concern opinion on corporate governance in the year after the opinion was issued. The dependent variables are measured in year T, while the independent variables are measured in year T - 1.

#### 3.4.1. Hypothesis 1

In order to test the first hypothesis, which examines the effect of a GCO on management ownership in the subsequent year, I use the following regression equation:

$$\text{Management ownership}_t = \beta_0 + \beta_1 \text{GCO}_{t-1} + \beta_2 \text{ROA}_{t-1} + \beta_3 \text{LN\_SIZE}_{t-1} + \beta_4 \text{LEV}_{t-1} + \beta_5 \text{LN\_TOTFEES}_{t-1} + \beta_6 \text{CEOAge}_{t-1} + \beta_7 \text{MTB}_{t-1} + \beta_8 \text{ECAP\_EXP}_{t-1} + \varepsilon + \sum \text{Industry Fe} + \sum \text{Year Fe} \quad (1)$$

The dependent variable *Management ownership* is the percentage of the firm that management owns. The main independent variable, *GCO*, is a dummy variable that equals one if the firm received a going-concern opinion and zero otherwise. *ROA*, *Size*, *Leverage*, *Total auditor fees*, *CEOAge*, *MTB* and *Capital Expenditures* are the control variables. The included fixed effects in the model are based on industry and time. I create a dummy variable ranging from 1 till 13 to which indicates the industry a firm is operating in. The year fixed effects are the years of financial statements.

#### 3.4.2 Hypothesis 2 and 3

In order to investigate the effect of a GCO on board structure in the subsequent year, two regression equations are used. The first regression equations examines the impact of a GCO on board size:

$$\text{Board size}_t = \beta_0 + \beta_1 \text{GCO}_{t-1} + \beta_2 \text{ROA}_{t-1} + \beta_3 \text{LN\_SIZE}_{t-1} + \beta_4 \text{LEV}_{t-1} + \beta_5 \text{LN\_TOTFEES}_{t-1} + \beta_6 \text{CEOAge}_{t-1} + \beta_7 \text{MTB}_{t-1} + \beta_8 \text{ECAPEXP}_{t-1} + \varepsilon + \sum \text{Industry Fe} + \sum \text{Year Fe} \quad (2)$$

The dependent variable, *Board size*, is the number of directors on the firm's board. The main independent variable, *GCO*, is a dummy variable that equals one if the firm received a going-concern opinion and zero otherwise. *ROA*, *Size*, *Leverage*, *Total auditor fees*, *CEOAge*, *MTB* and *Capital Expenditures* are the control variables. The included fixed effects in the model are based on industry and time. I create a dummy variable ranging from 1 till 13 to which indicates the industry a firm is operating in. The year fixed effects are the years of financial statements.

The regression equation to examine the impact of a GCO on CEO compensation is as follows:

$$\text{Ln}(\text{CEO compensation})_t = \beta_0 + \beta_1 \text{GCO}_{t-1} + \beta_2 \text{ROA}_{t-1} + \beta_3 \text{LN\_SIZE}_{t-1} + \beta_4 \text{LEV}_{t-1} + \beta_5 \text{LN\_TOTFEES}_{t-1} + \beta_6 \text{CEOAge}_{t-1} + \beta_7 \text{MTB}_{t-1} + \beta_8 \text{ECAPEXP}_{t-1} + \varepsilon + \sum \text{Industry Fe} + \sum \text{Year Fe} \quad (3)$$

The dependent variable, *CEO 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. I use the natural logarithm of CEO compensation to minimize the influence of outliers. The main independent variable, *GCO*, is a dummy variable that equals one if the firm received a going-concern opinion and zero otherwise. *ROA*, *Size*, *Leverage*, *Total auditor fees*,

*CEOAge*, *MTB* and *CAP\_EXP* are the control variables. The included fixed effects in the model are based on industry and time. I create a dummy variable ranging from 1 till 13 to which indicates the industry a firm is operating in. The year fixed effects are the years of financial statements.

### 3.4.3 Hypothesis 4

In order to investigate the effect of a GCO on CEO turnover in the subsequent year, I use the following regression equation:

$$CEO\ turnover_t = \beta_0 + \beta_1 GCO_{t-1} + \beta_2 ROA_{t-1} + \beta_3 LN\_SIZE_{t-1} + \beta_4 LEV_{t-1} + \beta_5 LN\_TOTFEES_{t-1} + \beta_6 CEOAge_{t-1} + \beta_7 MBT_{t-1} + \beta_8 CAPEXP_{t-1} + \varepsilon + \sum Industry\ Fe + \sum Year\ Fe \quad (4)$$

The dependent variable, *CEO turnover*, is a dummy variable that equals one if there was a CEO turnover and zero otherwise. The main independent variable, *GCO*, is a dummy variable that equals one if the firm received a going-concern opinion and zero otherwise. *ROA*, *Size*, *Leverage*, *Total auditor fees*, *CEOAge*, *MTB* and *Capital Expenditures* are the control variables. The included fixed effects in the model are based on industry and time. I create a dummy variable ranging from 1 till 13 to which indicates the industry a firm is operating in. The year fixed effects are the years of financial statements.

### 3.5 Propensity score matching method

A GCO is usually issued to firms in bad financial conditions, firms that make losses or use doubtful accounting policies (Zhang and Xian, 2014). Firms' underperformance can result in the inability to meet their main responsibility: create value for their shareholders. To be able to create value for their shareholders again, firms can make changes in their company and policies, such as a reduction in board size or a reduction of CEO compensation. It could be argued that the years of firms' underperformance could lead to a decrease in board size or CEO compensation, rather than the issuance of a GCO. This leads to a possible endogeneity problem in my study.

In order to deal with this possible endogeneity problem and to calculate causal effects, I use propensity score matching. This is used as an additional step in the analysis next to the OLS regressions. Propensity score matching allows for a decomposition of treatment effects on outcomes (Caliendo & Kopeinig, 2005). This method can increase the ability to draw causal inferences using observational data. Using PSM, I can validate that significant changes in corporate governance in the year after the issuance of a GCO are due to a GCO and not to other factors.

Required for this analysis are a group that received the treatment, and a control group that did not receive the treatment. The firms that receive a GCO in the sample period make up the treatment group, and firms that do not receive a GCO make up the control group. The matched sample is constructed by matching a firm in the treatment group to a firm in the control group based on their covariates. The covariates used in this study are firm size (sales), firm performance (ROA), firm risk (leverage), growth opportunities (capital expenditures), audit fees, MTB and CEO age. In addition, firms are grouped based on industry and year. In order to find a match for all firms in the treatment group a propensity score is derived for each firm in both groups. The propensity score is the probability of a firm to be in the treatment group, based on the covariates.

After the estimation of propensity scores, a matching algorithm will be applied. I will use the nearest neighbor approach. Firms in the treatment group are matched to firms in the control group with the most similar propensity scores (Caliendo & Kopeinig, 2005).

After this, I create a dataset containing only the matched observations. Using this new dataset, I can perform another regression, which examines the impact of a GCO on corporate governance using the matched observations.

### **3.6 Descriptive statistics**

Table 3 presents the descriptive statistics for the variable used in this study. I winsorize all the continuous variables at 95% level, in order to minimize the influence of outliers. I use the natural logarithm of CEO compensation, firm revenues, auditor fees and capital expenditures in order to normalize its distributions around its mean value. Table 2 indicate that in 2% of the firm-year observations, a going-concern opinion takes place. This low number is due to the fact that for companies that have received a GCO, there is often missing information on corporate governance variables. The average number of people on the board of directors in the sample firm is 10 individuals, with a minimum of 1 and a maximum of 24 individuals on the board of directors. This could suggest that the average firm in my sample has communication and monitoring problems, as literature suggests that boards with more than seven members are likely to be ineffective (Lipton and Lorsch, 1992; Jensen, 1993). The average percentage shares of the firm that are owned by managers is 14%. This percentage is relatively low, which could result in the problem that the incentives of managers are not aligned with the incentives of other shareholders.

**Table 3** Descriptive statistics

Variable	N	Mean	SD	Min	Median	Max
Management ownership	4215	0,14	0,15	0	0,08	1
Board size	4215	9,84	2,38	1	10	24
Ln(CEO compensation)	4215	15.26	1,32	0	15,53	21,55
CEO turnover	4215	0,07	0,25	0	0	1
GCO	4215	0,02	0,01	0	0	1
Ln(Audit fees)	4215	14,88	1,21	6,63	14,93	18,38
ROA	4215	0.12	0,71	-0.05	0,12	0,30
Ln(Firm sales)	4215	19,99	4,42	0	21,16	25,3
Leverage	4215	0,48	1,25	-0,07	0,47	1,02
CEO age	4215	56	7,21	42	57	71
MTB	4215	3,42	6,80	0.14	2.87	7,01
Ln(Growth)	4215	7.92	3,66	0	8.18	15.92

*This table presents descriptive statistics for all variables used to test hypothesis 1-4. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio.*

Table 4 presents the predicted sign of the relationship between the dependent and independent variables. The predicted signs are based on existing literature. The table shows that the main assumptions are that the issuance of a going-concern opinion will decrease board size, decrease management ownership, decrease CEO compensation and increase CEO turnover. While most of the relations make sense intuitively, some relations are difficult to predict. For example, it is straightforward to determine that companies with greater revenues, and therefore financially stable companies, will have higher CEO compensation. However, it is more difficult to determine whether firm revenues are positively or negatively related to board size.

**Table 4** Predicted relationships dependent and independent variables

	Board size	Management ownership	Ln(CEO compensation)	CEO turnover
GCO	-	-	-	+
Ln(Audit fees)	+	+	+	+
Leverage	-/+	-	-	-/+
ROA	-/+	+	+	-
Ln(Firm sales)	+	+	+	-/+
CEO age	-	-	-/+	+
MTB	-/+	-/+	-/+	-/+
Ln(Growth)	-/+	-/+	+	-/+

Table 4 presents the predictions regarding the sign of the relationship between the dependent and independent variables. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio.

## 4. Results

In this section the results of the analysis will be discussed. The section is divided in the panel data analysis and the propensity score matching analysis. This study uses both methods to draw conclusions on the hypothesized relations.

### 4.1 Panel data analysis

Table 5 presents the correlation between the dependent variables and the independent variables. The correlation is an indicator for the relation between variables, but does not show whether causality exist. Further testing needs to be conducted to find out. The correlation between management ownership and a GCO is as expected negative and provides preliminary support for hypothesis 1, which states that the issuance of a GCO will lead to a decline in management ownership. Some correlations between management ownership and the other independent variables are as expected, while others do not carry the predicted sign, such as leverage and CEO age.

The dependent variable board size and the independent variable of interest, GCO, are negatively correlated. This relation is in line with the predicted sign and hypothesis 2, that a GCO has a negative impact on board size. It is more difficult to predict the sign of relations between board size and the control variables. The correlation matrix indicates that there is a positive relation between board size and all the control variables, except for market-to-book ratio.

The matrix shows a negative correlation between CEO compensation and the issuance of a going concern opinion. This provides preliminary support for hypothesis 3. The correlations between the other independent variables and CEO compensation are as expected, except for the relation between CEO compensation and leverage ratio. The highest correlation is between the variables CEO compensation and auditor fees. This is in line with the study of Wysocki (2010), which states that the level of CEO compensation and auditor fees are highly correlated. This is due to the fact that higher CEO compensation is associated with greater earnings manipulation risk, which could lead to more work for the auditor, resulting in higher auditor fees.

The relation between CEO turnover and the main independent variable of interest, going-concern opinion, is positive, which provides preliminary support for hypothesis 4. In addition, the matrix shows a positive correlation between CEO turnover and the independent variables audit fees, leverage, ROA, firm sales CEO and MBT. The positive relation between ROA and CEO turnover is remarkable, as one would expect that an increase in ROA, which is used to measure firm performance, will lead to a decrease in CEO turnover.



	Man. Own	Board size	CEO comp	CEO turn	GCO	Ln(auditfe	Leverage	ROA	Ln(sales)	CEO age	MTB	Ln(growth
Man own.	1.000	-	-	-								
Board size	-	1.000	-	-								
CEO comp	-	-	1.000	-								
CEO turn	-	-	-	1.000								
GCO	-0.022	-0.187**	-0.122**	0.015	1.000							
Ln(auditfe es)	-0.002	0.494***	0.247***	0.017	-0.247***	1.000						
Leverage	0.035**	0.330*	0.109*	0.008	-0.083	0.272**	1.000					
ROA	0.021	0.078*	0.133***	0.002	-0.259*	0.199**	-0.009	1.000				
Ln(sales)	0.066**	0.325***	0.196***	0.008	-0.378***	0.458***	0.273**	0.388***	1.000			
CEO age	0.033**	0.014	0.020	-0.032**	-0.006	0.001	-0.003	-0.008	0.009	1.000		
MTB	-0.038**	-0.121	0.039*	0.006	-0.001	-0.045	-0.018	0.335**	0.028	-0.024	1.000	
Ln(growth	0.012	0.054	0.023	0.001	-0.151*	0.088**	0.036	0.082	0.3374*	0.004	0.035*	1.000

**Table 5** Correlation matrix

\*, \*\*, \*\*\* Significant correlation at 10 percent, 5 percent and 1 percent level, respectively. This table shows the correlations between the dependent corporate governance variables and the independent variables in this study. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio.

The results of the regression equations 1-4 used to examine the relation between a GCO and corporate governance are presented in table 6. Column 1 shows the results of regression equation 1, that examines the relation between a GCO and management ownership. The findings show a negative but not significant coefficient for the GCO variable. After controlling for audit fees, firm fundamentals and CEO age the impact of a GCO on management ownership becomes insignificant. The results indicate that after receiving a GCO, on average the management ownership decreases with 2.6%. This means that management ownership will decrease from an average of 14% before the issuance of a GCO to 11.4% in the year after the issuance of a GCO. Despite this decline, the results do not show a significant effect. Based on this, I can reject hypothesis 1. The decline in management ownership could be due to other conditions such as insider trading or bad financial conditions of the company, and not so much by the auditor's GCO. The adjusted R-squared shows that only 8% of the variance in the dependent variable is explained by the independent variables.

The second regression equation examines the impact of a GCO on board size. The negative and statistically significant coefficient for the GCO variable in column 2 provides evidence for a negative relation between a GCO and board size. The results indicate that after controlling for audit fees, firm fundamentals and CEO age, the issuance of a GCO will lead to a decrease in the board size in the subsequent year. These results support evidence for hypothesis 2, which predicts a negative relation between the issuance of a GCO and the size of the board of directors. The positive and significant coefficient for audit fees indicates that larger boards carry more risks for the auditor, which leads to more work, and therefore higher fees for the auditor. Furthermore, the results show a positive and significant relation between board size and leverage, which measures firm risk through the debt-to-capital ratio. This indicates that as firm risk increases, board size increases as well. The relation between board size and firm sales, which measures firm size, is also significant and positive. This is in line with the expectation that larger firms contain a larger board of directors. The adjusted R-squared shows that 27,9% percent of the variance in the dependent variable is explained by the independent variables.

**Table 6** regression results corporate governance

	(1) Management Ownership	(2) Board Size	(3) CEO Compensation	(4) CEO Turnover
Going-concern opinion <sub>t-1</sub>	-0.026 (0.016)	-0.855*** (0.187)	-0.408** (0.126)	0.034 (0.023)
Ln(audit fees) <sub>t-1</sub>	-0.006* (0.003)	0.764*** (0.041)	0.263*** (0.032)	0.003 (0.003)
Leverage <sub>t-1</sub>	0.015 (0.013)	1.487*** (0.276)	0.162* (0.069)	-0.009 (0.017)
ROA <sub>t-1</sub>	0.032 (0.044)	0.410 (0.531)	1.257*** (0.346)	-0.034 (0.052)
Ln(sales) <sub>t-1</sub>	0.002* (0.001)	0.030** (0.006)	0.005 (0.008)	-0.002 (0.001)
CEO age <sub>t-1</sub>	0.008* (0.001)	0.002 (0.005)	0.003 (0.003)	-0.006 (0.005)
MTB <sub>t-1</sub>	-0.003* (0.002)	-0.085*** (0.015)	0.006 (0.012)	-0.005 (0.001)
Ln(growth) <sub>t-1</sub>	-0.007 (0.001)	-0.010 (0.013)	-0.018** (0.011)	-0.009 (0.001)
Adjusted R-squared	0.008	0.279	0.10	0.049
Observations	4215	4215	4215	4215

\*, \*\*, \*\*\* Significant relation at 10 percent, 5 percent and 1 percent level, respectively. This table presents the results for regression equation 1-4 that investigates the impact of a GCO on corporate governance, using the panel dataset. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio .Standard errors are presented in the parentheses below the corresponding coefficient.

Regression equation 3 examines the relation between CEO compensation and the issuance of a GCO. Column 3 shows a significant and negative relation between CEO compensation and a GCO. The results indicate that CEO compensation decreases in the year after the issuance of a GCO. This result is in line with and provides support for hypothesis 3, which predicts that the issuance of a GCO will lead to a decrease in CEO compensation, measured as 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. In addition, the regression results show a positive and significant between CEO compensation and the control variables audit fees, leverage, ROA and growth opportunities. However, despite these significant relations, the adjusted R-squared indicates that only 10% of the variance in the dependent variable CEO compensation is explained by the dependent variables.

The results of regression equation 4, which examines the impact of a GCO on CEO turnover, are presented in column 4. The findings indicate that there is a positive relation between a GCO and CEO turnover. However, no significant relation is found. After controlling for firm fundamentals, audit fees and CEO age, the effect of a GCO on CEO turnover turns out not to be significant. Based on these results, I can reject hypothesis 4. Furthermore, the results show that none of the independent variables are significant related to the independent variable CEO turnover. The adjusted R-squared is 4,9%, which means that a low amount of variance in the dependent variable is explained by the independent variables.

## **4.2 Propensity score matching**

### **4.2.1. T-test**

The first step in the propensity score matching analysis is the composition of a treatment group and a control group. The treatment group consists of firms that received a GCO, and the control group consists of firm that did not receive a GCO during the sample period. Table 7 includes descriptive statistics on the two groups of interest. Using a t-test, I can conclude that the two groups are significantly different for most of the variables. The descriptive statistics show that firms in the treatment group have, on average, less management ownership, less amount of people on the board of the company, lower CEO compensation and a higher CEO turnover. Firms that received a GCO are also significantly smaller in size, which is measured by firm sales.

**Table 7 T-test table**

	GCO = 0 Control	GCO = 1 Treatment	
<b>Variable</b>	<b>Mean</b>	<b>Mean</b>	<b>Mean-diff</b>
Management ownership	0.14	0.12	0.02*
Board size	9.96	6.98	2.98***
Ln(CEO compensation)	15.27	14.19	1.08***
CEO turnover	0.06	0.09	0.03
Ln(Audit fees)	14.93	12.92	2.01***
Leverage	0.52	0.41	0.09
ROA	0.10	-0.94	1.04*
Ln(Sales)	20.24	9.11	11.13***
CEO age	56.83	56.53	0.30
MTB	4.80	4.48	0.32*
Ln(Growth)	8.00	4.31	3.69***

*\*, \*\*, \*\*\* Significant different at 10 percent, 5 percent and 1 percent level, respectively. This table report the descriptive statistics on the two groups of interest, the treatment group (GCO = 1) and the control group (GCO = 0). The table provides the mean values and the mean differences between the treatment and control group. See table 2 for an overview of the variable definitions and their data sources. Note. ROA: return on assets. MTB: market-to-book ratio .*

**Table 8** Covariate balance summary Management ownership

Variable	Matched/ Unmatched	Management ownership				T-test	
		Mean		Bias	Bias Reduction (%)	T-stat	P-value
		Treated	Control				
Ln(audit fees)	U	12.92	14.93	-1.72		16.83	0.000
	M	12.92	12.48	0.38	77,9	-2.62	0.009
Leverage	U	0.41	0.52	-0.04		0.46	0.641
	M	0.41	0.41	0.00	100	0.01	0.990
ROA	U	-0.94	0.10	-0.26		2.65	0.001
	M	-0.94	-0.38	-0.14	46,1	1.26	0.207
Ln(sales)	U	9.11	20.24	-1.33		13.07	0.000
	M	9.11	9.53	-0.05	96,2	0.33	0.734
CEO age	U	56.53	56.83	-0.04		0.46	0.644
	M	56.53	56.46	0.07	75	-0.08	0.932
MTB	U	4.48	4.80	-0.05		0.54	0.005
	M	4.48	4.49	-0.01	80	0.01	0.994
Ln(growth)	U	4.31	8.00	-1.00		9.79	0.000
	M	4.31	4.02	0.07	71	-0.52	0.601
Industry	U	8.69	7.79	0.90		-2.34	0.020
	M	8.69	8.09	0.16	33,3	-1.12	0.263
Year	U	2.49	3.01	-0.43		4.20	0.001
	M	2.49	2.68	-0.19	55,8	0.95	0.340

*This table presents a covariate balance summary for the relation between management ownership and the independent variables. Using this, I can determine whether the balancing properties of the sample are satisfied. Furthermore, the table reports the standardized bias before and after matching on the propensity scores. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio .Standard errors are presented in the parentheses below the corresponding coefficient.*

#### 4.2.2. Matching process

In order to determine the average treatment effect, the treatment group and control group will be matched based on their propensity scores for each covariate. The covariates consist of the control variables used in this study, namely firm size (sales), firm performance (ROA), firm risk (leverage), growth opportunities (capital expenditures), audit fees, MTB and CEO age. In addition, firms are grouped based on industry and year. The firms in the treatment group are matched with firms in the control group based on their nearest neighbor. To determine whether the balancing properties of the sample are satisfied, tables 8-11 provide a covariate balance summary for all the corporate governance variables. The tables show that most of the variables are well matched. Results show that the statistics of control firms are closer to the statistics of the treatment firms after matching. Only the covariate balance summary for CEO compensation and CEO turnover indicates that the

mean difference for the independent variable leverage between the treatment and control group increases after matching.

In addition, the statistical tests also indicate that the matches are well-balanced. Table 8-11 presents the standardized bias of the independent variable before and after matching. There is no clear cut-off point for a well standardized bias, but the study of Rubin (2001) indicates that biases below 0.25 are well-balanced. The results show that only for the independent variable audit fees, the bias is above this cut-off point. However, because the audit fees bias significantly decreases after matching, I decide to include the variable as a covariate. I find all the other biases to be lower than 16%, except for the variable leverage in the CEO compensation and CEO turnover covariate balance summary.

**Table 9** Covariate balance summary Board size

Variable	Matched/ Unmatched	Board size		Bias	Bias Reduction (%)	T-test	
		Mean				T-stat	P-value
		Treated	Control				
Ln(audit fees)	U	12.92	14.93	-1.72		16.83	0.000
	M	12.92	12.48	0.38	77,9	-2.62	0.009
Leverage	U	0.41	0.52	-0.04		0.46	0.641
	M	0.41	0.41	0.00	100	0.01	0.990
ROA	U	-0.94	0.10	-0.26		2.65	0.001
	M	-0.94	-0.38	-0.14	46,1	1.26	0.207
Ln(sales)	U	9.11	20.24	-1.33		13.07	0.000
	M	9.11	9.53	-0.05	96,2	0.33	0.734
CEO age	U	56.53	56.83	-0.04		0.46	0.644
	M	56.53	56.46	0.01	75	-0.08	0.932
MTB	U	4.48	4.80	-0.05		0.54	0.005
	M	4.48	4.49	-0.01	80	0.01	0.994
Ln(growth)	U	4.31	8.00	-1.00		9.79	0.000
	M	4.31	4.02	0.07	93,2	-0.52	0.601
Industry	U	8.69	7.79	0.24		-2.34	0.020
	M	8.69	8.09	0.16	33,3	-1.12	0.263
Year	U	2.49	3.01	-0.43		4.20	0.001
	M	2.49	2.69	-0.15	65,1	0.95	0.340

*This table presents a covariate balance summary for the relation between board size and the independent variables. Using this, I can determine whether the balancing properties of the sample are satisfied. . Furthermore, the table reports the standardized bias before and after matching on the propensity scores. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio .Standard errors are presented in the parentheses below the corresponding coefficient.*

**Table 10** Covariate balance summary CEO compensation

Variable	Matched/ Unmatched	CEO compensation		Bias	Bias Reduction (%)	T-test	
		Mean				T-stat	P-value
		Treated	Control				
Ln(audit fees)	U	12.92	14.93	-1.72		16.83	0.000
	M	12.92	12.57	0.30	82,5	-1.98	0.048
Leverage	U	0.41	0.52	-0.04		0.46	0.641
	M	0.41	1.16	1.16	-300	0.96	0.335
ROA	U	-0.94	0.10	-0.26		2.65	0.001
	M	-0.94	-0.37	-0.15	42,3	1.29	0.199
Ln(sales)	U	9.11	20.24	-1.33		13.07	0.000
	M	9.11	9.41	-0.03	97,7	0.23	0.811
CEO age	U	56.53	56.83	-0.04		0.46	0.644
	M	56.53	56.79	-0.03	25	0.42	0.673
MTB	U	4.48	4.80	-0.05		0.54	0.005
	M	4.48	4.70	-0.03	40	0.25	0.802
Ln(growth)	U	4.31	8.00	-1.00		9.79	0.000
	M	4.31	3.71	0.16	84	-1.10	0.270
Industry	U	8.69	7.79	0.24		-2.34	0.020
	M	8.69	8.15	0.14	41,6	-1.00	0.316
Year	U	2.49	3.01	-0.43		4.20	0.001
	M	2.49	2.64	-0.12	72,1	0.82	0.409

*This table presents a covariate balance summary for the relation between CEO compensation and the independent variables. Using this, I can determine whether the balancing properties of the sample are satisfied. Furthermore, the table reports the standardized bias before and after matching on the propensity scores. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio .Standard errors are presented in the parentheses below the corresponding coefficient.*



**Table 11** Covariate balance summary CEO turnover

Variable	Matched/ Unmatched	CEO turnover			Bias	Bias Reduction (%)	T-test	
		Mean		Treated			Control	T-stat
Ln(audit fees)	U	12.92	14.93	-1.72		16.83	0.000	
	M	12.92	12.57	0.30	82,5	-1.98	0.048	
Leverage	U	0.41	0.52	-0.04		0.46	0.641	
	M	0.41	1.16	1.16	300	0.96	0.335	
ROA	U	-0.94	0.10	-0.26		2.65	0.001	
	M	-0.94	-0.37	-0.15	42,3	1.29	0.199	
Ln(sales)	U	9.11	20.24	-1.33		13.07	0.000	
	M	9.11	9.41	-0.03	97,7	0.23	0.811	
CEO age	U	56.53	56.83	-0.04		0.46	0.644	
	M	56.53	56.79	-0.03	25	0.42	0.673	
MTB	U	4.48	4.80	-0.05		0.54	0.005	
	M	4.48	4.70	-0.03	40	0.25	0.802	
Ln(growth)	U	4.31	8.00	-1.00		9.79	0.000	
	M	4.31	3.71	0.16	84	-1.10	0.270	
Industry	U	8.69	7.79	0.24		-2.34	0.020	
	M	8.69	8.15	0.14	41,6	-1.00	0.316	
Year	U	2.49	3.01	-0.43		4.20	0.001	
	M	2.49	2.64	-0.12	72,1	0.82	0.409	

*This table presents a covariate balance summary for the relation between CEO turnover and the independent variables. Using this, I can determine whether the balancing properties of the sample are satisfied. Furthermore, the table reports the standardized bias before and after matching on the propensity scores. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio. Standard errors are presented in the parentheses below the corresponding coefficient.*

#### 4.3.2 Treatment effect

To determine the effect of the issuance of a GCO on corporate governance, firms are paired based on their propensity score. One firm in the control group is matched to a firm in the treatment group. As described, the treated firms have been matched based on their covariates. After this, I create a dataset containing only the matched observations. This dataset consist of 97 firms that received a GCO and these are matched to a firm in the control group. Using this dataset, I can perform another regression, which examines the impact of a GCO on corporate governance using the matched observations. The results of the regression equations 1-4, using the matched observations' dataset are presented in table 12.

Column 1 presents the results of regression equation 1, which examines the impact of a GCO on management ownership. Using the new dataset, the findings still indicate a negative but no significant effect of a GCO on management ownership. Despite that the negative impact of a GCO on management ownership increases from -0.025 to -0.073 compared to the OLS regression result, there is still no significant effect. Based on this, I can reject hypothesis 1.

Column 2 shows the results of regression equation 2, that examines the impact of a GCO on board size. Using the matched firms' dataset, there is still a negative and significant effect of a GCO on board size. This result indicates that the issuance of a GCO will lead to a decrease in board size in the subsequent year. In comparison to the OLS regression results in table 6, the findings indicate that I can accept hypothesis 2 with 95% confidence, instead of 99% confidence.

The results of regression equation 3 are presented in column 3. I observe a negative and significant impact of a GCO on CEO compensation, using the matched observations. The findings indicate that the issuance of a GCO leads to a reduction in CEO compensation in the subsequent year. Furthermore, there are significant relations between CEO compensation and the control variables audit fees, leverage and ROA. The results in column 3 indicates that I can accept hypothesis 3 and therefore conclude that a GCO will lead to a decrease in CEO compensation in the subsequent year.

The results of regression equation 4 are presented in column 4. The results indicate that there is a positive, but no significant effect of a GCO on CEO turnover. Based on this I can reject hypothesis 4, which predicts that the issuance of a GCO will lead to an increase in CEO turnover.

**Table 12** Regression result PSM dataset

	(1) Management Ownership	(2) Board Size	(3) CEO Compensation	(4) CEO Turnover
Going-concern opinion <sub>t-1</sub>	-0.073 (0.028)	-0.310** (0.146)	-0.575* (0.295)	0.042 (0.034)
Ln(audit fees) <sub>t-1</sub>	0.015 (0.013)	0.261* (0.212)	0.211* (0.119)	0.025* (0.015)
Leverage <sub>t-1</sub>	-0.002 (0.002)	-0.002 (0.032)	-0.189*** (0.028)	-0.014 (0.019)
ROA <sub>t-1</sub>	0.001 (0.002)	-0.001 (0.013)	0.017 (0.009)	0.003** (0.001)
Ln(sales) <sub>t-1</sub>	-0.002 (0.002)	0.028 (0.018)	-0.007 (0.012)	-0.001 (0.001)
CEO age <sub>t-1</sub>	0.004* (0.002)	-0.011 (0.021)	-0.004 (0.018)	-0.002 (0.001)
MTB <sub>t-1</sub>	0.001 (0.002)	0.021 (0.019)	-0.034 (0.025)	0.003 (0.003)
Ln(growth) <sub>t-1</sub>	0.006 (0.004)	0.006 (0.041)	0.047 (0.026)	0.004 (0.004)
Adjusted R-squared	0.040	0.088	0.325	0.049
Number of observations	194	194	194	194

*\*, \*\*, \*\*\* Significant relation at 10 percent, 5 percent and 1 percent level, respectively. This table presents the results for regression equation 1-4 that investigates the impact of a GCO on corporate governance, using the matched dataset created using propensity match scoring. See table 2 for an overview of the variable definitions and their data sources. Note. GCO: going-concern opinion. ROA: return on assets. MTB: market-to-book ratio . Standard errors are presented in the parentheses below the corresponding coefficient.*

## 5. Discussion

### 5.1 Interpretation

The results of regression equation 2 confirm the expected negative association between a GCO and board size in the subsequent year. This result is in line with previous literature, that find a negative association between large boards and firm performance. Boards with more than seven members are likely to be ineffective, due to decision-making and communication problems and because they are likely to be controlled by the CEO (Jensen, 1993). According to Yermack (1996), a smaller board can improve the monitoring function, as well as corporate performance. He finds that a decrease in board size is associated with an increase of financial ratios related to profitability and operating efficiency. Furthermore, Fich & Slezak (2008) find that smaller boards and boards with more independent directors are more likely to avoid bankruptcy. Based on this, a reduction in board size after the issuance of a GCO can be seen as a way to improve profitability and operating efficiency, and as a measure to avoid bankruptcy. Overall, a reduction in board size after the issuance of a GCO can be seen as a way to improve corporate governance and therefore financial performance.

Another corporate governance factor is how management is compensated and what other benefits managers enjoy (Standard & Poor, 2002). Results of regression equation 3 confirm the expected association between a GCO and CEO compensation. Findings show that firms significantly decrease their CEO compensation in the year after the issuance of a GCO. This result is in line with the thinking of opponents of the current level of CEO compensation (Bebchuk, Fried & Walker, 2002). An auditor's GCO is given out if there is substantial doubt about the entity's ability to continue as a going-concern (PCAOB, 2002). The reduction of CEO compensation can be seen as a way for firms to overcome negative trends and avoid bankruptcy. Since the Standard & Poor's (2002) framework classifies CEO compensation as an important corporate governance component, the reduction of CEO compensation can be classified as a financial measure to impact corporate governance.

Results show that there is no significant effect between the issuance of a GCO and management ownership. The results indicate that management ownership reduces in the year after the issuance of a GCO, but since no significant effect is found, this reduction could be due to other factors than the GCO itself. The decision of management to sell shares could be due to the bad financial condition of the company, which eventually leads to the issuance of a GCO. Another possible explanation for managers selling their shares could be insider trading, as they have more knowledge about the company's situation than the outside world.

Furthermore, results show that there is no significant association between a GCO and CEO turnover. This could be due to the fact that replacing a CEO causes significant additional costs to the company, which is stated by Yermack (2006). Replacing the CEO often comes with additional separation costs and finding a new CEO is a difficult and time-consuming task. Although literature shows that future stock performance increases when the CEO is forced to leave the company (Clayton et. al, 2005), the costs of replacing the CEO could outweigh the benefits. This could further harm the financial conditions of firms that received a GCO, which could lead to the decision not to fire the CEO.

## 5.2 Limitations and future research

This study contains several limitations. First, this study does not account for trends in firm performance. I examine the impact of a going-concern opinion on corporate governance. Several years of underperformance by firms could lead to an auditor's going concern opinion. This going-concern opinion could then lead to a decrease in board size or a decrease in CEO compensation. However, it could be argued that the years of firms underperformance could lead to this decrease in board size or CEO compensation, rather than the going-concern opinion itself. This can distort the relation between the going-concern opinion and corporate governance, and therefore the validity of the results. Although I try to overcome this possible endogeneity problem using propensity score matching, this is still a limitation of my study.

Another limitation is that only 97 going-concern opinions are included in the sample size. This small number reduces the representativeness of the sample, and could therefore reduce the validity of the results. Data on firms that received a going-concern opinion contained a lot of missing variables, which resulted in them being excluded from the sample. Only firms with available data on the corporate governance variables and the control variables were included in the sample.

Furthermore, the sample consists only of U.S. listed firms. Although the U.S. is a world-leading market, the sample of firms from one country leads to the limitation that one institutional setting is observed, which may limit the generalizability of the findings. If there is more worldwide data available on firms that receive a going-concern opinion, further research could include a broader sample size, including more countries and years.

Last, this study uses four proxies for corporate governance based on a framework by Standard & Poor (2002), namely management ownership, board size, CEO compensation and CEO turnover. However, there are other proxies for corporate governance that could be impacted by a going-concern opinion. Future research could fill in this gap by examining the relation between a going-concern opinion and corporate governance, using different corporate governance proxies.

## 6. Conclusion

This study aims to investigate the impact of a going-concern opinion on corporate governance. Many studies have identified corporate governance factors to predict GCO. However, little is known about the opposite relation, the effect of a going-concern opinion on corporate governance. Several empirical studies provide evidence that GCOs are associated with a significant decline in share price. Therefore, I expect that firms receiving a GCO might subsequently engage in changes in corporate governance to improve financial performance and restore investors' confidence. In this study, corporate governance is proxied by ownership structure, board structure and CEO turnover. Using a panel data regression, the relation between a GCO and corporate governance is examined. In addition, to overcome possible endogeneity issues, the treatment effect of a GCO on corporate governance is examined using propensity score matching (PSM).

The results indicate that the association between a GCO and management ownership is negative but insignificant. Based on this, the first hypothesis is rejected. The reduction of management ownership could be due to bad financial conditions or insider trading, rather than the GCO itself. In hypothesis 2, the impact of a GCO on board size is examined. Results show a negative and significant effect, meaning that the issuance of a GCO reduces board size in the subsequent year. A reduction in board size after the issuance of a GCO can be seen as a way to improve profitability and operating efficiency, and as a measure to avoid bankruptcy. Furthermore, results show that the issuance of a GCO has a significant and negative impact on CEO compensation. Firms can reduce their CEO compensation after receiving a GCO to overcome negative trends and avoid bankruptcy. The fourth and last hypothesis looks into the effect of the issuance of a GCO on CEO turnover. The GCO is expected to increase CEO turnover. Regression results show a positive, but no significant effect. Looking into the treatment effect of GCO on CEO turnover, PSM model also shows a positive but insignificant effect. Based on these findings, the final hypothesis is rejected.

## References

- Alkhafaji, A.F. (1989), *A Stakeholder Approach to Corporate Governance: Managing in a Dynamic Environment*, Greenwood Press, Westport, CT.
- American Institute of Certified Public Accountants (AICPA). 1988. *The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern. Statement on Auditing Standards (SAS) No. 59.* New York, NY: AICPA.
- American Institute of Certified Public Accountants (AICPA). 2012. *The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern (Redrafted). Statement on Auditing Standards (SAS) No. 126.* New York, NY: AICPA.
- Bebchuk, L. A., Fried, J. M., & Walker, D. I. (2002). Managerial power and rent extraction in the design of executive compensation. *The University of Chicago Law Review*, 69, 751-846.
- Berle, A. A. & Means, G. C. 1932. *The modern corporation and private property.* New York: The Macmillan Company
- Bhagat, Sanjai & Black, B.. (2001). The Non- Correlation Between Board Independence and Long Term Firm Performance. *Journal of Corporation Law*. 27. 231-274.
- Bognanno, M. L. (2010). Executive compensation: a brief review. Working Paper, 1-9.
- Bleicher, K. (1986), "Corporate governance systems in multinational environment: who knows what's best?", *MIR*, Vol. 26.
- Caliendo, M., & Kopeinig, S. (2005). Some Practical Guidance for the Implementation of Propensity Score Matching. Paper 1588. Institute for the Study of Labor, IZA.
- Campbell J. E., J. F. Mutchler 1988, The "Expectations Gap" and Going-Concern Uncertainties, *Accounting Horizons* 2, 42–49
- Carey, P. J., Geiger, M. A., & O'connell, B. T. (2008). Costs associated with going-concern-modified audit opinions: an analysis of the Australian audit market. *Abacus*, 44(1), 61-81.
- Carlson, S. J., Glezen, G. W., & Benefield, M. E. (1998). An Investigation of Investor Reaction to the Information Content of a Going Concern Audit Report While Controlling for Current Financial Statement Disclosures. *Quarterly Journal of Business and Economics*, 37(3), 25- 39
- Carson, E., Fargher, Neil L. , Geiger Marshall, A., Lennox Clive, S., Raghunandan, K., and Willekens Marleen, (2013). Audit Reporting for Going-Concern Uncertainty: A Research Synthesis. *Auditing. A Journal of Practice & Theory*.
- Clayton, M.C., Hartzell, J.C., Rosenberg, J. 2005. The Impact of CEO Turnover on Equity Volatility. *The Journal of Business* 78 (5): 1779-1808.
- COASE, R. 'The Nature of the Firm.'" *Economica* 4 (1937): 3
- Cohen, J., Krishnamoorthy, G., Wright, A., 2004, The corporate governance mosaic and financial reporting quality. *Journal of Accounting Literature*, pp. 87-152
- Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51, 371-406.
- Carpenter, M. A., & Sanders, W. G. (2002). Top Management Team Compensation: The missing link between CEO pay and firm performance. *Strategic Management Journal*, 23, 367-375.

- Demsetz H. and K. Lehn (1985). 'The structure of corporate ownership: Causes and consequences'. *Journal of Political Economy*, 93, 1985, pp. 1155-1177.
- Dopuch, N., Holthausen, R. W. and Leftwich, R. W. (1986) Abnormal returns associated with media disclosures of 'subject to' qualified audit opinions, *Journal of Accounting and Economics*, 8, 93–117.
- Eisenberg, T., Sundgren, S., and Wells, T.W. (1998). Larger Board Size and Decreasing Firm Value in Small Firms. *Journal of Financial Economics*, 48, 35-54.
- Friedman, M. (1970). The social responsibility of business is to increase its profits. *New York Times Magazine*, September 13: 122-126.
- Hall, B. J., & Murphy, K. J. (2003). The trouble with stock options. *Journal of Economic Perspectives*, 17(3), 49-70.
- Hermalin, B.E. & Weisbach, M.S., 1991. The Effects of Board Composition and Direct Incentives on Firm Performance. *FM: The Journal of the Financial Management Association*, 20, 101-112.
- Holder-Webb, L.M., & Wilkins, M.S. (2000). The incremental information content of SAS no. 59 going-concern opinions. *Journal of Accounting Research*, 38(1), 209-219. doi: 10.2307/2672929
- Hölmstrom, B. (1979). Moral hazard and observability. *The Bell journal of economics*, 74-91.
- Huang, R. and Tompkins, J.G. (2010), "Corporate governance and investor reactions to seasoned equity offerings", *Managerial Finance*, Vol. 36 No. 7, pp. 603-628.
- Hermalin, B., Weisbach, M. 1988. The Determinants of Board Composition. *RAND Journal of Economics* 19 (4): 589-606.
- Hughes, P.J. (1986). Signaling by direct disclosure under asymmetric information. *Journal of Accounting and Economics*, 8(2), 119-142
- Fama, Eugene F. and Jensen, Michael C., Separation of Ownership and Control. Michael C. Jensen, FOUNDATIONS OF ORGANIZATIONAL STRATEGY, Harvard University Press, 1998, and *Journal of Law and Economics*, Vol. 26, June 1983.
- Farrell, K. A., & Whidbee, D. A. (2002). Monitoring by the financial press and forced CEO turnover. *Journal of Banking & Finance*, 26(12), 2249-2276.
- Fich, E., Slezak, S. (2008). Can corporate governance save distressed firms from bankruptcy? An empirical analysis. *Review of Quantitative Finance & Accounting*. Vol. 30 No 2, p225- 251.
- Finkelstein, S., & Boyd, B. K. (1998). How much does the CEO matter? The role of managerial discretion in the setting of CEO compensation. *Academy of Management Journal*, 41(2), 179- 199.
- Firth, M., 1978, Qualified audit reports: their impact on investment decisions. *The Accounting Review*, Vol. 53 No. 3, pp. 642-50
- Florackis, C., & Kostakis, A., & Ozkan A. (2008). Managerial ownership and performance. *Journal of Business Research*, 62, 1350-1357
- Francis, B., Hasan, I., Wu, Q., 2014. Professors in the boardroom and Their impact on Corporate Governance and Firm Performance. *Financial Management* Vol. 44, issue 3. Pp. 547-581
- Gao, H., & Li, K. (2015). A comparison of CEO pay– performance sensitivity in privately-held and public firms. *Journal of Corporate Finance*, 35, 370-388.
- Geiger, M. A., Raghunandan, K., & Rama, D. V. (2005). Recent changes in the association between bankruptcies and prior audit opinions. *Auditing: A Journal of Practice & Theory*, 24(1), 21-35.



- Gregg, P., Jewell, S., & Tonks, I. (2012). Executive pay and performance in the UK. *International Review of Finance*, 12(1), 89-122.
- Gómez Aguilar, N., Ruiz-Barbadillo, E., de Fuentes Barbera, C., Garcia Benau, M.A., 2007, Audit Quality and the Going Concern Decision Making Process: Spanish Evidence. *European Accounting Review*, Vol. 13, No. 4.
- Guiding, C., Warnken, J., Ardill A., Fredline, L. (2005). An agency theory perspective on the owner/manager relationship in tourism-based condominiums. *Tourism Management* 26(3): 409-420
- Jenter, D., Lewellen, K., 2020. Performance-Induced CEO Turnover. *The Review Of Financial Studies* 34, 569 - 617
- Jensen, M., Meckling, W., 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3, 305–360.
- Jensen, M. C. and Meckling, W. H. (1976) Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3, 305–60
- Jensen, M.C., 1993. The modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance* 48, 831 – 880
- Jones, F. L. (1996) The information content of the auditor's going concern evaluation, *Journal of Accounting and Public Policy*, 15, 1–27.
- Jones, F.L., 1996, The information content of the auditor's going concern evaluation. *Journal of Accounting and Public Policy* Volume 15, Issue 1, Pages 1–27
- Kaplan, S. N., & Minton, B. (2006). How has CEO turnover changed? Increasingly performance sensitive boards and increasingly uneasy CEOs (No. w12465). National Bureau of Economic Research
- Klein, A. (1998) Firm Performance and Board Committee Structure. *Journal of Law and Economics*, 16, 275-303.
- Lausten, M. 2002. CEO turnover, firm performance and corporate governance: empirical evidence on Danish firms. *International Journal of Industrial Organization*, 20: 391-414
- Lee, T.S., Yeh, Y.H., 2004, Corporate Governance and Financial Distress: evidence from Taiwan. *Corporate Governance: An International Review*. Vol.12, Iss. 3, p. 378–3884.
- Lenard, M. J., Alam, P. & Madey, G. R.. (1998). Design and validation of a hybrid information system. *Journal of Management Information Systems*, 14 (4), 219-237.
- Lennox, C. S. (1998). Modified audit reports, executive compensation and CEO turnover. *SSRN Electronic Journal*.
- Long, M. S. and I. B. Malitz (1985). Investment patterns and financial leverage. *Corporate capital structures in the Unit*
- Mercedes Mareque, Francisco López-Corrales & Aurea Pedrosa (2017) Audit reporting for going concern in Spain during the global financial crisis, *Economic Research-Ekonomska Istraživanja*, 30:1, 154-183.
- Morck, R., Shleifer, A. and Vishny, R. (1988) Management Ownership and Market Valuation: An Empirical Analysis, *Journal of Financial Economics*, 20, 293–315.
- Menon, K., Schwartz, K.B., 1987, An empirical investigation of audit qualification decisions in the presence of going concern uncertainties. *Contemporary Accounting Research*, Vol. 3, Iss. 2, pp. 302–315.
- Mutchler, J.F. 1984. "Auditors' Perceptions of the Going-Concern Opinion Decision." *Auditing: A Journal of Practice and Theory* 3 (Spring): 17-30.

- Mutchler, J.F. and D.D. Williams. The Relationship Between Audit Technology, Client Risk Profiles, and the Going-Concern Opinion Decision. *Auditing: A Journal of Practice and Theory* 9: 39-54.
- Newton, A., 2014. Executive compensation, organizational performance, and governance quality in the absence of owners. *Journal Of Corporate Finance*, Vol. 30, pp.195-222
- O'Reilly, D.M., 2008, Do investors perceive the going-concern opinion as useful for pricing stocks? *Managerial Auditing Journal*, Vol. 25 Iss: 1, pp.4 – 16.
- Ozkan, N. (2011). CEO Compensation and Firm Performance: An Empirical Investigation of UK Panel Data. *European Financial Management*, 17(2), 260-285.
- Paul M. Healy and Krishna G. Palepu, (2001), Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature, *Journal of Accounting and Economics*, 31, (1-3), 405-440
- Kumar, N. and Singh, J.P. (2013), "Effect of board size and promoter ownership on firm value: some empirical findings from India", *Corporate Governance*, Vol. 13 No. 1, pp. 88-98, doi: 10.1108/ 14720701311302431
- Lipton, Martin and Jay W. Lorsch, 1992, A modest proposal for improved corporate governance, *Business Lawyer* 48, no. 1, 59- 77
- Kuo, C. S., Li, M. L., & Yu, S. E. (2013). Non-uniform effects of CEO equity-based compensation on firm performance – An application of a panel threshold regression model. *The British Accounting Review*, 45, 203-214.
- Parker S., Peters, G.F., Turetsky, H.F., 2005, Corporate Governance Factors and Auditor Going Concern Assessments. *Review of Accounting and Finance*, Vol. 4 Iss: 3, pp.5 – 29.
- Rachpradit. P., John. C.S., Khang D.B. (2010), CEO turnover and firm performance, evidence from Thailand. *Corporate Governance*. Vol 12 No. 2. pp. 164-178
- Rubin, D. (2001). Using propensity scores to help design observational studies: Application to the tobacco litigation. *Health Services & Outcomes Research Methodology*, 169–188
- Smirnova, A. S., & Zavertiaeva, M. A. (2017). Which came first, CEO compensation or firm performance? The causality dilemma in European companies. *Research in International Business and Finance*, 42, 658-673.
- Standard and Poor, 2002.
- Stulz, R.M. (1988), "Managerial control of voting rights, financing policies and the market for corporate control", *Journal of Financial Economics*, Vol. 20, pp. 25-54
- Sutton, R. and Callahan, A. (1987). The Stigma of Bankruptcy: Spoiled Organizational Image and its Management. *Academy of Management Journal* 30: 405-436.
- Taffler, R. J., Lu, J., & Kauser, A. (2004). In denial? Stock market underreaction to going-concern audit report disclosures. *Journal of accounting and Economics*, 38. 263-296
- Terviö, M. (2008). The difference that CEOs make: an assignment model approach. *The American Economic Review*, 98(3), 642-668.
- Tucker, R., Matsumura, E., Subramanyam, K.R., 2003. Going-concern judgments: An experimental test of the self-fulfilling prophecy and forecast accuracy. *Journal of Accounting and Public Policy* 22, 401-432
- Wang, Z-J., Denk X-L., 2006. Corporate governance and Financial Distress: Evidence from Chinese Listed Companies. *Chinese Economy*. Vo. 39, issue 5, 5-27

Watts, R., Zimmerman, J., 1986. *Positive Accounting Theory*. Prentice-Hall, Englewood Cliffs, NJ

Wysocki, P.,(2010). Corporate compensation policies and audit fees. *Journal of Accounting and Economics* 49: 155–160.

Yermack, D., 1996. Higher market valuation of firms with a small board of directors. *Journal of Financial Economics* 40, 185 – 211.

Zattoni, A. (2011). Who should control a corporation? Toward a contingency stakeholder model for allocating ownership rights. *Journal of Business Ethics*, 103: 255-274.

Zhang, Y., & Xian, C. (2014). Auditor reports, audit fees, and CEO compensation. *International Journal of Economics and Finance*, 6(9), 1-10

