Erasmus School of Economics

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Master Thesis Accounting, Auditing and Control

Audit partner characteristics and the effect on audit quality

Abstract: This thesis investigates the effect of audit partner characteristics on audit quality in the U.S. audit setting. It became possible to study this effect empirically with the implementation of PCAOB Rule 3211 in 2017 which requires the disclosure of audit partner names for all audits of publicly listed companies. The four audit partner characteristics researched in this thesis are: audit partner gender, busyness, education and Big N experience. The findings in this thesis suggest that female audit partners and audit partner who attended a high-quality educational institution have a positive association with audit quality. The findings regarding the effect of gender on audit quality are in line with previous research that finds females to be more conservative and cautious compared to males. The gender differences in audit quality are therefore most likely explained by general psychological differences between genders. Overall, this thesis finds evidence that audit partner characteristics are associated with audit quality in the U.S. audit setting, this effect has not been found in prior research regarding partner characteristics in the U.S. audit setting in the study by Burke et al. (2019).
Keywords: audit partner characteristics; audit partner gender, audit partner busyness, educational institution quality, Big N experience, changing audit firms.

Name student: Jan van der Linden
Student ID number: 434749
Supervisor: Dr. Y. Gan
Second supervisor: Dr. E. Leung

Erasmus University Rotterdam

Table of contents

1 Introduction

The big accounting scandals in the early 2000s brought scrutiny to the auditing sector. There was a general consent that audit quality was important and that measures needed to be taken to make sure auditors increased the quality of their audits. The following years, various new measures, such as mandatory audit firm and mandatory audit partner rotation, have been implemented by auditing regulatory bodies all over the world. One of the measures taken by the Public Company Oversight Board (PCAOB) is the implementation of Rule 3211. This rule requires the disclosure of audit partner names in a Form AP for all audits finished on or after January 31st, 2017. The reason behind this is to enhance audit partner accountability (PCAOB, 2015b). This measure allows researchers to empirically study the effects of audit partner characteristics in the United States (U.S.) audit market. Initial research regarding this subject was conducted by Burke et al. (2019). They found that the disclosure requirement had a positive effect on audit quality, however they did not find any effects of audit partner characteristics on audit quality. This raises the question whether the U.S. audit market is that different from other countries, in which these effects have been found, or that no significant effect was found due to the limitations in the paper by Burke et al. (2019), the study of Burke et al. (2019) only consisted of observations from 2016 and only used discretionary accruals as a proxy for audit quality. The main research question in this thesis is therefore:

Are audit partner characteristics associated with audit quality in the U.S. audit market?

To test this, four audit partner characteristics are researched in this thesis: gender, education, busyness and Big N experience. Additionally, the effect of switching audit firms has been examined. The sample used in this study consists of 719 firm year observations from a total of 198 unique U.S. based audit partners. The data for the audit partner characteristics has been hand collected from the audit partners' LinkedIn profiles. The findings are based on an ordinary leased square (OLS) regression model with audit quality as the dependent variable. The proxies used for audit quality in this thesis are the absolute value of discretionary accruals, restatements and going concern opinion (GCO) accuracy. The latter proxy has been split up in type 1 GCO errors and type 2 GCO errors.

The empirical findings in this thesis suggest that audit partner characteristics are associated with audit quality. This thesis finds evidence that the audit partner characteristics: gender and attending a high-quality educational institution, have a positive effect on audit quality. Where female audit partners have a higher audit quality than male audit partners. The additional analysis on changing audit firms shows that non-Big N audit partners which changed audit firms have higher audit quality.

For the audit partner characteristic busyness and Big N experience, no significant effect has been found.

The results of this thesis suggest that female audit partners are more conservative compared to male auditors, because they have more type 1 GCO errors and less type 2 GCO errors. These findings are in line with prior research which found that females are more conservative and cautious. The effects on audit quality due to gender differences is therefore most likely attributable to psychological differences between men and women. The findings regarding the lower amount of restatements for audit partners who attended a highly ranked educational institution have been found in prior research conducted by Cameran et al. (2018) in the U.K. audit setting. With the findings in this thesis this effect seems to be more robust, since this thesis finds evidence for this effect in the U.S. audit setting.

This thesis makes various contributions to both research as well as practice. Firstly, this thesis finds evidence that audit partner characteristics are associated with audit quality in the U.S. audit market, where prior research did not find a significant association in the U.S. audit market. Because such an association was found in other countries, Burke et al. (2019) argued that these differences could be caused by the differences between the U.S. audit market and other audit markets. Although the aim of this thesis was not to show evidence that the U.S audit market is comparable to other audit markets, the findings of this thesis suggest that the difference between audit markets might not be as extensive as argued by Burke et al. (2019). Secondly, the findings in this thesis could influence investors, audit committees and debt providers in their decision-making process.

2 Background

This chapter consists of two paragraphs. The first paragraph will discuss the background related to the implementation of Rule 3211 by the PCAOB, which requires public accounting firms to disclose the name of the engagement partner for all public company audit engagements (PCAOB, 2015a). The second paragraph will discuss the concept of audit quality and the two main schools of thoughts related to audit quality: level of assurance on financial statements and level of compliance with auditing standards (Tritschler, 2014).

2.1 Background on institutional setting and regulatory environment

After the WorldCom and Enron accounting scandals at the start of this millennial, the Sarbanes-Oxley Act (SOX)[1] was introduced in 2002. One of the measures in the SOX is the establishment of the Public Company Accounting Oversight Board (PCAOB) (SOX, s 101(a)). One of the responsibilities of the PCAOB is to perform duties or functions such as the board of the PCAOB deems necessary, to improve the quality of audit services offered by registered public accounting firms (SOX, s 101(c)(5)). In the pursuance of their duties the PCAOB implemented Rule 3211 in 2016 (PCAOB, 2016). PCAOB Rule 3211 required public audit firms to file a Form AP for every public company audit report it issues after or on the 31st of January 2017. The Form AP contains the name of the engagement partner and the names of other accounting firms that participated in the audit (PCAOB, 2015a).

The two main intentions the PCAOB has with the implementation of Rule 3211 are to improve the transparency of the audit process and to enhance audit partner accountability (PCAOB, 2015b). The need for transparency lies in the information asymmetry between users of the financial statements and the management of the company that issues the financial statements (PCAOB, 2015b). High quality financial reporting can mitigate the information asymmetry between users and issuers of financial statements, therefore high audit quality is of importance since it is a component of financial reporting quality (PCAOB, 2015b). Prior to Rule 3211, investors could assess audit quality by a limited number of factors such as audit fees, audit firm reputation and geographic location of the office that signs the auditor's report (PCAOB, 2015b). With the implementation of Rule 3211 investors get the opportunity to take more factors into account. These factors on individual partner level, include: Industry experience, number and nature of going concern opinion modifications, number and nature of financial statement restatements and number of years as the engagement partner of a particular company (PCAOB, 2015b). This auxiliary information could be beneficial to users of financial statements when assessing the credibility of financial statements and thereby reducing information asymmetry between the users and the issuers of financial statements.

The need for enhanced audit partner accountability lies in the probable positive relation between accountability and audit quality. The PCAOB (2015b) argues that enhancing the accountability of audit partners could lead to a change in behavior and therefore to higher audit quality. This change in behavior is the result from additional reputational risks for audit engagement partners, considering that their performances can be observed by a broader public. Since accountability requires identifiability, the PCAOB deems the disclosure of the engagement partner as a necessary component to achieve higher accountability among audit engagement partners (PCAOB, 2015b).

[1] Sarbanes–Oxley Act of 2002, Pub.L. 107–204, 116 Stat. 745, enacted July 30, 2002.

2.2 Definition of audit quality

There is no consensus definition of audit quality in accounting literature. Tritschler (2014) distinguishes two main schools of thought, or traditions, with respect to the definition of audit quality. The first tradition is based on the level of assurance on financial statements. The second tradition is based on the level of compliance with auditing standards.

2.2.1 Level of assurance on financial statements

DeAngelo (1981, p.186) defines audit service quality in her seminal paper as "the market-assessed joint probability that a given auditor will both (a) discover a breach in the client's accounting system, and (b) report the breach." This definition consists of four aspects. The first aspect is the probability that the auditor finds a breach in the client's accounting system. This relates to the competence of the auditor to find misstatements and depends on numerous factors such as the technological capabilities of the auditor, the performed audit procedures and the size of the samples (DeAngelo, 1981). The second aspect is the probability of the auditor reporting the breach. According to DeAngelo (1981) this is related to the independence of the auditor. The third aspect is the market-assessed part of the definition. It is important to note that the described definition by DeAngelo (1981) relates to audit service quality. Accounting literature often equalizes this definition with her definition of audit quality. Strictly looking at the definition this is incorrect, since DeAngelo (1981, p.186) does give an definition for audit quality being "the joint probability that a given auditor will both discover and report a breach on a given client's audit". The difference between the two definitions relates to whether the probability is market-assessed or not. Since the added value of the audit service lies within the perceived quality of this service. The goal of this thesis is to assess audit quality and not audit service quality. The proxies in this thesis will therefore not be aimed to quantify perceived audit quality. The fourth aspect is the joint probability of aspect 1 and 2.

The definition of audit quality by DeAngelo (1981) can be seen as the beginning of the tradition that defines audit quality as the level of assurance on financial statements. Subsequently other definitions of audit quality have been introduced that fit in the school of thought that sees audit quality as the achieved level of assurance of financial statements. Titman and Trueman (1986) define audit quality as the level of accuracy of information that auditors provide to investors. Palmrose (1988) defines audit quality as the probability that the financial statements are free of material misstatements. Knechel (2009) argues that audit quality should be defined as the achieved level of assurance. These definitions have in common that they base audit quality on the result of the audit and not so much on the audit itself. Since the result of an audit is easier to observe compared to the actual audit process, most proxies measuring audit quality are based on the school of thought that audit quality is the level of assurance on financial statements. The proxies related to this definition are

discretionary accruals, restatements, accounting enforcement releases and the accuracy of going concern reporting (Tritschler, 2014).

2.2.2 Level of compliance with auditing standards

The second school of thought defines audit quality as the level of compliance with auditing standards (e.g., Copley and Doucet, 1993; Aldhizer et al., 1995; Krishnan and Schauer, 2001). According to this tradition an auditor performs an audit with high quality when the auditor has complied with all relevant auditing standards. The difference with the level of assurance school of thought is that with this definition, not the result from the audit, but the road towards the results define the quality of the audit. This is also the main point of critique against the definition of audit quality as the level of compliance with auditing standards, since the overall objective of an audit is not to comply with all relevant rules, but to make sure the financial reporting is of high quality (Tritschler, 2014). Another problem with this definition of audit quality is that it is hard to empirically research. Since the audit documentation is not publicly available, it is unclear for the public what the level of compliance with relevant auditing standards was. However, there are some proxies that give insight in the level of compliance with auditing standing such as inspection results of oversight boards and lawsuit against auditors (Tritschler, 2014).

3 Literature review

This chapter consists of five paragraphs. The first paragraph will give a general introduction on the research related to audit partner characteristics. Paragraph two to five will discuss the literature related to effect of the audit partner´s gender, educational institution, busyness and Big N experience on audit quality respectively.

3.1 Introduction

Prior to the implementation of Rule 3211 by the PCAOB no large sample studies on audit partner characteristics could be conducted in the U.S. audit setting due to the lack of audit partner identifiability (Burke et al., 2019). The focus of accounting literature related to audit quality shifted from research on firm-level (e.g., DeAngelo, 1981; Becker et al, 1998) to research on office-level (e.g., Francis and Yu, 2009; Choi et al., 2010) to research on partner-level (e.g., Taylor, 2011; Burke et al., 2019). Although no large sample studies on the effect of partner characteristics have been conduct in the U.S. audit setting prior to the paper of Burke et al. (2019), research on the effect of partner characteristics on audit quality, but also audit fees, had been conducted in numerous non-U.S. audit settings. For instance in the Australian (e.g., Taylor, 2011; Goodwin and Wu, 2016), Chinese (e.g., Gul

et al., 2013; Li et al., 2017), Norwegian (e.g., Che et al., 2018), Swedish (e.g., Zerni, 2012; Sundgren and Svanström, 2014; Knechel et al., 2015), Taiwanese (e.g., Aobdia et al., 2015; Chi et al., 2017; Chi et al., 2019) and the United Kingdom's (U.K.) (e.g., Cameran et al., 2018) audit settings. These studies in non-U.S. audit settings have found evidence for an effect of certain audit partner characteristics on various measures of audit quality, such as discretionary accruals (e.g., Gul et al., 2013), going concern reporting (e.g., Sundgren and Svanström, 2014) and restatements (e.g., Cameran et al., 2018). Contrarily Burke et al. (2019) do not find a significant effect for any audit partner characteristic on audit quality. The reason for this could be that the study from Burke et al. (2019) uses a limited database of Form AP filings for fiscal years between November 2016 and May 2017. Another limitation in the paper from Burke et al. (2019) is that only discretionary accruals have been used as a proxy for audit quality. Other common proxies for audit quality such as restatements and accuracy of going concern opinions could not be analyzed due to the short timeframe between the publication of the financial statements and the writing of the paper. The contribution to the literature by this thesis is to check for the robustness of the results by Burke et al. (2019) on the effects of the audit partner characteristics on audit quality for the characteristics for which Burke et al. (2019) did not find a significant effect, but other research in a non-U.S. audit setting did. These characteristics are gender, educational institution and busyness. The other partner characteristic researched in the Burke et al. (2019) paper is the audit partner's social connections. Cameran et al. (2018) researched the effect of audit partner's social connections on audit quality and did not find a significant results for all proxies (discretionary accruals, restatements and accuracy of going concern opinions) in the U.K.'s audit setting which is comparable to the U.S. audit setting. Therefore, this thesis will not focus on the audit partner's social connections due to a lack of scientific relevance. The remainder of this chapter will discuss the literature on the various audit partner characteristics separately.

3.2 Gender

Psychological research found evidence that there are differences in personality between men and women (e.g., Feingold, 1994; Costa et al., 2001). Therefore gender-based differences exist in, e.g. risk-tolerance, overconfidence, conservatism and cautiousness (e.g., Levin et al., 1988; Barber and Odean, 2001). These differences can influence various aspects of decision making and behavior in general. An example of this is the phenomenon that men tend to take on more risk-taking behavior than women (e.g., Byrnes et al., 1999; Dwyer et al., 2002). Since an audit process requires a lot of decision making that could be influenced by a person's tolerance for risk, it is possible that gender differences in behavior related to risk could influence an auditor's judgement. However, it must be noted that the findings regarding gender differences in psychology literature are not easily generalizable, since

auditors are a small and specific subset compared to the general public (Hardies et al., 2012). An example of a personality trait that might not be generalized to the auditor's population is overconfidence, since Hardies et al. (2012) do not find evidence for a gender difference related to overconfidence within a sample of auditors.

Besides the relation between gender and the tolerance for risk, there are also other psychological gender differences that could influence the result of an audit. One of those psychological differences is the way genders process information. The selectivity hypothesis developed by Joan Meyers-Levy (1986) that suggests that men and women interact differently with respect to the difficulty of tasks due to the way they process information. The hypothesis suggests that men will be more efficient completing relatively easy tasks since men prefer and tend to use a simplified information processing strategy. The hypothesis also suggests that women will be more efficient completing relative difficult tasks since women prefer and to use a more detailed information processing strategy and therefore being more practiced in using the detailed information processing strategy that is necessary for complex tasks.

Not only psychological gender differences but also societal factors could influence the difference of audit quality between male and female auditors. It is possible that females need to work harder and perform better than males to get promoted to partner due to the possible 'glass ceiling' (Ittonen et al., 2013). Research has found evidence for such a 'glass ceiling' in other professions in the financial industry such as for female financial analysts (Kumar, 2010).

Initial research regarding the effect of gender on audit quality is related to the selectivity hypothesis by Meyers-Levy (1986). Chung and Monroe (2001) study the effect of gender on task complexity by looking at the accuracy of an audit judgement in an experimental setting. In this experiment 101 male and 58 female auditors were asked to examine a case and give an audit judgement regarding whether there was a material misstatement in a presented case or not. There were two levels of complexity to the cases. They found that male auditors were more accurate in the less complex case as where female auditors were more accurate in the complex case. O'Donnell and Johnson (2001) conducted a comparable experiment with 16 male and 12 female auditors. They found, in accordance with the selectivity hypothesis, that female auditors exhibit greater efficiency than male auditors related to more complex analytical tasks as where male auditors exhibit greater efficiency than female auditors related to less complex analytical tasks. The results of these studies suggest that male auditors achieve higher audit quality on less complex audit engagements compared to female auditors and female auditors achieve higher audit quality on more complex audit engagements compared to male auditors.

Ittonen et al. (2013) empirically tested the gender difference in audit quality by looking at the accrual quality from a sample of Finnish and Swedish public listed companies. They found that

companies whose audits were led by a female audit engagement partner had smaller abnormal accruals. This suggests that female audit partners have a constraining effect on a company's earnings management. Cameran et al. (2018) find that the results from Ittonen et al. (2013) regarding higher accrual quality for female auditors to be persistent when looking at a sample in the U.K.'s audit setting. In this study Cameran et al. (2018) also use restatements and the accuracy of going concern opinions, however they do not find significant results for those proxies. Burke et al. (2019) do not find a significant effect between the auditors' gender and audit quality in their single year sample from U.S. auditors. The results of this paper are inconsistent with prior literature, since they used discretionary accruals as a proxy for audit quality and other studies found a significant effect on the 1% level.

The contribution of this thesis is to see whether there is an effects of audit partner gender on audit quality, measured as accrual quality, in the U.S. audit setting as there is in Scandinavia and the U.K., or whether the results of Burke et al. (2019) are robust when taking a sample from a larger timeframe. This thesis will also contribute to the literature by looking at restatements and the accuracy of going concern opinions, since these proxies of audit quality have not been studied in a U.S. audit setting.

3.3 Educational institution

Libby (1995) argues that ability and knowledge determine an auditor's performance. General human capital theory predicts that education influences a person's knowledge and skills (Becker, 1962). By combining these two theories we can extrapolate that education has an effect on the auditor's performance and therefore audit quality. Research found empirical evidence that attending an 'elite' university positively effects performance (e.g., Bodalato et al., 2014). This suggest that in addition to the question whether an auditor had formal education in auditing, the quality of the institution also could influence audit quality. Research regarding the effect of education on audit quality can be split into three categories.

The first category is whether a formal education has an effect on audit quality. Initial research relating to the effect of education on audit quality is conducted by Estes and Reames (1988). They conduct an experiment under 596 Chartered Public Accountants (CPAs) to see the effect of personal characteristics on materiality judgements. To measure the effect of education they use three variables: years of college education, college credits in auditing and whether they participated in an auditing course. They do not find any effect for all three measures. This is probably due to the homogeneity of the sample, since 98% of the participants did follow a course in auditing. Gul et al. (2013) empirically test the effect of education on audit quality with a more heterogenic sample in the Chinese audit setting. Since Chinese universities started teaching western accounting principles from 1990 and onwards, they could look at the difference in audit quality from student that were thought western

principles of financial reporting and governance in university and those who did not. They found a significant positive effect between the teaching of western principles at universities and audit quality. This relation suggest that formal education has an effect on audit quality.

The second category is whether the level of formal education has an effect on audit quality. Che et al. (2018) empirically study the Norwegian audit setting and find that auditors who hold a master's degree exert more effort compared to auditors who hold a bachelor's degree. This implies that auditors with a master's degree achieve higher audit quality, since audit effort is an important input for audit quality (Caramanis and Lennox, 2008; Francis, 2011; Knechel et al., 2013).

The third category is whether the quality of an educational institution has an effect on audit quality. There are various proxies for the quality of educational institutions. Cameran et al. (2018) used the QS World University ranking to determine the quality of an educational institution and discover mixed results. They observe the unexpected result that the more prestigious the university is the auditor attended, the lower the accuracy of going concern opinions and accrual quality is. Contrarily they observe that attending a university with a good ranking is associated with less restatements. Burke et al. (2019) developed proxy to measure the quality of the education institution. They use a dummy variable PARTNER-PRODUCING-SCHOOL that is equal to 1 when a university produced over 20 audit partners and 0 otherwise. However, they do not find a significant effect in the U.S. audit setting with this proxy.

The contribution of this thesis to the literature on the effect of the education of an audit partner on audit quality is to find whether this relation is present in the U.S. audit setting when using different proxies for audit quality compared to Burke et al. (2019) and by using the ranking based proxy for quality of the education institution in the U.S. setting.

3.4 Busyness

The theory behind the effect of audit partner busyness on audit quality is mixed. Audit partner busyness theoretically has a beneficial as well as a detrimental effect on audit quality (Goodwin and Wu, 2016). There are various reasons why audit partner busyness might have a positive effect on audit quality. DeAngelo (1981) argues that audit partner busyness has a positive effect on the independence from an auditor. Since auditors with many clients have a greater potential loss of quasi rents from the other clients when it becomes public that he did not report discovered breaches. Another reason why auditor's independence increases with a larger number of clients is that a smaller portion of the auditor's income is associated with a certain client and therefore detaining a specific client becomes relatively less important. Besides the effect based upon a higher level of independence, Goodwin and Wu (2016) argue that an auditor gains more experience when he or she audits more companies. And that this increase in experience and knowledge could potentially have a positive effect on audit quality.

It is also possible that by gaining auditing expertise in a certain field, by having many clients in a certain field, an audit partner can audit firms more efficiently and therefore have more clients without compromising audit quality.

The detrimental effect of audit partner busyness can mainly be attributed to the proposition by Simon (1978) that attention is a scarce resource since time is a limiting factor. People are limited in their abilities to process information and perform various tasks at the same time (Kahneman, 1973). Empirical evidence for the limited attention theory has been found across various disciplines (e.g. Radner and Rothschild, 1975; Core et al., 1999; Hirschleifer and Teoh, 2003; Gifford, 2005; Pugh, 2011).

The effect of audit partner busyness has been empirically studied. Sundgren and Svanström (2014) study the effect of audit partner busyness on the propensity of issuing a going concern opinion as a proxy for audit quality in the Swedish private company audit setting. They find a negative association between the number of clients held by an audit partner and the propensity to issue a going concern opinion. This indicates a negative relation between audit partner busyness and audit quality. Goodwin and Wu (2016) study the effect of audit partner busyness in the Australian audit setting by three different proxies for audit quality: discretionary accruals, beating zero profit by a small margin (indication for earnings management) and going concern opinion accuracy. They do not find a significant effect of audit partner busyness on any of the proxies for audit quality. Cameran et al. (2018) find mixed results when they study the effect of audit partner busyness on audit quality in the U.K. audit setting. They find that busy partners are more likely to have higher abnormal accruals, but they also find that busier audit partners have less restatements. Burke et al. (2019) does not find a significant relation between audit partner busyness and accrual quality in the U.S. audit setting.

The contribution of this thesis is to study the effect of audit partner busyness in the U.S. audit setting with a sample that consists of multiple years. It is interesting to see whether the results by Burke et al. (2019) are persistent in when using restatements and accuracy of going concern opinions since there have been found significant effects for these proxies in other audit settings (Sundgren and Svanström, 2014; Cameran et al., 2018)

3.5 Big N Experience

DeAngelo (1981) proposed to use firm size as a proxy for audit quality, since the auditors are less dependent on a single client. This suggests that Big N audit firms have higher audit quality than non-Big N audit firms. Various empirical studies found evidence that Big N audit firms indeed provide higher audit quality compared to non-Big N firms. This difference in quality is often attributed to differences in resources between Big N audit firms and non-Big N audit firms. Lawrence et al. (2011) argue that quality among Big N firms could be higher due to standardized audit methodologies, a more robust training program and more options for appropriate second audit partner reviews. Besides the

abundance of resource that could influence audit quality, recent studies also find evidence that certain client characteristics increase audit quality for Big N audit firms (Lawrence et al., 2011; Semba and Kato, (2019). Besides these factors on firm-level, there could also be a difference in the quality of on-the-job-experience and other non-tangible factors on the individual auditor-level that could influence audit quality to be higher at Big N firms.

Empirical research relating the difference between auditors with or without Big N experience is limited. Gul et al. (2013) studied the effect of Big N experience in the Chinese audit setting. They find that auditors who worked in a Big N audit firm are more conservative compared to auditors who did not work in Big N audit firms. The results from Gul et al. (2013) are hard to generalize to western audit settings, since the Big N firms play a much smaller role in the Chinese audit setting compared to western countries (Cameran et al., 2018).

The contribution of this thesis lies in the unique hand collected dataset which allows to study the effect of Big N experience on audit quality in the U.S. audit setting. This effect has not been studied in any audit setting that is comparable to the audit setting of most western countries. This thesis is able to clear out other factors due to the fact , since certain auditors switch from a Big N firm to a non-Big N firm and these auditors can be compared to auditors who only have non-Big N experience. A effect of Big N experience on audit quality would indicate that besides the greater resources, there are also non-tangible differences in culture and on-the-job-experience between Big N and non-Big N audit firms than have a positive effect on audit quality. This thesis is therefore not only relevant in the field of audit partner characteristics, but also on the literature that studies the differences between Big N and non-Big N firms.

4 Hypothesis development

4.1 Gender

Psychological research found evidence that men and women differ in certain psychological aspects such as risk-tolerance, overconfidence and conservatism (Levin et al., 1988). Since an audit judgement could be influenced by these psychological factors, it is possible that there are differences in audit quality between male and female audit partners. This leads to the following hypothesis:

H_1: Female audit partner gender is associated with higher audit quality.

There are three possible reasons why audit quality is higher for female audit partner. The first reason is that men are generally more risk taking than women (e.g., Byrnes et al., 1999; Dwyer et al., 2002), this risk taking behavior could manifest itself by giving an clean audit opinion or positive going concern opinion when this should not be the case. The second reason is that men and women differ in the way they process information (Meyers-Levi, 1986). Women tend to use a more comprehensive approach as where men process information in a more self-related way (McGivern et al., 1997). Since the preferable way men process information is a relatively simple method, they might struggle more on complex tasks that need a more comprehensive approach. Since audit task complexity has a negative effect on judgement performance (Bonner, 1994), audit quality is lower for relative more complex audits. And since women tend to perform better when processing relative complex information audit quality is probably higher for female auditors. The third reason is a possible 'glass ceiling' for female auditors to become partner in a firm (Ittonen et al., 2013).

In accordance with prior empirical findings in other audit settings (Ittonen et al., 2013; Cameran et al., 2018) and due to the above stated reasons, I expect audit quality to be higher for female audit partners.

4.2 Educational institution

One of the factors that determines the performance of an auditor is knowledge (Libby, 1995), and since education has a positive effect on a person's knowledge (Becker, 1962) it is probable that education has a positive effect on audit quality. Accounting research already found that having a formal education in auditing has a positive effect on audit quality (Gul et al., 2013) and auditors with a master's degree exert more effort, which is an indicator of audit quality, than auditors with a bachelor's degree (Che et al., 2018). On the effect of the educational institution the results have either been mixed (Cameran et al., 2018) or insignificant (Burke et al., 2019). Therefore, the second hypothesis that will be researched in this thesis is:

H_2: Educational institution quality is positively associated with audit quality.

There are over 5000 educational institutions in the United States. It is therefore an interesting setting to examine the effect of the quality of educational institution. Research in other field of quality of audit committee's found evidence that attending a university that is perceived as 'elite' is associated with better performance from the audit committee (Bodalato et al., 2014). These 'elite' universities are usually high on university rankings and can therefore be seen as universities with good educational quality. When taking the research of Bodalato et al. (2014) into consideration I expect audit quality to be relatively higher for audit partners that attended a relative high-quality educational institution.

4.3 Busyness

There are theories that suggest that audit partner busyness has a positive effect on audit quality (DeAngelo, 1981), as well as theories that predict a negative effect (Kahneman, 1973). The positive effect lies in the increased auditor independence, which is caused by the relative lower percentage of an auditor's income being dependent a specific client (DeAngelo, 1981). The theory that predict a negative relation between audit partner busyness and audit quality is based on the limited attention theory that predicts that people are limited in their abilities when performing various tasks simultaneously (Kahneman, 1973). Since it is not clear what the effect of audit partner busyness is, the following null hypothesis will be tested in this thesis:

H_3: There is no association between audit partner busyness and audit quality.

It is possible that I find mixed results for the various proxies for audit quality. The accrual quality could be lower, because attention is a scarce recourse (Simon, 1978) and therefore busy audit partner do not have time to pay attention to every detail in an audit, which would result in lower accrual quality. However, they could have enough attention to investigate important audit decisions. By doing a lot of audits they gain more experience and knowledge, this could result in less big mistakes that cause restatements and/or non-accurate going concern opinions. Since the lagged audit partner busyness is probably correlated with current audit partner busyness, there could be a positive relation between audit partner busyness and restatements and/or going concern opinion accuracy. This theory is consistent with the empirical findings of Sundgren and Svanström (2014) in the Swedish audit setting and Cameran et al. (2018) in the U.K.'s audit setting.

4.4 Big N experience

Big N audit firms achieve higher audit quality than non-Big N audit firms (e.g., Palm rose, 1988; Becker et al., 1998; Francis and Krishnan, 1999; Khurana and Raman, 2004; Behn et al, 2008, Francis and Yu, 2009). Auditors who worked for Big N firms have experience in audits that achieve higher quality. It is possible that the on-the-job-experience of high-quality audits in the past could have a positive effect on audit quality on later engagements. This leads to the following hypothesis:

H_4: Big N experience has a positive association with audit quality.

I expect this association to be positive, however a negative association is not unthinkable. The effect of Big N experience is studied by looking at auditors who switched between working at a Big N audit

firm to a non-Big N audit firm. It is possible that these auditors got used to having more resources and standardized audit methodologies and without these resources they achieve lower quality than audit partners that always worked in such an environment.

5 Research design

This chapter discusses the research design of this thesis. The first paragraph of this chapter discusses the method in which the effect of different audit partner characteristics in measured on audit quality. The method used to test this effect is an OLS regression. The predictive validity framework for this relation can be found in Appendix A. All continues variables are winsorized at the 1 and 99 percent levels to mitigate the bias introduced by repeating firms, all standard errors have been clustered by firm. The second paragraph of this chapter discusses the data and sample selection process.

5.1 Proxies for audit quality

5.1.1 Discretionary Accruals

The first proxy used for audit quality in this thesis, is discretionary accrual quality. The usage of discretionary accruals as a proxy for audit quality was introduced by Jones (1991) and is a common proxy used in research regarding the effects of audit partner characteristics on audit quality (e.g., Ittonen et al., 2013; Goodwin and Wu, 2016; Cameran et al., 2018; Burke et al., 2019). The reasoning behind using discretionary accruals instead of total accruals, such as prior studies (e.g., Healy, 1985; DeAngelo, 1986) did, is that accruals can be split up in two groups. On the one hand there are non-discretionary accruals over which managers do not have control because they are related to business conditions, on the other hand there are discretionary accruals over which managers have influence. Since managers have no influence over the non-discretionary accruals, they cannot use these accruals for earnings management. The model used to estimate the discretionary accruals in this thesis, is the modified Jones model proposed by Dechow et al. (1995). The non-discretionary accruals are estimated by the following model:

$$NDAC_t = a_1\left(\frac{1}{A_{t-1}}\right) + a_2(\Delta REV_t - \Delta REC_t) + a_3(PPE_t) \quad (1)$$

NDAC stands for non-discretionary accruals, A for assets, REV for revenue, REC for receivables and PPE for property, plant and equipment. The firm specific parameters α_1, α_2, and α_3 are estimated by the following model in the estimation period:

$$TA_t = a_1\left(\frac{1}{A_{t-1}}\right) + a_2\,(\Delta REV_t) + a_3(PPE_t) + \vartheta_t \quad (2)$$

Where TA is total accruals scaled by lagged total assets. To calculate the discretionary accruals, the non-discretionary accruals need to be subtracted from the total accruals:

$$DAC_t = TA_t - NDAC_t \quad (3)$$

Since earnings can be managed upwards as well as downwards, the dependent variable is this thesis is the absolute value of discretionary accruals:

$$ADAC_t = |DAC_t| \quad (4)$$

The following OLS model is estimated to examine the relation between the absolute value of discretionary accruals and various audit partner characteristics:

$$ADAC = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (5)$$

The variables of interest in this regression are FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF. FEMALE is a dummy variable that is equal to 1 when the audit partner is a female and 0 otherwise. BUSYNESS is the natural logarithm of the amount of publicly listed companies the auditor oversees in a specific year. The natural logarithm is used because the amount of publicly listed companies an auditor oversees in a year is right-skewed. TOP25 is a dummy variable that is equal to 1 when the audit partner went to one of the 25 highest ranked U.S. based educational institutions according to the 2020 Financial Times MBA ranking and 0 otherwise.[2] CHANGEDBIGNTOSF is a dummy variable that is equal to 1 if the audit partner has worked for Big N audit firm as an audit senior[3] or higher and then changed to a non-Big N audit firm during his career and 0 otherwise. For an overview of the control variables, please refer to Appendix B.

[2] For a complete overview of the 25 highest ranked U.S. based educational institutions according to the 2020 Financial times MBA ranking see Appendix C.

[3] The role of senior is generally reached after three years working as an associate/staff/junior auditor. The cutoff point has therefore been 3 years of audit work experience to be qualified as a senior.

Since this thesis examines whether there is an effect in audit quality for audit partners with Big N experience, it is important to examine the relation of audit firm change in general. To see whether a change of audit firms has an effect on audit quality, the following OLS model is estimated:

$$ADAC = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (6)$$

The only difference between model 5 and model 6 is that the variable CHANGEDBIGNTOSF has been replaced by the variable CHANGED, which is a dummy variable equal to 1 when the audit partner has changed audit firms after working as a senior auditor or higher and 0 otherwise.

5.1.2 Restatements

The second proxy for audit in this thesis is financial statement restatements. A restatement is a revision of a previously issued financial statement to reflect a correction of an error (FASB, 2015). Restatements are a common proxy used in research regarding the effect of audit partner characteristics on audit quality (e.g., Gul et al., 2013; Cameran et al., 2018). The following OLS models are estimated to examine the relation between restatements and various audit partner characteristics:

$$RESTATEMENTS = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (7)$$

$$RESTATEMENTS = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (8)$$

Where model 7 has CHANGEDBIGNTOSF as a variable of interest and model 8 has CHANGED as a variable of interest. The independent variables in model 7 and 8 are similar to model 5 and 6 respectively, the only difference between model 7 and 8 compared to model 5 and 6 is the dependent variable.

5.1.3 Accuracy of going concern opinions

The third proxy for audit quality used in this thesis is the accuracy of going concern opinions. Going concern opinions are a common proxy used in research regarding the effect of audit partner

characteristics on audit quality (e.g., Sundgren and Svanström, 2014; Goodwin and Wu, 2016; Che et al., 2018; Cameran et al., 2018).

When an auditor has significant doubts about the client's ability to continue going concern, he should communicate this in the audit report (Auditing Standard, 2415). This communication in the audit report is generally referred to as a going concern opinion (GCO). There are four possible scenarios regarding going concern reporting.

1. The auditor issues a GCO and the client goes bankrupt.
2. The auditor does not issue a GCO and the client does not go bankrupt.
3. The auditor issues a GCO and the client does not go bankrupt.
4. The auditor does not issue a GCO and the client goes bankrupt.

In scenario 1 and 2 there is no mistake made by the auditor and this is considered to be accurate going concern reporting. In scenario 3 the auditor issued a GCO when he should not have issued a GCO, such an error is referred to as a type 1 error. In scenario 4 the auditor did not issue a GCO when he should have issued a GCO, such an error is referred to as a type 2 error. The following OLS models are estimated to examine the relation between going concern opinions and the various audit partner characteristics:

$$INACCURATEGCO = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (9)$$

$$INACCURATEGCO = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (10)$$

Where INACCURATEGCO accounts for both type 1 and type 2 GCO reporting errors. The difference of model 9 and model 10 compared to the prior models is the inclusion of the control variable ZSCORE. ZSCORE is the Altman Z-score and is included because it is an indicator of the probability of a GCO (Hallman, 2017).

To further examine the relation between going concern reporting and audit partner characteristics this thesis will examine both the type 1 and type 2 errors separately. The following four OLS models are estimated to examine type 1 and type 2 errors separately:

$$TYPE1ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (11)$$

$$TYPE1ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (12)$$

$$TYPE2ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (13)$$

$$TYPE2ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (14)$$

Where model 11 and 13 have CHANGEDBIGNTOSF as a variable of interest and model 12 and 14 have CHANGED as a variable of interest. Model 11 and 13 examine the relation between type 1 GCO errors and audit partner characteristics where model 13 and 14 examine the relation between type 2 GCO errors and audit partner characteristic.

5.2 Sample selection and data

PCAOB rule 3211 requires auditors to file the Form AP for audits of publicly listed companies completed on or after January 31st, 2017. This means that auditor data is available for companies with a fiscal year end of December 31st, 2016 and onwards. The sample for this thesis therefore consists of the years 2016, 2017, 2018 and 2019. To determine an appropriate sample for this thesis, the sample size formula developed by Cochran (1977) has been used:

$$n_0 = \frac{Z^2 pq}{e^2} \quad (15)$$

$$n = \frac{n_0}{1+\frac{n_0-1}{N}} \quad (16)$$

Where n_0 is the sample size for an infinite population, Z is the z-value based on the desired confidence interval, p is the estimated proportion of the sample with the researched attribute, q is p-1, e is the margin of error, n is the sample size and N is the population size. When the proportion of the sample with the attribute is unknown, the p-value should be set at 0.5. The sample size in this thesis is calculated with a confidence interval of 99% (z-value 2.576) and a margin of error of 5%. The population size N is set at 17504.[4] This gives a sample size n of 640 observations.

[4] According to the world bank the number of public listed companies in the U.S. are 4331, 4335 and 4397 for 2016-2018 respectively. Data for 2019 was unavailable and is estimated at 4400. The total amounts to 17504, this is a conservative estimate since not all companies are included in the sample for 2016 since certain audits were finished before January 31st 2017 (the first date on which the Form AP was mandatory).

To select the 640 observations a dataset was constructed from three different databases. The financial information of the companies to calculate the discretionary accruals and the control variables was retrieved from the Compustat database, the name of the auditor that audited the financial statement of a company was retrieved from the PCAOB database and the data regarding restatements and GCOs was retrieved from the Audit Analytics database. The dataset that remained consisted of 7254 observations. The sample was selected based on the alphabetical order of the name of the audit partner. The name of audit partner was selected instead of audit partner ID number, since audit partner ID number would give a bias towards audit partners that were registered first at the PCAOB, and thus being more experienced. The information about the audit partner characteristics was hand collected from LinkedIn, when the data of an audit partner was missing the data of the next audit partner was used until the sample consisted of 640 observations. One of the proxies for audit quality is type 2 GCO errors. There were only two observation in the selected sample that consisted a type 2 GCO error. Consequently, all other observations from audit partners with at least one type 2 GCO error were included in the sample. The total observations used in this study is therefore 719. For more information regarding the sample selection process, see table 1.

Because observations with a GCO type 2 error were added to the sample, the sample is biased towards auditors that have had a type 2 GCO error. It must be noted that this bias is not relevant for this thesis, since this thesis does not aim to find how the various audit partner characteristics are distributed. The aim of this thesis is to find what partner characteristics have an effect on audit quality.

TABLE 1
Sample selection process

Total observations in Compustat database for 2016-2019	43812
Less: missing values for calculation ADAC and control variables	(32755)
Less: missing values when merged with Audit Analytics database	(1728)
Less: missing values when merged with PCAOB database	(2075)
Total observations in full sample	7254
Observations in selected sample	648
Add: observations where audit partner has at least one Type 2 GCO error	73
Less: duplicates	(2)
Total observations	**719**

There are two other possible sample selection biases in the data. The first bias originates from the selection of the sample based on the auditor's name in alphabetic order. It is possible that there are more male names starting with an early letter of the alphabet compared to female names (or vice versa). The other sample selection bias is that there is no data available for auditors without LinkedIn. LinkedIn is a networking site; the sample is therefore biased towards audit partners that see networking through LinkedIn as a relevant activity of being an audit partner. Both biases could have an effect on the distribution of audit partner characteristics of the sample used in this thesis compared

to the actual distribution of those characteristics. As mentioned earlier, these biases do not form a problem for the aim of the research conducted in this thesis.

6 Results

This chapter discusses the results of the thesis. The first paragraph discusses the descriptive statistics and the second paragraph discusses the effects of audit partner characteristics on audit quality.

6.1 Descriptive statistics

The descriptive statistics are presented in table 2. Table 2 consists of panel A which describes the audit partner characteristics on unique audit partner level, and panel B which describes all variables in this thesis on the total observations level.

TABLE 2
Descriptive Statistics

Panel A: Partner Characteristics on Unique Partner Level

Variable Name	n	Mean	Min	Median	Max	STD
FEMALE	198	0.177	0	0	1	0.382
TOP25	198	0.157	0	0	1	0.364
CHANGEDBIGNTOSF	198	0.146	0	0	1	0.354
CHANGED	198	0.328	0	0	1	0.471
BIG4	198	0.591	0	1	1	0.493

Panel B: All Variables

Variable Name	n	Mean	Min	Median	Max	STD
FEMALE	719	0.178	0	0	1	0.383
BUSYNESS	719	0.889	0	0.693	4.543	0.689
TOP25	719	0.154	0	0	1	0.361
CHANGEDBIGNTOSF	719	0.121	0	0	1	0.326
CHANGED	719	0.313	0	0	1	0.464
LOSS	719	0.442	0	0	1	0.497
CASHFLOW	719	-0.058	-2.353	0.056	0.351	0.377
MTB	719	3.300	26.635	2.503	28.988	6.367
LEV	719	0.489	-10.057	0.368	7.683	2.253
SALESGROWTH	719	0.228	-0.899	0.057	5.377	0.809
ASSETS	719	6.322	1.221	6.376	12.708	2.140
BUSINESSSEG	719	9.953	1	8	39	7.855
GEOSEG	719	1.441	0	2	2	0.766
Z-SCORE	719	2.456	-10.093	2.413	13.897	5.327
BIG4	719	0.602	0	1	1	0.490

Panel A presents descriptive statistics on the individual unique audit partner level. There is a total of 198 audit partners in the sample. 35 of those audit partners is a female, 31 attended a Top 25 university, 29 changed from a Big N to a non-Big N firm, 65 changed audit firms and 117 is a Big 4 audit partner.

Panel B presents the descriptive statistics on the total observations level. There is a total of 719 observations in the sample. 128 of those observations is an audit conducted by a female auditor, 111 by an auditor who attended a Top 25 university, 87 by an auditor who changed from a Big N to a non-Big N audit firm, 225 by an auditor who changed audit firms and 433 by an auditor who was a Big 4 audit partner.
Continuous variables are winsorized at 1% and 99%, and all variables are described in Appendix B.

The sample used in this thesis consists of 198 unique audit partners, 35 of those audit partners are female audit partners and 163 are male audit partners. 59% of the total audit partners worked in a Big 4 audit firm. From the female audit partners 71.4% worked for a Big 4 firm opposed to 56.4% of all male audit partners. With regards to education, 15.7% of audit partners in the sample attended a university that was ranked in the Top25 MBA programs for U.S. business schools. This is 8.6% for audit partners who work for a non-Big 4 audit firm and 20.5% for audit partner who work for a Big 4 audit firm. 15.3% of male audit partners attended a Top25 university opposed to 17.1% of female audit partners. Out of the sample 32.8% of the audit partner switched firms after working at a firm in a senior role. This means that they either switched between Big N firms, between non-Big N firms, from a Big N to a non-Big N firm or from a non-Big N firm to a Big N firm. 14.6% of the audit partners in the sample switched from an Big N audit firm to a non-Big N audit firm, this means that 29 out of 81 audit partners who work at a non-Big 4 firm previously worked for a Big N firm. This amount is surprisingly high but can be explained by the bankruptcy of former Big N firm Arthur Anderson. A total of 4 audit partner in the sample made the switch from a non-Big N firm to a Big N firm, 19 partners switched from one Big N firm to another one and 13 made the switch between non-Big N firms. Busyness cannot be described on the unique audit partner level since it can change over the years and therefore it is not a unique partner characteristic.

Table 2 panel B describes the variables for the entire sample. The sample consists of a total of 719 firm year observations, 433 of those observations are related to audits performed by Big 4 firms and 286 by audits performed by non-Big 4 firms. The sample consists of 17.8% of audits performed by female auditors and 15.4% of audits performed by an auditor who attended a Top25 university. A total of 87 observations are related to audits from auditors who switched from a Big N to a non-Big N firm, 80 observations are related to audits from auditors who switched between Big N firms, 12 observations are related to auditors who switched from a non-Big N firm to a Big N firm and 46 observations are related auditors who switched between non-Big N audit firms. The auditors in this sample conduct on average 3.38 audits of listed companies per year, with a median of two audits of publicly companies per year.[5]

[5] This is the actual busyness of the audit partner in terms of number of audits of publicly listed companies. The variable BUSYNESS is the natural logarithm of the actual busyness. The descriptive statistics for the variable BUSYNESS can be found in table 2 panel B.

6.2 Empirical results

This paragraph will discuss the empirical results of the paper. The results will be discussed per hypothesis as stated in chapter 4. The results of the OLS regressions can be found in table 3 till table 7. Table 3 presents the results of the regression with the absolute value of discretionary accruals as the proxy for audit quality, the dependent variable in table 4 is restatements. Table 5 presents the results of the regression with Going concern inaccuracy as the proxy for audit quality. To have a better understanding of the going concern opinion inaccuracy table 6 and 7 present the results for the OLS regressions with type 1 GCO errors and type 2 GCO errors respectively as the dependent variables.

Each table has five columns. The first column is the model with the variable CHANGEDBIGNTOSF and without the variable CHANGED on the full sample, the second column is the same model but on a sub-sample of only non-Big 4 audit partners. There is no sub-sample of Big 4 auditors with regards to the model that includes CHANGEDBIGNTOSF, since the variable indicates when a partner changed from a Big N firm to a small firm and therefore there are no such observation in a sub-sample of only Big 4 audit partners. Column 3, 4 and 5 show the result for the model that includes the variable CHANGED instead of CHANGEDBIGNTOSF. Column 3 is related to the full sample, column 4 to the sub-sample of only Big 4 audit partners and column 5 on the sub-sample of non-Big 4 audit partners.

6.2.1 Gender

The first hypothesis that will be touched upon in this thesis is, H_1: Female audit partner gender is associated with higher audit quality. Table 3 column 1 and 3 show that there is no significant association between the absolute value of discretionary accruals and gender. When dividing the sample in Big 4 and non-Big 4 auditors, column 4 shows that for female audit partners who work at a Big 4 audit firm there is a negative relation between their gender and discretionary accruals, as the variable FEMALE is equal to -0.037 in the regression presented in column 4 and significant at the 1% level.

Table 4 and 5 show that there is no significant relation between the audit partners' gender and audit quality for the proxy's restatements and GCO inaccuracy. There is however a significant relation between the audit partners´ gender and type 1 and type 2 GCO errors. Table 6 shows that female audit partners working for a Big 4 audit firm are more likely to have a type 1 error compared to male audit partners who work for a Big 4 firm. Table 7 shows that Female audit partners are less likely to make a type 2 GCO error than male audit partners. These findings suggest that female auditors are more conservative than their male colleagues because they tend to issue more GCOs. This results in more GCOs without the company going bankrupt (type 1 errors) and less bankruptcies without a GCO (type 2 errors).

Taking the previously described findings into account, I reject the null hypothesis that there is no association between gender and audit quality. The evidence suggests that Big 4 female audit partners are associated with higher accrual quality and female audit partner in general have less type 2 GCO errors.

6.2.2 Educational institution

The second hypothesis that is tested in this thesis is, H_2: Educational institution quality is positively associated with audit quality. Column 4 in table 3 shows that attending a Top25 university has a highly significant negative

effect on discretionary accruals of 0.034 for audit partners who work for a Big 4 audit firm. There is no significant effect on the full sample of auditors or a sub-sample of auditors who work for a non-Big 4 firm. Attending a Top25 university also has a negative effect on the amount of restatements, with a value of -0.068 and -0.070, as can be seen in table 4 column 1 and 3 respectively. Table 4 column 2 and 5 show that there is a significant negative association between non-Big 4 audit partners and the amount of restatements at the 10% level. There is no significant effect between attending a Top25 university and any of the GCO error measures to proxy for audit quality in table 5, 6 and 7.

The null hypothesis that there is no association between education institution quality and audit quality can be rejected. This thesis finds evidence that audit partners who attended an educational institution which is highly ranked have less restatements, and Big 4 audit partners that attended a Top25 educational institution also have higher accrual quality.

6.2.3 Busyness

The third hypothesis that is researched in this thesis is, H_3: There is no association between audit partner busyness and audit quality. This hypothesis is stated as a null hypothesis because there are various theories that predict different outcomes. No significant association between audit partner busyness and any of the five proxies for audit quality can be found in this thesis. The null hypothesis that there is no association between audit partner busyness and audit quality can therefore not be rejected.

6.2.4 Big N experience

The final hypothesis that is tested in this thesis is, H_4: Big N experience has a positive association with audit quality. No significant association between Big N experience and any of the five proxies for audit quality can be found in this thesis. The null hypothesis that there is no association between Big N experience and audit quality can therefore not be rejected.

6.2.5 Changing audit firms

An additional analysis has been conducted on whether changing audit firms has an effect on audit quality. The reason for this additional analysis is to see whether an effect of audit partners switching from Big N to non-Big N firms can be explained by a possible effect of switching audit firms in general. Table 6 column 5 shows that audit partners who switched and are currently are working for a non-Big 4 audit firm make more type 1 GCO errors compared to auditors that did not switch audit firms. This effect is only significant at the 10% level and only for the sub-sample of non-Big 4 audit partners.

Table 7 shows that switching audit firms has a negative effect on the amount of type 2 GCO errors. This effect is caused by the non-Big 4 audit partners with an effect of -0.091, which is significant at the 5% level. There is no significant effect for Big 4 audit partners.

TABLE 3
Absolute Value of Discretionary Accruals and Audit Partner Characteristics

$$ADAC = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (5)$$

$$ADAC = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (6)$$

	(1) *ADAC* All	(2) *ADAC* Non Big4	(3) *ADAC* All	(4) *ADAC* Big4	(5) *ADAC* Non Big4
FEMALE	-0.021	0.001	-0.022	-0.037***	0.004
	(-1.26)	(0.02)	(-1.24)	(-2.61)	(0.07)
BUSYNESS	0.012	0.000	0.010	0.009	-0.002
	(1.24)	(0.02)	(1.03)	(0.90)	(-0.18)
TOP25	0.002	0.022	0.002	-0.034**	0.034
	(0.14)	(0.68)	(0.13)	(-2.07)	(0.99)
CHANGEDBIGNTOSF	0.022	0.037			
	(0.94)	(1.50)			
CHANGED			0.010	0.002	0.026
			(0.73)	(0.17)	(1.18)
LOSS	0.034**	-0.008	0.039**	0.045***	-0.007
	(2.31)	(-0.32)	(2.32)	(3.93)	(-0.27)
CASHFLOW	0.000	-0.057	-0.000	0.057**	-0.061
	(0.01)	(1.52)	(-0.01)	(2.35)	(-1.64)
MTB	0.002*	-0.000	0.002*	0.003*	0.000
	(1.84)	(-0.05)	(1.82)	(1.87)	(-0.00)
LEV	-0.005*	-0.002	-0.005**	-0.008**	-0.003
	(-1.93)	(-0.44)	(-1.98)	(-2.00)	(0.60)
SALESGROWTH	0.014*	0.023*	0.014*	0.009	0.021*
	(1.85)	(1.92)	(1.83)	(1.15)	(1.81)
ASSETS	-0.007**	-0.015**	-0.007*	-0.007*	-0.012
	(-1.97)	(-2.08)	(-1.73)	(-1.88)	(-1.64)
BUSINESSSEG	-0.001	-0.001	-0.001	-0.001	-0.002
	(-0.74)	(-0.56)	(-0.91)	(-0.98)	(-0.79)
GEOSEG	-0.006	-0.012	-0.004	0.014	-0.006
	(-0.53)	(-0.61)	(-0.41)	(0.79)	(-0.28)
BIG4	0.006		-0.000		
	(0.37)		(-0.03)		
Year Fixed Effects	Included	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included	Included
Constant	0.061	0.203***	0.065*	0.026	0.187**
	(1.63)	(2.79)	(1.71)	(0.70)	(2.41)
Observations	719	286	719	433	286
R^2	0.380	0.487	0.378	0.522	0.483

This table presents the OLS regression for the audit partner characteristics on audit quality, with the absolute value of discretionary accruals as the dependent variable. Column (1) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (2) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (3) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (4) presents the results for the OLS regression on the sample of Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (5) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. The following control variables are included in the regressions: LOSS, CASHFLOW, MTB, LEV, SALESGROWTH, ASSETS, BUSINESSSEG, GEOSEG and BIG4. Year fixed effects and industry fixed effects are included. All continuous variables are winsorized at the 1% and 99% and all standard errors have been clustered by firm to mitigate the bias introduced by repeating firms. Variables are defined in Appendix B. ***, **, * Indicate two-tailed statistical significance at the 1, 5 and 10 percent level, respectively.

TABLE 4
Restatements and Audit Partner Characteristics

$$RESTATEMENTS = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (7)$$

$$RESTATEMENTS = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + FIXED\ EFFECTS + \varepsilon \quad (8)$$

	(1) *RESTATE-MENTS* All	(2) *RESTATE-MENTS* Non Big4	(3) *RESTATE-MENTS* All	(4) *RESTATE-MENTS* Big4	(5) *RESTATE-MENTS* Non Big4
FEMALE	0.003	0.000	0.005	0.009	0.000
	(0.08)	(0.00)	(0.15)	(0.20)	(0.00)
BUSYNESS	-0.002	-0.014	-0.001	-0.007	-0.013
	(-0.11)	(-0.48)	(-0.03)	(-0.20)	(-0.46)
TOP25	-0.068**	-0.101*	-0.070***	-0.055	-0.103*
	(-2.56)	(-1.86)	(-2.69)	(-1.50)	(-1.95)
CHANGEDBIGNTOSF	-0.013	-0.008			
	(-0.38)	(-0.18)			
CHANGED			0.043	0.053	0.005
			(1.37)	(1.11)	(0.10)
LOSS	0.017	0.021	0.013	0.019	0.020
	(0.61)	(0.68)	(0.50)	(0.41)	(0.65)
CASHFLOW	-0.087*	-0.082	-0.086*	-0.114	-0.082
	(-1.81)	(-1.41)	(-1.81)	(-0.85)	(-1.40)
MTB	-0.002	-0.003	-0.002	0.000	-0.003
	(-0.70)	(-0.92)	(-0.66)	(0.05)	(-0.87)
LEV	-0.006	0.006	-0.006	-0.015	0.006
	(-0.87)	(0.66)	(-0.92)	(-1.24)	(0.65)
SALESGROWTH	0.035**	0.054**	0.036**	0.014	0.054**
	(2.25)	(2.37)	(2.32)	(1.12)	(2.39)
ASSETS	0.002	-0.013	0.002	0.009	-0.013
	(0.23)	(-0.97)	(0.33)	(0.84)	(-1.02)
BUSINESSSEG	0.002	0.004	0.001	0.002	0.004
	(0.59)	(0.76)	(0.57)	(0.53)	(0.85)
GEOSEG	-0.012	-0.022	-0.012	0.003	-0.024
	(-0.56)	(-0.56)	(-0.56)	(0.12)	(-0.65)
BIG4	-0.016		0.000		
	(-0.51)		(0.00)		
Year Fixed Effects	Included	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included	Included
Constant	0.025	0.143	0.004	-0.064	0.139
	(0.39)	(1.15)	(0.07)	(-0.66)	(1.03)
Observations	719	286	719	433	286
R^2	0.254	0.411	0.257	0.249	0.411

This table presents the OLS regression for the audit partner characteristics on audit quality, with restatements as the dependent variable. Column (1) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (2) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (3) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (4) presents the results for the OLS regression on the sample of Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (5) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. The following control variables are included in the regressions: LOSS, CASHFLOW, MTB, LEV, SALESGROWTH, ASSETS, BUSINESSSEG, GEOSEG and BIG4. Year fixed effects and industry fixed effects are included. All continuous variables are winsorized at the 1% and 99% and all standard errors have been clustered by firm to mitigate the bias introduced by repeating firms. Variables are defined in Appendix B. ***, **, * Indicate two-tailed statistical significance at the 1, 5 and 10 percent level, respectively.

TABLE 5
Inaccurate Going Concern Opinion and Audit Partner Characteristics

$$INACCURATEGCO = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (9)$$

$$INACCURATEGCO = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (10)$$

	(1) *INACC GCO* All	(2) *INACC GCO* Non Big4	(3) *INACC GCO* All	(4) *INACC GCO* Big4	(5) *INACC GCO* Non Big4
FEMALE	-0.039	0.063	-0.040	0.011	0.065
	(-1.02)	(0.45)	(-1.04)	(0.36)	(0.46)
BUSYNESS	0.013	0.001	0.013	-0.010	-0.001
	(0.42)	(0.03)	(-0.42)	(-0.37)	(-0.02)
TOP25	0.033	0.010	0.033	0.033	0.018
	(0.82)	(0.10)	(0.83)	(1.34)	(0.18)
CHANGEDBIGNTOSF	-0.000	0.028			
	(-0.01)	(0.33)			
CHANGED			-0.013	-0.037	0.009
			(-0.34)	(-1.06)	(0.13)
LOSS	-0.066**	-0.060	-0.065*	-0.058	-0.058
	(-1.98)	(-0.85)	(-1.96)	(-1.45)	(-0.84)
CASHFLOW	-0.213**	-0.081	-0.213**	-0.266***	-0.085
	(-2.51)	(-0.56)	(-2.51)	(-2.65)	(-0.59)
MTB	-0.005**	-0.007	-0.005**	-0.005*	-0.007
	(-2.03)	(-1.49)	(-2.05)	(-1.76)	(-1.46)
LEV	0.012	-0.012	0.012	0.024**	-0.013
	(1.27)	(-0.75)	(1.28)	(2.28)	(-0.76)
SALESGROWTH	0.014	0.071**	0.013	-0.007	0.070**
	(0.73)	(2.07)	(0.71)	(-0.35)	(2.03)
ASSETS	-0.023**	-0.039*	-0.023**	-0.013	-0.037*
	(-2.27)	(-1.78)	(-2.34)	(-1.46)	(-1.87)
BUSINESSSEG	-0.002	0.002	-0.001	-0.002	0.001
	(-0.64)	(0.21)	(-0.61)	(-0.61)	(0.16)
GEOSEG	-0.061**	-0.116*	-0.061**	-0.071**	-0.111
	(-1.99)	(-1.68)	(-2.00)	(-2.02)	(-1.65)
Z-SCORE	-0.004	-0.007*	-0.004	0.000	-0.007
	(-1.40)	(-1.67)	(-1.39)	(0.13)	(-1.62)
BIG4	-0.031		-0.035		
	(-0.60)		(-0.75)		
Year Fixed Effects	Included	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included	Included
Constant	0.341***	0.509**	0.346***	0.280**	0.486**
	(3.97)	(2.56)	(3.97)	(2.50)	(2.50)
Observations	719	286	719	433	286
R^2	0.423	0.487	0.423	0.455	0.486

This table presents the OLS regression for the audit partner characteristics on audit quality, with GCO accuracy as the dependent variable. Column (1) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (2) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (3) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (4) presents the results for the OLS regression on the sample of Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (5) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. The following control variables are included in the regressions: LOSS, CASHFLOW, MTB, LEV, SALESGROWTH, ASSETS, BUSINESSSEG, GEOSEG, ZSCORE and BIG4. Year fixed effects and industry fixed effects are included. All continuous variables are winsorized at the 1% and 99% and all standard errors have been clustered by firm to mitigate the bias introduced by repeating firms. Variables are defined in Appendix B. ***, **, * Indicate two-tailed statistical significance at the 1, 5 and 10 percent level, respectively.

TABLE 6
Type 1 Going Concern Opinion Error and Audit Partner Characteristics

$$TYPE1ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (11)$$

$$TYPE1ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (12)$$

	(1) *TYPE 1 ERROR* All	(2) *TYPE 1 ERROR* Non Big4	(3) *TYPE 1 ERROR* All	(4) *TYPE 1 ERROR* Big4	(5) *TYPE 1 ERROR* Non Big4
FEMALE	0.014	0.091	0.015	0.042**	0.099
	(0.42)	(0.84)	(0.47)	(2.23)	(0.87)
BUSYNESS	0.032	0.019	0.030	0.011	0.017
	(1.16)	(0.48)	(1.11)	(0.76)	(0.42)
TOP25	0.010	-0.026	0.008	0.015	-0.007
	(0.30)	(-0.34)	(0.26)	(0.91)	(-0.10)
CHANGEDBIGNTOSF	0.023	0.052			
	(0.39)	(0.78)			
CHANGED			0.042	-0.020	0.100*
			(1.36)	(-1.21)	(1.68)
LOSS	-0.036*	-0.017	-0.038*	-0.035	-0.021
	(-1.75)	(-0.35)	(-1.87)	(-1.52)	(-0.45)
CASHFLOW	-0.190**	-0.156	-0.191**	-0.146	-0.165
	(-2.32)	(-1.29)	(-2.33)	(-1.29)	(-1.41)
MTB	-0.002	-0.004	-0.002	-0.001	-0.003
	(-0.91)	(-0.73)	(-0.89)	(-0.85)	(-0.60)
LEV	-0.003	-0.019	-0.003	0.004	-0.021
	(-0.38)	(-1.30)	(-0.44)	(0.79)	(-1.38)
SALESGROWTH	0.018	0.069***	0.019	-0.003	0.066***
	(1.23)	(2.75)	(1.28)	(-0.12)	(2.64)
ASSETS	-0.007	-0.026	-0.005	-0.000	-0.022
	(-0.93)	(-1.51)	(-0.71)	(-0.06)	(-1.31)
BUSINESSSEG	0.003	0.013	0.003	0.002	0.012
	(1.59)	(1.57)	(1.42)	(1.56)	(1.62)
GEOSEG	-0.034	-0.125**	-0.033	-0.027	-0.117**
	(-1.60)	(-2.33)	(-1.56)	(-1.46)	(-2.26)
Z-SCORE	-0.004*	-0.007**	-0.004*	-0.001	-0.007**
	(-1.85)	(-1.99)	(-1.86)	(-0.72)	(2.11)
BIG4	-0.054		-0.052*		
	(-1.55)		(-1.70)		
Year Fixed Effects	Included	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included	Included
Constant	0.121*	0.323*	0.114	0.030	0.257
	(1.68)	(1.97)	(1.55)	(0.57)	(1.57)
Observations	719	286	719	433	286
R^2	0.407	0.537	0.410	0.229	0.546

This table presents the OLS regression for the audit partner characteristics on audit quality, with type 1 GCO error as the dependent variable. Column (1) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (2) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (3) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (4) presents the results for the OLS regression on the sample of Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (5) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. The following control variables are included in the regressions: LOSS, CASHFLOW, MTB, LEV, SALESGROWTH, ASSETS, BUSINESSSEG, GEOSEG, ZSCORE and BIG4. Year fixed effects and industry fixed effects are included. All continuous variables are winsorized at the 1% and 99% and all standard errors have been clustered by firm to mitigate the bias introduced by repeating firms. Variables are defined in Appendix B. ***, **, * Indicate two-tailed statistical significance at the 1, 5 and 10 percent level, respectively.

TABLE 7

Type 2 Going Concern Opinion Error and Audit Partner Characteristics

$$TYPE2ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGEDBIGNTOSF + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (13)$$

$$TYPE2ERROR = \beta_0 + \beta_1 FEMALE + \beta_2 BUSYNESS + \beta_3 TOP25 + \beta_4 CHANGED + \beta_5 LOSS + \beta_6 CASHFLOW + \beta_7 MTB + \beta_8 LEV + \beta_9 SALESGROWTH + \beta_{10} ASSETS + \beta_{11} BUSINESSSEG + \beta_{12} GEOSEG + \beta_{13} BIG4 + \beta_{15} ZSCORE + FIXED\ EFFECTS + \varepsilon \quad (14)$$

	(1) *TYPE 2 ERROR* All	(2) *TYPE 2 ERROR* Non Big4	(3) *TYPE 2 ERROR* All	(4) *TYPE 2 ERROR* Big4	(5) *TYPE 2 ERROR* Non Big4
FEMALE	-0.053***	-0.028	-0.055***	-0.031	-0.035
	(-2.68)	(-0.46)	(-2.82)	(-1.29)	(-0.58)
BUSYNESS	-0.019	-0.017	-0.018	-0.021	-0.018
	(-1.03)	(-0.57)	(-1.02)	(-0.83)	(-0.59)
TOP25	0.023	0.036	0.025	0.018	0.026
	(0.77)	(0.47)	(0.85)	(0.78)	(0.36)
CHANGEDBIGNTOSF	-0.023	-0.024			
	(-0.61)	(-0.52)			
CHANGED			-0.055**	-0.017	-0.091**
			(-2.01)	(-0.53)	(-2.05)
LOSS	-0.030	-0.044	-0.027	-0.024	-0.037
	(-1.06)	(-0.85)	(-0.95)	(-0.58)	(-0.75)
CASHFLOW	-0.023	0.075	-0.022	-0.120	0.080
	(-0.36)	(0.91)	(-0.34)	(-1.22)	(0.97)
MTB	-0.003*	-0.003	-0.004*	-0.004	-0.004
	(-1.84)	(-0.80)	(-1.89)	(-1.51)	(-0.92)
LEV	0.015**	0.007	0.015**	0.020**	0.008
	(2.13)	(0.81)	(2.25)	(1.99)	(0.92)
SALESGROWTH	-0.004	0.003	-0.005	-0.005	0.004
	(-0.37)	(0.10)	(-0.46)	(-0.65)	(0.15)
ASSETS	-0.016*	-0.013	-0.018**	-0.013	-0.015
	(-1.93)	(-0.81)	(-2.16)	(1.64)	(-1.05)
BUSINESSSEG	-0.004*	-0.011*	-0.004**	-0.004*	-0.011*
	(-2.61)	(-1.83)	(-2.45)	(-1.41)	(-1.84)
GEOSEG	-0.026	0.009	-0.028	-0.044	0.006
	(-1.09)	(0.19)	(-1.17)	(-1.35)	(0.14)
Z-SCORE	0.001	-0.000	0.001	0.002	0.000
	(0.27)	(-0.05)	(0.27)	(0.62)	(0.02)
BIG4	0.022		0.018		
	(0.53)		(0.46)		
Year Fixed Effects	Included	Included	Included	Included	Included
Industry Fixed Effects	Included	Included	Included	Included	Included
Constant	0.220***	0.186	0.232***	0.250**	0.247*
	(3.04)	(1.42)	(3.20)	(2.34)	(1.75)
Observations	719	286	719	433	286
R^2	0.392	0.456	0.399	0.472	0.474

This table presents the OLS regression for the audit partner characteristics on audit quality, with type 2 GCO error as the dependent variable. Column (1) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (2) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGEDBIGNTOSF as the variables of interest. Column (3) presents the results for the OLS regression on the full sample with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (4) presents the results for the OLS regression on the sample of Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. Column (5) presents the results for the OLS regression on the sample of non-Big 4 audit partners with FEMALE, BUSYNESS, TOP25 and CHANGED as the variables of interest. The following control variables are included in the regressions: LOSS, CASHFLOW, MTB, LEV, SALESGROWTH, ASSETS, BUSINESSSEG, GEOSEG, ZSCORE and BIG4. Year fixed effects and industry fixed effects are included. All continuous variables are winsorized at the 1% and 99% and all standard errors have been clustered by firm to mitigate the bias introduced by repeating firms. Variables are defined in Appendix B. ***, **, * Indicate two-tailed statistical significance at the 1, 5 and 10 percent level, respectively.

7 Conclusion

The mandatory disclosure of audit partner names in the Form AP makes it possible to identify the audit partner for all audits finished after or on January 31st, 2017. This requirement made empirical research on audit partner characteristics possible in the U.S. audit setting. Initial research regarding the disclosure of audit partner names in the US audit setting was conducted by Burke et al. (2019). They did not find any evidence supporting an effect of audit partner characteristics on audit quality. The findings of this paper were surprising, since prior studies in other comparable audit settings, such as the U.K. audit setting, found evidence for an effect of audit partner characteristics on audit quality. It is possible that no significant effects were found due to the limitations of the paper. The sample in the study by Burke et al. (2019) only consisted of audits from 2016. Common proxies for audit quality such as restatements and the accuracy of going concern opinions could not be used in this study. Since more time elapsed since the introduction of the mandatory audit partner name disclosure, the aforementioned limitation can thus be (partially) resolved in this thesis.

The main research question in this thesis is whether audit partner characteristics have an effect on audit quality in the U.S. audit setting. To test this, four hypotheses have been developed. The first hypothesis discussed in this thesis is, H_1: Female audit partner gender is associated with higher audit quality. This thesis found evidence to reject the null hypothesis that there is no association between audit partner gender and audit quality, since Big 4 female audit partners allow less discretionary accruals and female audit partners in general make less type 2 GCO errors. Additionally, the findings in this thesis suggest that female audit partners are more conservative than male audit partners in GCO reporting. The second hypothesis discussed in this thesis is, H_2: Educational institution quality is positively associated with audit quality. This thesis finds evidence to reject the null hypothesis that there is no effect between educational institution quality and audit quality, since audit partners who attended a high-quality educational institution have a lower amount of audit restatements. The third hypothesis discussed in this thesis is, H_3: There is no association between audit partner busyness and audit quality. This thesis does not find sufficient evidence to reject this null hypothesis. The final hypothesis tested in this thesis is, H_4: Big N experience has a positive association with audit quality. Furthermore, additional analysis has been conducted to examine the relation between audit quality and changing audit firms in general. This additional analysis shows a positive effect between changing audit firms and audit quality.

The findings in this thesis suggest that general audit partner characteristics may indeed have an effect on audit quality in the U.S. audit setting. The results for this thesis could have implications for investors that want to assess the risk whether there is a mistake in the audit opinion from an audit partner. With the implementation of PCAOB rule 3211 investors can look at the track record of an audit partner. However, when there are very little prior audits to take into consideration for the investor, he could use the general audit partner characteristics in his model to calculate the risk of a mistake in the audit opinion.

There are a couple limitations to this thesis. The first limitation is that the sample only consists of the years 2016-2019. Although this timeframe is much larger than the timeframe used in Burke et al. (2019,) it is still not ideal to have restatements and GCO accuracy as a proxy for audit quality because these proxies need time to develop. A longer timeframe would allow more type 2 GCO errors to take place. Another limitation of this

thesis is the measurement of audit partner busyness. There is only data available for publicly lister companies. Audit partners often have many private companies as their clients. The proxy used for audit partner busyness is therefore not an accurate estimation of the number of clients an audit partner has. The second problem with audit partner busyness that the number of clients does not say everything about the amount of work an audit partner has to put in for each client.

The aforementioned limitations provide an opening for future research. It would be interesting to see whether the results would change when more data becomes available for going concern opinion accuracy. For a more reliable proxy for busyness there should be audit partner name disclosure for private companies. Although there are currently no concrete plans to implement this requirement. It is not unthinkable that this happens in the foreseeable future, since the Auditing Standards Board (ASB), which provide guidance for private company auditors, is aligning its guidance more closely with PCAOB standards. Future research also could use the total audit fee an audit partner receives in a year to proxy for busyness. This measure takes the amount of time necessary of each audit better into account than the total number of engagements in a year. It would also be interesting to conduct additional research regarding the findings on the effect of changing audit firms. To my knowledge this effect has not been studied before. It would be interesting to see whether the findings in this thesis are robust for different audit settings and to examine what causes the effect. It could for instance be possible that this effect is caused by auditors who recently changed firms and are working harder to make a name for themselves in the new audit firm.

References

Aldizer, G. R., Miller, J. R. & Moraglio, J. F. (1995). Common attributes of quality audits. *Journal of Accountancy*, *179*(1), 61-68.

Aobdia, D., Lin, C. J. & Petacchi, R. (2015). Capital market consequences of audit partner quality. *The Accounting Review*, *90*(6), 2143-2176.

Barber, B. M. & Odean T. (2001). Boys will be Boys: Gender, Overconfidence and Common Stock Investment. *The Quarterly Journal of Economics*, *116*(1), 261-292.

Becker, C. L., DeFond, M. L., Jiambalvo, J. & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*(1), 1-24.

Becker, G. S. (1962). Investment in Human Capital: A Theoretical Analysis. *Journal of Political Economy*, *70*(5), 9-49.

Behn, B., Choi, J. H. & Kang, T. (2008). Audit quality and properties of analyst earnings forecasts. *The Accounting Review*, *83*(2), 327-359.

Bodalato, P. G., Donelson, D. C. & Ege, M. (2014): Audit committee financial expertise and earnings management: The role of status. *Journal of Accounting and Economics*, *58*(2/3), 208-230.

Bonner, S. E. (1994). A model of effects of audit task complexity. *Accounting, Organizations and Society*, *19*(3), 213-234.

Burke, J. J., Hoitash, R. & Hoitash, U. (2019). Audit Partner Identification and Characteristics: Evidence from U.S. Form AP Filings. *Auditing: A Journal of Practice*, *38*(3), 71-94.

Byrnes, J. P., Miller, D.C. & Schafer W.D. (1999). Gender differences in risk taking: A meta-analysis. *Psychological Bulletin*, *125*(3), 367-383.

Cameran, M., Campa, D. & Francis, J.R. (2018). *Audit Effects of Accounting Firm Organization Levels*. Working paper. Available at SSRN: https://ssrn.com/abstract=3157562.

Caramanis, C. & Lennox, C. (2008). Audit effort and earnings management. *Journal of Accounting and Economics*, *45*(1), 116-138.

Che, L., Langli, J. C. & Svanström, T. (2018). Education, Experience, and Audit Effort. *Auditing: A Journal of Practice & Theory*, *37*(3), 91-115.

Chi, W., Lisic, L. L., Myers, L. M., Pevzner, M. & Seidel T.A. (2019). The consequences of providing lower quality audits at the engagement partner level. *Journal of International Accounting Research*, *18*(3), 63-82.

Chi, W., Myers, L. A., Omer, T.C. & Xie, H. (2017). The effects of audit partner pre-client and client-specific experience on audit quality and on perceptions of audit quality. *Review of Accounting Studies*, *22*(1), 361-391.

Choi, J., Kim, C., Kim J. & Zang, Y. Audit Office Size, Audit Quality, and Audit Pricing. *AUDITING: A Journal of Practice*, *29*(1), 73-97.

Chung, J. & Monroe, G. S. (2001). A research note on the effects of gender and task complexity on an audit judgment. *Behavioral Research in Accounting*, *13*(1), 111-125.

Cochran, W. G. (1977). *Sampling Techniques*. New York, United States (NY): John Wiley & Sons, Inc.

Copley, P., & Doucet, M. (1993). The impact of Competition 00 the Quality of Governmental Audits. *Journal of Auditing*, *12*(1), 88-98.

Core, J. E., Holthausen, R. W. & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, *51*(3), 371-406.

Costa, P. T., Terracciano, A. & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology*, *81*(2), 322–331.

DeAngelo, L. E. (1981). Auditor Size and Audit Quality. *Journal of Accounting and Economics*, *3*(3), 183-199.

DeAngelo, L. E. (1986). Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders. *The Accounting Review*, *61*(3), 400-420.

Dechow, P. M., Sloan, R. G. & Sweeney, A. P. (1995). Detecting Earnings Management. *The Accounting Review*, *70*(2), 193-225.

Dwyer, P. D., Gilkeson, J. H. & List, J. A. (2002). Gender differences in revealed risk taking: Evidence from mutual fund investors. *Economics Letters*, *76*(2), 151-158.

Estes, R. & Reames, D. D. (1988). Effects of personal characteristics on materiality decisions: A multivariate analysis. *Accounting and Business Research*, *18*(72), 291-296.

Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin*, *116*(3), 429-456.

Financial Accounting Standards Board (FASB). (2015). Statement No. 154. Available at: https://www.fasb.org/summary/stsum154.shtml.

Francis, J. R. (2011). A framework for understanding and researching audit quality. *Auditing: A Journal of Practice & Theory*, *30*(2), 125-152.

Francis, J. R. & Krishnan J. (1999). Accounting accruals and auditor reporting conservatism. *Contemporary Accounting Research*, *16*(1), 135-165.

Francis, J. R., & Yu, M. D. (2009). Big 4 office size and audit quality. *The Accounting Review, 84*(5), 1521-1552.

Gifford, S. (2005). Limited attention as the bound on rationality. *Contributions to Theoretical Economics*, *5*(1), 1-40.

Goodwin, J., & Wu, D. (2016). What is the relationship between audit partner busyness and audit quality? *Contemporary Accounting Research*, *33*(1), 341-377.

Gul, F. A., Wu, D., & Yang, Z. (2013). Do individual auditors affect audit quality? Evidence from archival data. *The Accounting Review*, *88*(6), 1993-2023.

Hallman, N. (2017). *Do Auditors Overemphasize Contextual Benchmarks? Archival Evidence on Contrast Effects in Auditors' Assessment of Client Risk.* Working paper. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2935098.

Hardies, K., Breesch, D. & Branson, J. (2012). Male and Female Auditors' Overconfidence. *Managerial Auditing Journal*, 27(1), 105-118.

Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, *7*(1-3), 85-107.

Hirschleifer, D. A. & Teoh, S. W. (2003). Limited Attention, Information Disclosure, and Financial Reporting. *Journal of Accounting and Economics*, *36*(1-3), 337-386.

Ittonen, K., Vähämа, E. & Vähämа, S. (2013). Female Auditors and Accruals Quality. *Accounting Horizons, 27*(2), 205-228.

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, *29*(2), 193-228.

Kahneman, D. (1973). *Attention and Effort*. Englewood Cliffs, United States (New Jersey): Prentice-Hall Inc.

Khurana, I. & Raman, K. (2004). Litigation risk and the financial reporting credibility of Big 4 versus non-Big 4 audits: Evidence from Anglo-American countries. *The Accounting Review*, *79*(2), 473-495.

Knechel, W.R. (2009). *Audit Lessons from the Economic Crisis: Rethinking Audit Quality*. Inaugural Lecture. Available at: https://www.academia.edu/6182272/Audit_Lessons_from_the_Economic_Crisis_Rethinking_Audit_Quality_Inaugural_Lecture.

Knechel, W. R., Krishnan, G. V., Pevzner, M. B., Shefchik, L. & Velury, U. (2013). Audit quality: Insights from the academic literature. *Auditing: A Journal of Practice & Theory*, *32*(supplement 1), 385-421.

Knechel, W. R., Vanstraelen, A. & Zerni, M. (2015). Does the identity of engagement partners matter? An analysis of auditor reporting decisions. *Contemporary Accounting Research*, *32*(4), 1443-1478.

Krishnan, J. and Schauer P. C. (2001). Differences in Quality among Audit firms, *Journal of Accountancy*, *192*(2), 85.

Kumar, A. (2010). Self-selection and the forecasting abilities of female equity analysts. *Journal of Accounting Research*, 48(2), 393-435.

Lawrence, A., Minutti-Mezza, M. & Zhang, P. (2011). Can Big 4 versus Non-Big 4 Differences in Audit-Quality Proxies Be Attributed to Client Characteristics? *The Accounting Review*, *86*(1), 259-286.

Levin, I., Snyder, M. & Chapman, D. (1988). The interaction of experimental and situational factors and gender in a simulated risky decision-making task. *Journal of Psychology*, *122*(2) 173-181.

Li, L., Qi, B., Tian, G. & Zhang, G. (2017). The contagion effect of low-quality audits at the level of individual auditors. *The Accounting Review*, *92*(1), 137-163.

Libby, R. (1995). The role of knowledge and memory in audit judgment. In *Judgment and Decision-Making Research in Accounting and Auditing*. Cambridge, United States (Massachusetts): Cambridge University Press.

McGivern, R. F., Huston, J. P., Byrd, D., King, T., Siegle, G. J. & Reilly, J. (1997). Sex Differences in Visual Recognition Memory: Support for a Sex-Related Difference in Attention in Adults and Children. *Brain and Cognition*, *34*(3), 323-336.

Meyers-Levi, J. (1986). *Gender Differences in Information Processing: A Selectivity Interpretation*. Evanston, United States (Illinois): Northwestern University.

O'Donnell, E. & Johnson, E. N. (2001). The effects of auditor gender and task complexity on information processing efficiency. *International Journal of Auditing*, *5*(2), 91-105.

Palmrose, Z. -V. (1988). An Analysis of Auditor Litigation and Audit Service Quality. *The Accounting Review*, *63*(1), 55-73.

Public Company Accounting Oversight Board (PCAOB). (2015a). Supplemental Request for Comment: Rules to Require Disclosure of Certain Audit Participants in New PCAOB Form AP. Release No. 2015-004 (June 30). Available at: https://pcaobus.org/Rulemaking/Docket029/Release_2015_004.pdf.

Public Company Accounting Oversight Board (PCAOB). (2015b). Improving the Transparency of Audits: Rules to Require Disclosure of Certain Audit Participants on a New PCAOB Form and Related Amendments to Auditing Standards. Release No. 2015-008 (December 15). Available at: https://pcaobus.org/Rulemaking/Docket029/Release-2015-008.pdf.

Pugh, S. (2001). Service with a smile: Emotion contagion in the service encounter. *The Academy of Management Journal*, *44*(5), 1018-1027.

Radner, R. & Rothschild, M. (1975). On the allocation of effort. *Journal of Economic Theory*, *10*(3), 358-376.

Semba, H. D. & Kato, R. (2019). Does Big N matter for audit quality? Evidence from Japan. *Asian Review of Accounting*, 27(1), 2-28.

Simon, H. (1978). Rationality as process and as product of thought. *American Economic Review*, *68*(2), 1-16.

Sundgren, S. & Svanström, T. (2014). Auditor-in-charge characteristics and going-concern reporting. *Contemporary Accounting Research*, *31*(2), 531-550.

Taylor, S. D. (2011). Does audit fee homogeneity exist? Premiums and discounts attributable to individual partners. *Auditing: A Journal of Practice & Theory*, *30*(4), 249-272.

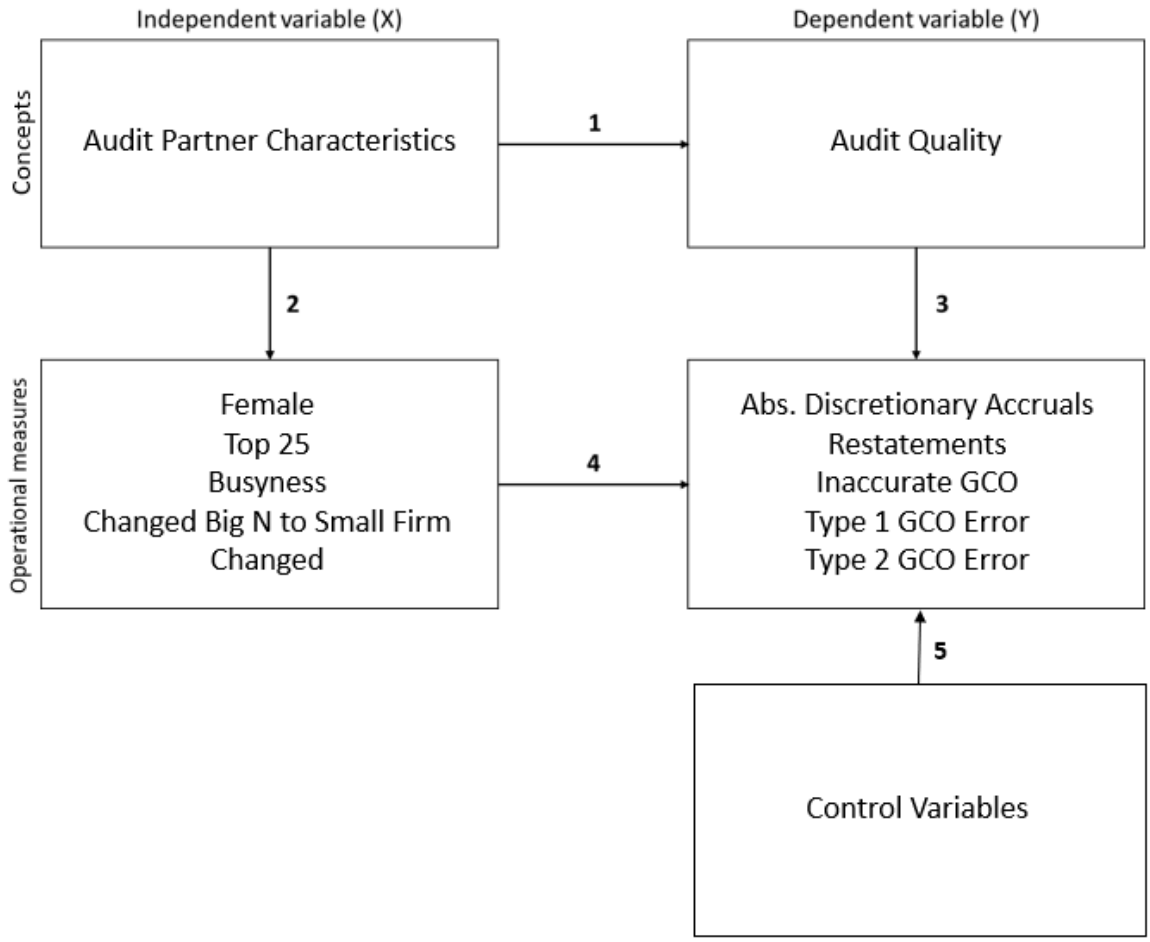
Titman, S. & Trueman, B. (1986). Information Quality and the Valuation of New Issues. *Journal of Accounting and Economics*, *8*(2), 159-172.

Tritschler, J. (2014). *Audit Quality: association between published reporting errors and audit firm characteristics*. Ostfildern, Germany: Mairdumont Gmbh & Co. Kg.

Watts, R. L. & Zimmerman, J. L. (1981). *The Market for Independence and Independent Auditors*. Working Paper Series No. GPB 80-10. Available at: https://urresearch.rochester.edu/institutionalPublicationPublicView.action?institutionalItemId=4475

Zerni, M. (2012). Audit Partner Specialization and Audit Fees: Some Evidence from Sweden. *Contemporary Accounting Research*, *29*(1), 312-340.

Appendix A: Predictive validity framework



Appendix B: Variable definitions

APPENDIX B
Variable Definitions

Variable		Variable Definition
Test Variables		
FEMALE	=	1 if the audit partner is female, 0 otherwise;
BUSYNESS	=	the natural log of the number of public engagements that the partner oversees according the PCOAB database;
TOP25	=	1 if the audit partner attended a university ranked in as one of the best 25 MBA business schools in the U.S.A. according to the Financial Times MBA ranking, 0 otherwise;
CHANGEDBIGNTOSF	=	1 if the audit partner worked in a senior role at a Big N audit firm and changed to a non-Big N audit firm, 0 otherwise;
CHANGED	=	1 if the audit partner changed audit firms, 0 otherwise;
Dependent Variables		
ADAC	=	the absolute value of discretionary accruals as estimated by the Dechow et al. (1995) modified Jones model;
RESTATEMENTS	=	1 if a financial statement restatement occurred, 0 otherwise;
INACCURATEGCO	=	1 if the GCO was inaccurate, 0 otherwise;
TYPE1GCOERROR	=	1 if a GCO was issued without the company going bankrupt, 0 otherwise;
TYPE2GCOERROR	=	1 if a GCO was not issued when the company went bankrupt, 0 otherwise;
Control Variables		
LOSS	=	1 if the company reported a net loss in the year of the audit, 0 otherwise;
CASHFLOW	=	cash from operating activities divided by the lagged value of total assets;
MTB	=	market value of equity divided by book value of common equity
LEV	=	total liabilities divided by total assets;
SALESGROWTH	=	year-over-year sales growth
ASSETS	=	the natural log of total assets
BUSINESSSEG	=	the sum of reported business segments;
GEOSEG	=	the sum of reported geographic segments
BIG4	=	1 if a Big 4 auditor partner, 0 otherwise;
ZSCORE	=	Altman Z-score

Appendix C: Top 25 MBA universities

U.S. MBA Ranking	University
1	Harvard University
2	University of Pennsylvania
3	Stanford University
4	Massachusetts Institute of Technology (MIT)
5	Columbia University
6	University of Chicago
7	Northwestern University
8	University of California (Berkeley)
9	Yale University
10	Dartmouth College
11	Duke University
12	University of Virginia
13	New York University (NYU)
14	Cornell University
15	University of California Los Angele (UCLA)
16	University of Michigan
17	Georgetown University
18	Carnegie Mellon University
19	University of Florida
20	University of Southern California
21	University of North Carolina
22	University of Texas at Austin
23	Indiana University
24	Washington University
25	Vanderbilt University