Audit Partner Characteristics, Audit Fees and Earnings Quality

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Submitted to:

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by:

Alexander Mutua Muia

Student No:

423069

Supervisor: Dr M.H.R. Erkens

Co-reader: Dr (Jaeyoon) J. Yu

Department of Business Economics

Erasmus University Rotterdam

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Abstract

Within the auditing profession, there is an implied assumption that audit partners produce identical audit quality and earn statistically equivalent levels of audit fees for similar tasks. However, this is contradicted by individual behavioural literature, which shows that different individual auditor characteristics can influence judgement and thus influence audit outcomes. This paper examines whether specific audit partner characteristics such as gender, experience, industry specialization, partner busyness, education and social connection influence audit outcomes within the US market. Using a unique sample of 600 audit partner names disclosed in the PCAOB, I find evidence that partner gender (female) and industry specialization is significantly and positively associated with higher audit fee premiums. Additionally, my findings suggest that female partners are significantly associated with higher earnings quality. I also explain other variations in audit outcomes with other partner characteristics as observed in the findings.

Keywords: Audit Partner Characteristics, Audit Fees, Earnings Quality

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1. Introduction

The auditing profession is highly dependent on reputation build across multiple stakeholders. On one side, auditors provide audited financial statements which investors rely on for investment decisions. On the other side, regulatory bodies ensure compliance and transparency in auditing through regulations. Proper regulations in accounting standards, third-party validation and disclosure requirement by regulatory bodies, Such as the SEC[1] and PCAOB[2], help maintain this reputation (Zhang et al 2011; DeFond 2017). Several factors can influence audit outcomes. Most of the past research focus on audit firm and client factors. These studies suggest that audit quality and the pricing of audit effort are influenced by factors such as, size, riskiness of the client or the size of the audit firm (Ittonen and Peni 2011). It is therefore homogenously assumed, at same levels, partners produce statistically identical audit quality and earn equivalent audit fees. However, audit reports are compiled by individuals who use their skills and knowledge to analyze and give audit opinions on financial statements. Behavioural economics and cognitive psychology acknowledge that differences in individual attributes, such as gender, can influence how individuals process information and make decisions. It is likely that auditor characteristics influence audit outcomes and that the market can associate such characteristics when interpreting information on audited financial statements.

The purpose of this paper is to examine whether audit partner characteristics influence audit fees charged to the client and the quality of reported earnings, within the US market. More specifically, I examine whether the gender, experience, industry specialization, busyness, educational background and the social connections of the engagement partner influence such audit outcomes. In accordance with literature, if engagement partners can be identified with differences in these attributes regarding decision making, leadership styles or risk tolerance, it might affect judgment in the audit process and influence audit outcomes (Lennox and Wu 2017). Availability of audit partner identity enables the market to study these characteristics. With this view, the PCAOB in 2016, implemented a rule requiring identity disclosure of the engagement partner for all public listed companies. Public scrutiny resulting from the disclosure of partner identity can act as an incentive for auditors to maintain a good reputation, leading to higher earnings quality. It also could result in more checks, leading to longer audit

[1] Securities Exchange Commission
[2] Public Company Accounting Oversight Board

periods, higher fees and inefficient audit process (PCAOB Release 2015). The audit outcomes in both scenarios are also likely to be influenced by individual auditor characteristics.

I focus on the US market because disclosure of audit partner names is relatively new to its context and has become a subject matter in recent research papers. However, several research findings on the effect of partner characteristics on audit outcomes remain inconclusive. Using a sample of 600 names from AuditorSearch, I find evidence that gender, industry specialization and busyness are associated with audit outcomes. More precisely, I find a positive and significant association between gender, specialization and audit fees. I also find a negative association for busyness with audit fees. These findings remain significant after controlling for audit firm and client characteristics, fixed industry and firm-year effects. This suggests that female partners and industry specialist are positively associated with higher audit fee premiums, while partners with higher number of clients in their portfolio are associated with lower audit fees. For earnings quality, I find that female partners are negatively associated with the level of absolute accruals while busyness and experience show a positive association.

This paper aims to make the following contributions; (1) As an addition to the new and limited literature in the US on audit partner characteristics and audit outcomes. (2) To provide more evidence since preliminary findings on this area are inconclusive (Burke et al 2018; Zimmerman et al 2018). The rest of this paper is organized as follows. Section 2 discusses audit partner disclosure in the US, section 3 and 4 audit fees and earnings quality determinants and measures. Section 5 is hypothesis development, while sections 6 presents the models and summary statistics. Section 7 shows the results of regression models, while section 8 provides the concluding remarks.

2. Audit partner disclosure

In 2016, after lengthy and protracted debates, the PCAOB implemented a mandatory APD and an amendment to accounting standards. Since then, audit firms are mandated to disclose the identity of the audit engagement partner and information on other accounting firms that take part in the audit. The information should be disclosed on a new form, PCAOB Form AP. This rule, however, came into effect amidst opposition from audit firms and CPAs due to contradicting views on its desired effect. While regulatory bodies such as the PCAOB

supported its implementation, public accounting firms and professional societies of CPAs[3] strongly objected to the original and modified identification requirements.

In its defence, the PCAOB argued that Audit Partner Disclosure (APD) would increase the transparency of the auditing process and audit partner accountability. In its view, engagement APD would enable the development of a database that will allow the market and other stakeholders evaluate several data points about the engagement partner e.g. education, professional titles, qualifications, association memberships, number of engagements and previous audit history. The market can then use this information to draw conclusions on audit quality based on auditor characteristics and previously observed patterns. Concern over public scrutiny resulting from the availability of such information would motivate audit partners to increase their professionalism to avoid negative costs associated with loss of reputation from perceived audit failure (King et al, 2012; PCAOB 2015a).

Although public APD is relatively a new requirement in the US market, it has already been adopted in other international markets. Countries like China, Taiwan, United Kingdom (UK), Australia and Belgium require audit partners to sign audit opinions, therefore disclosing the identity of the audit partner to the public (Lee et al, 2018). In these markets, research has revealed an association between individual partner characteristics and audit outcomes. For example, in the Australian market, Taylor (2011), using a sample of about 800 publicly listed companies finds that individual audit partner characteristics attract audit fee premiums. Aobdia et al. (2015) using data from the Taiwanese market find a positive association between the partners quality and the earning response coefficient. Chi et al. (2017) show that client-specific experience improves audit quality and creditor perceptions of audit quality within the Taiwanese market. According to Gul et al. (2013), even though the effect of personal characteristics and their association with audit outcomes fails to exhibit consistent patterns, fixed partner effects are incrementally significant for audit quality proxies within the Chinese market. Similar findings are echoed within the UK market by Cameran et al. (2016); with partner fixed effects having a greater explanatory power for audit outcomes within the UK market than in China. Other additional papers that document the association between audit partner characteristics and audit outcomes include; Chi et al. 2018a, 2018b; Wang et al. 2014; Knechel et al. 2015 and Li et al. 2017. All these findings suggest that capital market participants

[3] CPAs – The American Institute of Certified Public Accountant

care about the identity and qualities of the engagement partner, as they influence audit outcomes.

However, engagement APD may not reveal similar associations in the US due to its specific characteristics making it difficult to generalize international findings to its context. First, the US financial market is well-developed and highly regulated with less information asymmetry (Lee et al, 2018). This means that audit partners are regularly subjected to heavy internal controls (partner rotation and internal firm quality control) and external regulations (inspections and disclosure requirements by the SEC and PCAOB) that influence audit performance. Therefore, auditor identity disclosure may not reveal any association with audit outcomes as observed in non-US markets. Secondly, in non-US markets such as Europe, shareholders appoint and approve the remunerations of the auditors, inferring shareholder accountability for auditing and accounting standards. Contrarily, in the US, accounting and auditing standards are a market accountability mechanism rather than a shareholder one (Mintz 2015). Auditors are therefore considered independent of shareholders and management influence in their opinion. This makes their opinion audited financial statements to be considered independent and matters to stakeholders.

Third, audit partner signatures on audit opinions are not required in the US. Instead auditor reports are signed in the name of the auditing firm, by a person authorized to sign on its behalf (Zimmerman et al. 2018). Although the SEC maintains a Comment Letter database with clients and auditor's information, the name of the engagement partner was not made public prior to 2016. Since then, the PCAOB requires engagement APD on a separate Form AP that is not filed with the SEC. The literature on non-US markets covers contexts in which the engagement partner signs, in his/her name for and on behalf of the audit firm, the audited statements and opinions reports submitted to the registrar of companies for filing. Where the auditor signs the report in their own name, there is an element of uncertainty and risk as inaccurate or erroneous financial information can directly result in audit legal implications for this partner. This is a crucial distinction as APD on Forms AP may not attract equivalent accountability as an individual signature requirement on audited financial statement (Burke et al. 2018).

Lastly, although extensive literature for non-US markets exists, the findings on the associations of individual audit partner characteristics and audit outcomes are not consistent over the countries. One reason for this could be the homogenous presumption that from a firm

or supervisory body view, audit partners should provide a uniform level of audit quality across the commonly agreed accounting standards. Thus, since auditors practice in firm-specific-offices and under commonly agreed accounting standards, there should be limited variations in audit outcomes of an individual auditor at similar levels. Differences in partner characteristics, mental altitude and economic incentives may, however, interfere with their independence leading to variations in audit outcomes. Providing an audit opinion is an independent mental process that is unobservable making auditor independence of utmost importance. If auditor independence is compromised, it might incentivize them to violate their independence in order to satisfy and maintain their economic bonds with their clients (DeAngelo 1981). A stringent regulatory environment or additional disclosure requirements can mitigate individual incentives for selfish benefits by auditors. However, effect of such measures may be varied across auditors from different jurisdictions due to economic and individual characteristics. This could be a possible explanation for the variation in findings on the associations between audit fees and audit outcomes encountered in non-US markets. Further, such an effect would be expected to be less observable in a highly regulated market.

3. Audit Fees

The total audit fee represents the economic consideration that external auditors charge a company in exchange for their professional services (Liu; Suryanto et al. 2017). Auditing firms usually have a standard billing rate for staff when bidding on a new audit engagement. They also consider other factors (firm, client or partner specific) that can influence the audit process to determine the final audit fee. The final audit fee charged varies depending on these factors (DeAngelo 1998). Existing research has used regression models (Dopuch and Sumunic 1980; Pong et al 1994; Lacker 2004; Hribar et al. 2014) to estimate determinants of audit fees and show that both client and audit firm characteristics influence audit fees. Including audit firm and client factors as control variables in a regression analysis of audit fees and partner characteristics thus controls for variations influenced by firm and client factors. Other variations not captured by the firm and client controls could, therefore, be driven by other factors such as individual partner characteristics (Liu 2017). There are therefore three perspectives on determinants of audit fees.

3.1. Audit firm factors

This perspective is focused on audit firm characteristics such as firm size and specialization. It assumes that audit clients pay attention to the audit firm's identity and its characteristics (Dopuch and Sumunic 1980; Pong 1994; Zimmerman et al. 2018; Lennox 2018). Audit firms differ in size and the importance of size and brand name suggest that auditor reputation reflects high audit quality Chan (1993). Studies show that Big 4 firms receive higher premiums. Francis et al (1984), Francis and Strokes (1986), and Pong et al (1994) show that the size of the audit firm is positively correlated with the audit fees. However, evidence from other markets contradict these findings. Firth (1985) found no significant evidence that larger audit firms charge more for their services in New Zealand. De Angelo (1981) argues that where the incumbent auditor earns quasi-rents, there is no difference between audit quality and audit firm size. While Becker et al (1998) show that audit firm size influences earnings management, with smaller audit companies, reporting higher discretionary accruals. These factors are therefore included in the model as control variables for audit firm factors.

3.2. Audit client factors

Audit client perspective, on the other hand, focuses on the client's characteristics that influence audit fees. As per existing literature, client factors such as size, business complexity, and the audit risk are hypothesized to have significant correlation with audit fees include(Simunic 1980; Francis 1986; Hribra 2010; Richardson 2004). Using regression models, client's specific characteristics can be used to proxy for complexity of risk and resources that are needed to carry out the audit and help in the determination of the audit fee. Factors such as total assets, number of receivables, the level of inventory, number of employees and number of business segment indicate the size and the complexity of the audit process. These have been shown to positively influence audit fees (Han et al. and Lui et al. 2003; Richardson 2004; Fang 2011). The level of client's corporate risk also influences audit fees and quality.. Reporting loss and income increasing discretionary accruals can be an indicator to the auditor for client's risk, leading to higher audit fees (Liu 2017). Those factors are will therefore be used controls for client effect in this paper.

3.3. Audit partner characteristics

Audit firm and audit client theories follow a homogenous assumption that within a given firm, audit partners earn uniform fees and produce a statistically identical level of audit quality. However, this homogenous assumption ignores that partners are individuals with different characteristics and use their skills to make decisions. The audit firm's quality control mechanism and regulatory policies are expected to constrain the partner's variation in judgements (Zimmerman et al. 2018). However, characteristic differences (gender, experience, education or expertise) may still play part in decision making and ultimately influence the audit outcomes (Taylor 2011; Liu 2017). As a result, final audit fees charged for the audit effort may not be entirely explained by the audit firm and client factors.

The literature on the association between auditor partner characteristics and audit outcomes has mostly focused on non-US markets with evidence showing that individual partner traits drive a fee premium (Ittonen 2013; Chen 2017) and influence earnings quality through accruals (Cameran et al. 2016; Li et al. 2017). According to Tylor (2018), for Australian markets, large prestigious clients, regarded as having insider knowledge of the quality of the partners, select high-quality audit partners and pay a significant premium to secure their services. Lennox and Wu (2017) provide a comprehensive literature review on the existing research on audit partners and the findings in various non-US markets. Therefore, in this research paper, I seek to investigate the association of partner characteristics and audit outcomes using a regression model while controlling for client and audit firm effects.

4. Earnings quality

4.1. Definition of earnings

Earnings, or after-tax net income, are by far the most studied component in a company's financial statement. Earnings are important as they represent a firms' performance and provide reliable, relevant and decision-useful information to financial statement users (Dechow 1994; Bushmand and Smith 2003; Dechow 2010). For example, investors use earnings to extract information and estimate the expected performance of their investments. Managers, on the other hand, require quality earnings to enter into current and future contracts with investors and creditors. Since earnings tend to have lower persistence and are subject to management (Houge

and Loughran 2000), a firm's earnings quality and the circumstances relating to them indicate whether the business will be successful and profitable in the long run.

Earnings consist of the sum of a firm's current cash flows and accruals. Cash flows result from transactions within the firm's operations, investing or financing activities. Accruals, on the other hand, are the difference between reported earnings and cash flows from operations and arise due to timing and revenue recognition differences (Dechow 1994; Dechow & Dichev, 2002). Further, accruals consist of two components; non-discretionary accruals and discretionary accruals. The portion of discretionary accruals arises because managers have discretion in the application of accounting policies. Accounting standards, therefore, give managers the freedom to make individual judgments when estimating accruals, making them susceptible to manipulation (Healy 1985; Healy and Wahlen 1999). This, in turn, leads to a certain level of earnings management.

4.2. Earnings management

There are many definitions of earnings management. In academic literature, earnings management occurs when managers use their discretion in applying Generally Accepted Accounting Standards, GAAP (Moyer et al. 2000). Managers may manage earnings with the aim of misleading certain stakeholders about a company's underlying performance. They may also do it to influencing contractual agreements that are based on reported earnings (Healy et al. 1999). However earnings should not be confused with the illegal manipulation of financial results such as fraud. In Addition, not all earnings management is meant to deceive investors. According to Ronnen and Yari (2008) managers can also use earnings management to signal private information on the company's short-term or future performance.

Earnings management can occur in four main ways; (1) Accrual earnings management using judgement in financial reporting; (2) Real earnings management through real manipulation of the company's operations that impact earnings; (3) Through GAAP in which managers apply certain standards to keep the levels of reported assets carrying value and reported earnings low. And lastly (4) Through the presentation of financial statements, for example, the reporting of comprehensive income on the equity statement. The following table adapted from Dechow and Skinner (2000) gives a brief overview of the classification of the level of earnings management that is (not) allowed under the GAAP.

Table 1: Classification of earnings management

Reporting Type	***Accounting Choices***
	Within GAAP
Conservative accounting	• Overly aggressive recognition of provisions or reserves • Overstating restructuring charges and assets write-offs
Aggressive accounting	• Understating the provisions from bad debts • An overly aggressive drawdown of provisions or reserves
	Violating GAAP (not allowed)
Fraud	• Recognition of unrealizable sales • Overstating inventory

4.3. Earnings quality and auditor role

Although there is no commonly agreed definition for earnings quality, it generally refers to the amount of decision-relevant information reported earnings can provide about the current and future financial performance of a company (Penman and Zhang 2002; Dechow et al. 2010; Mussalo 2015). The quality of financial reports, therefore, depends on the quality of the earnings. Managers are charged with the responsibility of ensuring that a financial statement gives a fair representation and has the privilege of determining the level of discretionary accruals they choose to disclose. Having this discretion means managers can manage the level of reported earnings using accruals for their own personal goals. However, there still exist several measures that can be used to discourage earnings management; (1) Internal controls such as corporate governance; (2) Business environment accounting standards and (3) Third-party validation and external regulatory bodies such as the SEC (Dechow 1996; Ball et al. 2000; Bedard et al. 2004). In this paper, I pay attention to the characteristics of third-party validators (audit partners in this case) and how they can influence the audit outcomes.

Auditors are responsible for ensuring that client's audited financial statements give a true representation of the client's financial position and are free from errors and omissions. Auditors play a monitoring role in reducing managers opportunistic behaviour by ensuring the integrity of reported figures (Tsipouridou et al. 2012). In case of arising concerns about the reliability of the financial statements, stakeholders focus on the auditor's opinion report in audited financial statements. Managers and auditors must agree on the final reported figures before signing off the audited statements. However, the auditor's degree of aggressiveness or conservatism in checking the accounting can be influenced by their characteristic differences,

thus affecting the level of discretionary accruals reported in the financial statement. Discretionary accruals have been used across multiple types of research as a proxy for the earnings quality conveyed in the audited financial statements (Ball et al. 2000&2003; Yohan 2017). Examining discretionary accruals captures both client and engagement partner levels of discretion.

4.4. Measuring earning quality

Earnings quality measurement can be classified into two categories; (1) Decision usefulness, measured as persistence and value relevance and (2) Accountability measured as conservatism and accruals quality. As stated earlier, in this research I will focus on the accountability aspect of earnings quality, estimated using discretionary accruals (DAC). Discretionary accruals have been used in multiple pieces of research as a proxy for earnings and audit quality. Firms with lower earnings are likely to show negative accruals and vice versa. This is because firms with abnormally high or low earnings experience positive or negative effects of earnings management. Discretion in reporting accruals requires assumptions and individual judgments of estimates about future realization of earnings into cash flows, which are likely to be influenced by differences in individual characteristics. I choose to use the absolute level of accruals because as both negatives and positive ones are indicators of earnings quality.

There are various models to measure accruals. I will use Dechow (1995) model which is an adjusted Jones (1991) model to estimate discretionary accruals (*DAC*). The concept for Jones' model (1991) is that earnings management is detected by comparing the mean total accruals (TA) scaled by the total assets (A) and the variations in revenues caused by changes in operating capital and accruals. Thus, the changes in revenue (ΔREV) and fixed assets (PPT) are used as independent variables when predicting DAC using the following model.

$$\frac{TA_{it}}{A_{it}} = \beta_0 + \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(\frac{\Delta REV_{it}}{A_{it}}\right)_{it} + \beta_{3\,it} \frac{PPT_{it}}{A_{it}} + \varepsilon_{it} \qquad (\textit{Equation 1})$$

In 1995, Dechow further developed the underlying assumption of the Jones model, by explaining that not all changes in revenue are non-discretionary. This is because credit sales can be used to manage earnings and Dechow corrected this by deducting the variation in sales

(ΔREC) from those of revenues. This led to the adjusted model below that will be used in this research to estimate total accruals below.

$$TA_{it} = \beta_0 + \beta_1 \left(\frac{1}{Assets_{it-1}}\right) + \beta_2(\Delta REV - \Delta REC)_{it} + \beta_{3_{it}} PPE + \varepsilon_{it} \quad \text{(Equation 2)}$$

Where *TA* is the total accruals, ΔREV and ΔREC is change in the revenues and receivables in year *t* minus the revenues and receivables in year *t*-1 respectively. *PPE* is the gross property plant and equipment. *Assets* are the total assets. The error term, ε is the residuals from the regression model. These residuals represent the *DAC* for firm *i* at year *t*. The absolute value of DAC is the variable of interest, regressed against individual partner characteristics to determine any association.

5. Hypothesis development

While selecting the audit partner and firm, the identity of the audit partner is important as the partners' involvement is a key component of the company's accounting quality. Audit partners must lead activities, liaise and agree with the client on the final figures to be reported in the financial statements (Behn et al. 1997). Managers and audit committees, therefore, look for certain attributes as they choose the lead audit partner to be tasked with planning, execution and, determination the type of final report issued (Chin and Chi 2009; (Fiolleau et al. 2013; Zimmerman 2018). As mentioned in the introduction, differences in personal characteristics influence how individuals (auditors) process information and make decisions and ultimately affect audit outcomes. If the market recognizes these differences and can link these attributes to the information provided to the market by auditors, then information brought about by audit partner name disclosure would be informative to the market.

The following section discusses hypothesis development for each of the personal characteristics: gender, education, experience, specialization, busyness and social connections.

5.1. Gender

Behavioural studies acknowledge that there are differences in decision making between men and women. Under pressure, men are more likely to engage in risky behaviour or take gambles, as opposed to women. Even to a higher extent, when they are under pressure and with

a highly rewarding outcome ahead, men tend to make utilitarian decisions. Women on the other hand, if put under same conditions as men, tend to be more risk-averse and take time weighing out contingencies before deciding (Byrnes et al. 1999; Bos et al. 2009; Martha et al. 2012; Carter et al. 2017). Borkowski and Ugras (1992) also show evidence that men are more utilitarian than women from a moral point of view. Taken into an auditing context, researchers try to examine if these differences in decision making between genders affect the audit process and consequently the audit outcomes.

In general, women are more likely to adhere to rules than men (Meyers 1986; Palvia et al. 2015), are perceived to be more efficient in performing complex tasks (Li 2017), have a lower risk preference (Eckel 2002) and are more likely to detect audit errors (Chin 2008). This infers that female audit partners are viewed to have positive implications for a firm's monitoring and performance. Thus, they may attract a higher fee premium for their perceived quality services (Burke et al. 2018). Whether the audit clients in the US market can identify these features and are willing to pay the premium is worth investigating. Internationally, previous researches show that female partners and audit fee premium as a reflection of their greater ability, knowledge or clients' satisfaction relative to male partners (Ittonen and Peni 2012; Ittonen et al. 2013; Hardies et al. 2015). However, in the UK, Cameran et al. (2016), find that female audit partners charge lower fees while similar patterns are not observable in China (Cahan and Sun 2015).

The difference in demand and supply of female auditors could also lead to variation in audit fees premiums. The accounting and auditing profession continue to be male dominated even within Big 4 firms (Zimmerman et al. 2018). In recent years, the US has seen an increase in calls for gender equality. Scarcity and higher demand for female partners can therefore shift the audit fee equilibrium enabling them to command a higher premium. Since women are assumed to be more conservative and risk-averse, disclosure of their names on PCOAB databases could result in more conservatism. (Burke et al. 2018; Ittonen et al. 2013). Cameran et al. (2016) for the UK market shows evidence that female auditors are associated with lower accruals, after adoption to similar APD in the UK. Finally, it is plausible that female partners need to prove higher competency and higher earnings quality to overcome gender discrimination (Ittonen et al. 2013; Kumar 2010). They therefore portray higher expectations for their responsibility and therefore spend additional time on their tasks according to Fondas

and Sassalos (2000). These gendered differences could materialize in variation in audit outcomes hence the following hypothesis.

$$H_{1a}: There\ is\ no\ association\ between\ audit\ fees\ and\ audit\ partners'\ gender$$
$$H_{1b}: There\ is\ no\ association\ between\ earnings\ quality\ and\ audit\ partners'\ gender \quad (1)$$

5.2. Experience

Experience refers to work-related knowledge gained over time (Che et al. 2017). Experience gained through professional audit work increases the auditor's ability to quickly detect fraud, misstatements and deliver better audit quality (Libby et al. 1990; Tubbs 1992; Hammersley et al. 2006). Judgement and decision-making research shows that experience is necessary to complete complex tasks (Abdolmohammadi et al. 1987). Although experience does not directly translate to expertise, it provides an opportunity to acquire knowledge and a combination of both can influence auditor performance (Libby and Luft 1993). Over time, there is a learning effect in the field of audit (DeAngelo 1981) and some studies provide indirect evidence for the existence of learning effects in the audit industry (Chi et al. 2013). Since investors and audit clients require high quality and transparency to be conveyed in the final audits, they are likely to choose more experienced partners. Experience, proxied by the number of years of professional work, is a "high quality" signal and auditors with higher experience are likely to command a fee premium.

In relation to audit quality, studies examining auditor experience are mainly conducted in non-US markets. Such studies show that experience is positively associated with audit quality as measured by discretionary accruals, audit failures and modified opinions(Cahan and Sun 2015; Ye et al. 2014; Chin and Chi 2011). Chen et al (2017) argue that auditors who have international experience accumulated while working abroad have a better understanding of international auditing practices and hence provide higher quality audits. They also find that international experience is associated with lower discretionary accruals and less aggressive audit reporting. Although experience is accumulated throughout the work period, most formative experiences and professional scepticism are gained at the start of ones' career and the existing economic conditions (Lennox and Wu 2017). He et al. (2016), audit partners within the Chinese market are more likely to require audit adjustments if they entered the auditing profession during an economic downturn. In conclusion, these findings are limited to non-US

markets regarded as having less regulatory and oversight authority may not be generalizable to the US market, leading to the following hypothesis.

$$H_{2a}: \textit{There is no association between audit fees and audit partners' experience}$$
$$H_{2b}: \textit{There is no association between earnings quality and audit partners' experience} \quad (2)$$

5.3. Industry Specialization

Specialization in a certain field can be acquired via direct experience such as with specific industry clients, or via specialized indirect experience such as training (Lennox and Wu 2017). Thus, it is unlikely for specialization to be homogenous across auditors and across different levels within the audit firms (Chow et al,.2006; Li 2017). Archival studies conducted in non-US markets suggest that partner-level expertise is associable with high-quality audits (Chi and Chin 2011). Bell et al. (2015) find an association between partner industry specialization and higher audit quality. Contrarily, Aobdia et al. (2016), using proprietary data from the US – Big 4 companies, find no association of audit partner's expertise and accruals or other proxies for audit quality. Industry specialists supply higher quality audits (Lee Nagy and Zimmerman 2018) and thereby build a certain reputation. Jeopardizing this reputation could lead to litigation and reputational risk. Partners may raise their risk premium, audit hours, or both to mitigate such risks (Hribar et al 2013). Audit partners who are industry specialists could also choose to avoid risk-prone clients as Hsieh and Lin (2016) show in the case of the Taiwanese market. Industry specialization is, therefore, a high-quality signal to the market which rewards it with a fee premium (Zerni et al 2012; Goodwin and Wu 2014).

Various studies document that managers have the incentive to manage earnings arising from their interest in explicit and implicit contracts outcomes. Several studies show that industry-specialized auditors can better detect errors in their areas of specialization than non-specialists leading to variations in audit quality (Owhoso et al 2002). High-quality auditors, therefore, restrict manager's opportunistic behaviour in managing earnings in order to protect their reputation (Becker et al 1998; Balsam et al 2003). Differences in audit quality at partner level results in variations in client earnings quality (Balsam et al 2003). Further, other studies show that for partners specialized in public companies, report lower abnormal accruals (Ittonen et al. 2010). In summary, prior research suggests that specialization drives audit outcomes and that the market interprets and rewards such high-quality characteristics with the audit fee premium. This leads to my third hypothesis.

H_{3a}: *There is no association between audit fees and audit partners' specialization*

H_{3b}: *There is no association between earnings quality and audit partners' specialization* (3)

5.4. Busyness

In this paper, busyness is measured as the number of clients in an audit partner's portfolio. Contemporaneous studies are contradicting on the effect of the busyness of the audit partner on outcomes. Having higher clientele should be associated with higher audit fees and higher income for the partner since their compensation is linked to the size or number of clients (Goodwin et al 2016). This acts as an incentive for busy partners to maintain high audit quality because of the potential risks from the loss of reputation if they are caught reporting irregularities for their clients. However, the downside of high-partner-busyness is the heavy workload that distracts the partner from fully concentrating on one project (Lennox and Wu 2017; Li 2017; Sundgren et al. 2014). This negatively impairs audit decisions resulting in declined audit quality and loss of reputation, and this will ultimately lead to a lower fee premium.

Individuals have a limited ability to process information and perform tasks simultaneously (Fujita et al 2004; Thompson et al 2006). In managerial studies, evidence shows that having many directorship roles negatively affects corporate governance, since such directors don't have enough time to ensure efficient monitoring of subordinate managers. In auditing, high audit partner busyness could put the partner under time pressure leading to suboptimal judgements and decision making. This would make them prone to overlooking details on errors in financial statement resulting lower earnings quality. Several studies such as Gul et al. (2013) and Cameran et al. (2017) for the Chinese and UK market respectively find a negative association between partner busyness and audit quality. In summary, partner busyness can influence outcomes in both ways. In one way, it can be a signal for a higher reputation leading to a fee premium and motivation for a partner to maintain higher earnings quality due to reputational cost. On the contrary, it can lead to dysfunctional auditor behaviour, resulting in low earnings quality. My hypothesis on partner busyness is as follows.

H_{4a}: *There is no association between audit fees and audit partners' busyness*

H_{4b}: *There is no association between earnings quality and audit partners' buysness* (4)

5.5. Education background

Auditors are required to possess the knowledge and skills necessary to successfully access, analyze and judge the accounting quality and performance of the company (Bonner and Walker 1994; Libby 1995). Auditors are therefore required to have a theoretical education, a certain level of experience and to pass practical exams before they can be certified. It's therefore standard that each auditor has a baseline Bachelor of Business (Christensen et al. 2017) or an advanced master's degree in related studies. The theoretical knowledge attained from the educational institutional influence individual knowledge, skills, productivity and the ability to cope with complex situations (Becker 1962; Bischoff 1977; Hambrick and Mason 1984; Franco and Zhou 2009; Che et al. 2017).

Education level is thus an important characteristic to audit clients, investors and other users of financial statements as a signal for high information quality (PCAOB 2015b). However, research on the impact of education on audit outcomes is still inconclusive. Che et al. (2017) find that auditor with a master's degree put more effort in auditing as compared to bachelor's degree holders. Gul et al. (2013) find that Chinese auditors with a master's degree are less likely to issue modified audit opinions relative to other auditors. Other studies suggest that auditors with higher education are less likely to fail (Li et al (2017) and have better judgmental abilities (Chu et al (2017). In contrast, studies focusing on the US market have not found material differences in auditor decisions across education backgrounds. Burke *et al.* (2017) argue that the reason for such findings in the US is as a result of homogenous education level in the US (Christensen *et al* 2017).

In summary, society ranking of educational institutions and the qualification acquired from them is associated with a perceived a higher level of actual ability to perform tasks (Badoloto, Donelson, and Ege 2014; D'Aveni 1990; Finkelstein 1992). As a result of the homogeneity of education level in the US, variation in audit outcomes based on partners graduating university may not be observable. This leads the following hypothesis.

$$H_{5a}: There\ is\ no\ association\ between\ audit\ fees\ and\ \ audit\ partners'\ education$$
$$H_{5b}: There\ is\ no\ association\ between\ earnings\ quality\ and\ audit\ partners'\ education \quad (5)$$

5.6. Social connections

There has been an increase use social media platform for official business communications over the last decade. Through social network platforms, individuals can link with their peers, competitors or customers at other firms and easily share information (Karlan et al 2009). This helps individuals stay up to date with current affairs, identify new opportunities and share knowledge which could eventually influence their job performance (Burke et al 2018). For example, Causholli *et al* (2017) find a positive association between auditor's performance and existing social ties. A higher number of social connections also acts as a signal for a good reputation or good social skills within a partner's professional network. Such connection, therefore, reduces information asymmetry which can increase the efficiency of the audit process and lower audit fees (Burke et al 2018).

Extended social connections could also enhance reputational risks, and the engagement audit partner could incorporate a risk premium to mitigate their exposure (Burke *et al* 2018). Social connections with clients can also lead to unwarranted trust, loss of objectivity and loss professional scepticism (Zimmerman *et al* 2018). This could result in a lack of critical judgement due to the friendship bond leading to lower audit quality (Kadous, Leiby, and Peecher 2013; King 2002; Rose 2007). In summary, social connections can have a positive or negative effect on audit outcomes leading to the following hypothesis.

$$H_{5a}: There\ is\ no\ association\ between\ audit\ fees\ and\ \ audit\ partners'\ social\ connections$$
$$H_{5b}: There\ is\ no\ association\ between\ earnings\ quality\ and\ audit\ partners'\ social\ connections \quad (6)$$

6. Research Methodology

6.1. Data and sample selection.

The main goal is to test the above-mentioned hypotheses using a random sample of auditors selected from the PCAOB AuditorSearch database. Since financial data, audit fees and auditor characteristics data are contained in separate databases, I first merge all the databases together before selecting the sample. This ensures that the selected sample contains most of the variables required to test all the hypotheses. Thus, the data collection consists of merged information from AuditorSearch, Audit Analytics, Compustat (from WRDS) and additional information collected for a professional social media platform; LinkedIn.

I begin by collecting data based on the Form AP from AuditorSearch which is available only from 2016 onwards. This database contains 32,106 firm-year observations. I exclude non-US firms, duplicates or observations missing CIK and Fyear. CIK and financial year (fyear) are the key identification variables. The final list consisting of 18,849 firm-year observations. Using fyear and CIK and identifying variables, I then merge it with accounting, business segment and audit fee data from Compustat and Audit Analytics. The final data set consist of 4516 unique firm observations. From this, I randomly select a sample consisting of 600 audit partner names from 74 audit firms across the US. The sample selection is done randomly via the STATA command overcome selection bias.

For each partner, using their full name provided on the PCOAB AP Forms, I manually search on LinkedIn for their background information. LinkedIn has over the recent years grown to become of the world's largest professional network and users provide a short professional biography on their profile which is accessible to the public. From LinkedIn I can locate for the information regarding gender, (based on profile pictures), prior experience, educational background (regarding the university attended) and the level of education attained (bachelor's or master's level). Annex 10 appendix one shows an example of a partner profile and how the partner characteristics data is collected from it. I some cases, I use company websites to find additional information where the auditor's LinkedIn profile is incomplete. Because each of the analysis has varying data requirements, the number of observations slightly differ for each of the dependent variables. The table below shows a summary of the steps in merging the data sets.

Table 2: Derivation of a balanced sample

Sample Selection	**No. of observations**
Form AP fillings from U.S. AuditorSearch (PCAOB) (2016-2018)	32.097
Eliminate duplicate, revised filings and incomplete observations	
Less: Non-US firms	(2.628)
Less: Missing CIK	(494)
Lees: Duplicates in terms of CIK fiscal year end	(7.236)
A preliminary dataset from AuditorSearch	21.739
Merge: Compustat Merged (CCM) 2014-2018	18.887
Merge: Audit fees (audit Analytics) 2013-2018	43.335
Merge: SEGMENT data (2016-2018)	11.884
Preliminary set after merging	4.516
Less: partner name is missing Generate a Sample of 600 names using Stata Code	(4)
Keep only selected sample	(3.912)
A final sample of partner names for collecting Audit partner characteristics	600

6.2.Models and variables

6.2.1. Audit fees and partner characteristics

For analysis of audit fee association with partner characteristics, the dependent variable is the natural log of audit fees. I use the following regression model, adapted from prior research regarding audit fees (Cahan et al 2015).

$$
\begin{aligned}
AuditFee_{i,t} = {} & \beta_0 + \beta_1 Gender + \beta_2 Exp + \beta_3 Spe + \beta_4 Busyness + \beta_5 UNI + \beta_6 Social \\
& + \beta_7 SIZE + \beta_8 ROA + \beta_9 LEV + \beta_{10} LOSS + \beta_{11} REC_{INV} + \beta_{12} BIG4 \\
& + \beta_{13} DEC_{YE} + \beta_{14} SALES_G + \beta_{15} GROWTH + \beta_{16} BTM + \beta_{17} Stock_r \\
& + \beta_{18} EMPLS + \beta_{19} ACQUI + \beta_{20}\ BUS\_SEG \\
& + Industry\ and\ Year\ Fixed\ Effects + \varepsilon
\end{aligned}
\qquad \text{(M1)}
$$

The audit fee model contains dependent, control variables and research variables identifying auditor characteristics. The dependent variable of interest here is the $AuditFee$. $AuditFee$ is measured using the logarithm of the audit fees, collected from the Wharton Audit Analytics database. I use the log of audit fees to normalize its distribution. Using the names and partner information disclosed on PCAOB database, I manually collect background information for partner characteristic from LinkedIn profiles ($Gender, Exp,\ Spe,\ Busyness, UNI, and\ Social$).

Audit partner gender ($Gemder$) is an indicator variable equal to one if the audit partner is female, and zero for male. The auditor's gender is determined by reviewing the auditor names and portrait picture contained on their linked profile (Burke et al 2018, Zimmerman et al 2018). Partner experience(Exp) is defined as the number of years that have elapsed since the partner obtained their bachelor's degree. UNI is a variable indicating the ranking of the university attendant. UNI is equal to one if the audit partner attained their university degree (undergraduate or graduate) from a university ranked at top 100 based on the Times Higher Education World University Rankings 2019 (https://www.timeshighereducation.com). Further, I construct indicator variables to measure partners social network. $Social$ is equal to one if the partner has 500 connections on LinkedIn and zero otherwise. This condition is because only a maximum of 500 connection are visible on a user's profile.

Specialization (Spe) is a proxy variable for industry specialization estimated by the cumulative count of 2-digit Standard Industry Code (SIC) of auditor i for industry k in year t (Liu 2017; Chin et al 2009). According to Liu 2017, repetition of multiple tasks within a certain industry leads to specialization in that industry. Therefore, individual auditor specialization is measured using the following estimation.

$$
Spe = \sum_{J=1}^{J=t} Freq_{P_{i,j,k}}
$$

Lastly, within a certain financial year, the engagement audit partner may be involved with various audit clients. $Busyness$ is estimated as the sum of the number of engagements a partner has during a certain year. Following Goodwin et al 2016 and Liu 2017, I use the following function to estimate auditor busyness

$$Busyness = \sum_{J=1}^{J=t-1} Freq_{P_{i,j,}}$$

The remainder of the variables *SIZE ROA, LEV, LOSS, REC_INV, BIG4, DEC_YE, SALES_G, GROWTH, BTM, EMPLS, ACQUI and BUS_SEG* are audit fee determinant. These are used to proxy for the complexity and resources required to perform an audit. In this model, they are treated as control variables based on eClient's size, the business complexity level of inventory and receivables increase audit fees based on existing literature. The variables *SIZE, BUS_SEG and REV_INV* respectively control for these effects. Highly levered *(LEV)* clients are also expected to pay higher audit fees although research findings on this are mixed (Hay et al 2006, Zimmerman et al 2018). *ROA and LOSS* also impact audit fees and are included as a proxy for an increase in auditor risk. A higher return on assets (*ROA)* indicates better performance hence reduced risk and fees and the vice versa. Audit firm factors also influence audit outcomes, with larger offices earning higher audit fees and providing higher audit quality (Hribar 2013; Zimmerman et al 2018). I control for this using a dummy variable *BIG4* equal to one if the audit firm is Deloitte, Ernst &Young, KPMG, or PwC and, otherwise zero. Lastly, I include fixed year and industry effects in my regressions to control for year and industry differences.

6.2.2. Earnings quality and partner characteristics

Earnings quality is estimated by measuring the level of discretionary accruals reported the audited financial statements.I rely on *Equation 2*, for the estimation of abnormal discretionary accruals.

$$TA_{it} = \beta_0 + \beta_1 \left(\frac{1}{Assets_{it-1}}\right) + \beta_2(\Delta REV - \Delta REC)_{it} + \beta_{3\,it} PPE + \varepsilon_{it} \qquad (Equation\ 2)$$

The dependent variable of interest is the absolute value of the discretionary accruals, $AbsDAC$. The model for earnings quality and individual characteristics is as follows.

$$AbsDAC = \beta_0 + \beta_1 Gender + \beta_2 EXP + \beta_3 Spe + \beta_3 Busyness + \beta_4 UNI + \beta_5 Social + \beta_7 SIZE + \beta_8 ROA + \beta_9 LOSS + \beta_{10} LEV + \beta_{11} GROWTH + \beta_{13} CFO + \beta_{13} BIG4 + Industry\ and\ Year\ Fixed\ Effects + \varepsilon \quad \text{(M2)}$$

The test variables for the partner characteristics; *Gender*, *Exp*, *Spe*, *Busyness*, *UNI* and *Social* are collected and measured in the same manner described in the audit fee model. The other variables included are control variables. I include company size *(SIZE)* as large companies tend to record larger accruals (Dechow and Dichev 2002). Cash flow from operations *(CFO)* is included because it's been shown to be negatively correlated with accruals (Zimmerman 2017 and 2018). I include leverage *(LEV)*, return on assets *(ROA)* and loss *(LOSS)* as controls for risky firms. Companies that are highly levered, reporting low return on assets and losses tend to be in financial distress and are likely to manage accrual (Carrey and Simnett 2006, Zimmerman et al 2018). Accruals are also expected to be associated with the company's growth *(GROWTH)* according to Johnson et al. (2002). Lastly, I control for audit firm effect *(BIG4)* as larger audit companies as associated with higher audit quality (Francis and Yu 2009; Zimmerman et 2018,). Like the first model, I also include fixed firms and industry effects to control for year and industry variations.

6.2.3. Variable definition

Table 2 in the appendix shows the description of all the variables used in audit fee and earnings quality models (M1 & M2).

[Appendix 1: Variable definition]

6.3. Descriptive statistics

6.3.1. Audit fees and partner characteristics

Table 3 below shows the descriptive statistics for the audit partner factors on the audit fee model. Approximately 65% of the auditors selected from the sample work for the big 4 auditing companies; EY, PwC, Deloitte and KPMG in descending order. The other 35% work for relatively smaller audit companies. Of the 600 partners, 18% are females with 64% of them employed by big 4 audit firms. This shows that the auditing profession remains a male-

dominated profession even in the US. Overall, based on the sample, EY employs the largest number of female audit partners (4.8%) and KPMG the lowest (1.7%). The average years of experience for a partners based on the sample is 25 years.

On average, partners audit approximately 2 clients in given financial years. Of the 600 partners sampled, 27% (UNI) attended the top 100 universities in the US based on the Times Higher Education World University ranking website. Only 18 percent of the partners attained a Masters (MSc) after their bachelor education. Most of the partner studied their bachelor's or Masters in US universities with only 4% (INT)of the partners having attained their bachelor's or masters from universities outside the US. Although professional network platforms have gained popularity over the recent years, only 41% of the sample's partners have at least 500 professional network connections on linked at the time of collecting this data. The descriptive statistics show similarities and in line with prior researches that have collected data on audit partners in the US for sampling via LinkedIn. (Burke *et al* 2018).

Table 3: Partner characteristics by audit firm

Firm Name	*N*	*Gender*	*Exp*	*Avg. busyness*	*UNI*	*INT*	*MSc*	*Social*
KPMG	74	10	25	2	25	2	5	33
Deloitte	87	16	24	2	20	5	16	48
PwC	88	15	24	2	27	10	25	60
EY	139	29	24	3	34	-	23	76
Other	212	40	25	2	57	9	39	132
Total	600	18%	25	2	27%	4%	18%	41%

Table 4 below shows the sample distribution of partners within the firms and across the fiscal years 2016 to 2018. The sample is leaned to 2016 and 2017. First, because the mandatory filing of auditor names on AuditorSearch is from 2016 onwards. Data on WRDS is uploaded midway in the preceding fiscal year. The filing of the Form AP on auditor search is done within three months after conducting the audit. These differences in recoding of the data limits the number of observations randomly selected for the fiscal year 2018. Only two audit partner name observations are randomly selected for the year 2018. Tables 4 shows 43% of the partners selected were from the year 2016 and 56% for the year 2018. Of the total data, KPMG has the lowest number of selection then Deloitte and PwC in ascending order. EY contributed to the largest portion of auditor names in relation to other Big4 audit firms. Overall 65% of partners work for Big4 audit firms.

Table 4: Audit partners by the firm per fiscal year

		Fiscal Year		
Firm Name	***2016***	***2017***	***2018***	***Total***
KPMG	32	41	1	74
Deloitte	34	52	1	87
PwC	40	48	0	88
EY	59	80	0	139
Other	97	115	0	212
Total	262	336	2	600

Table 5 below shows the descriptive statistics for the dependent variable ($lnAuditFee$) and control variables. The mean log of the audit fee 13.86 million. The log of the average size of a company is 6.42 million with approximately 42% of the companies have reported the loss within the period of observation. On average 64% of the companies are audited by big4 audit firms. At least 34% of the firms had acquisitions while the average number of business segments is 7. The rest of the descriptive statistics are presented below.

Table 5: Summary statistics (Audit fee model)

	N	***Mean***	***Sd***	***Min***	***p50***	***Max***
AuditFee	600	13.8657	1.2848	10.8198	13.9015	16.9122
SIZE	600	6.4265	2.1669	1.9495	6.3865	11.4332
ROA	557	-0.0464	0.3017	-1.4007	0.0500	0.4717
LEV	598	0.5521	0.3181	0.0386	0.5278	1.7763
LOSS	600	0.4217	0.4942	0.0000	0.0000	1.0000
REC_INV	590	0.2116	0.2018	0.0000	0.1591	0.8409
BIG4	600	0.6450	0.4789	0.0000	1.0000	1.0000
DEC_YE	600	0.8433	0.3638	0.0000	1.0000	1.0000
SALES_G	531	0.1563	0.7053	-0.9425	0.0564	5.2813
BTM	582	0.4324	0.5136	-1.0975	0.3077	2.8389
GROWTH	557	0.1142	0.3970	-0.5762	0.0425	1.9850
EMPLS	594	1.8412	2.9773	0.0000	0.9997	47.9583
ACQUI	600	0.3483	0.4768	0.0000	0.0000	1.0000
BUS_SEG	600	6.5500	5.3349	1.0000	5.0000	27.0000
Observations	600					

6.3.2. Earnings quality and Partner characteristics

Table 6 provides the descriptive data for dependent ($AbsDAC$) and control variables used in earnings quality model. The number of observations in table 6 reduces to 503 after merging after calculation of abnormal accruals. The mean value discretionary accruals based on the modified Jones model (*equation2*) are 0.0782. The descriptive statistics of the other variables are those observed in table 5. The test variables used as those for partner characteristics described in table 3 and 4.

Table 6: Descriptive statistics (Earnings quality Model)

	N	***Mean***	***sd***	***Min***	***p50***	***Max***
AbsDAC	503	0.0782	0.0928	0.0018	0.0468	0.4704
SIZE	503	6.4451	2.1261	1.8283	6.4055	11.6986
ROA	503	-0.0499	0.3058	-1.3789	0.0500	0.4303
LEV	502	0.5621	0.3239	0.0524	0.5349	1.9251
LOSS	503	0.4215	0.4943	0.0000	0.0000	1.0000
BIG4	503	0.6441	0.4793	0.0000	1.0000	1.0000
BUS_SEG	503	6.8012	5.5001	1.0000	6.0000	28.0000
SALES_G	479	0.0942	0.4981	-1.0000	0.0501	3.3346
BTM	493	0.4070	0.4855	-1.5630	0.3209	1.9132
CFO	503	-0.0003	0.2618	-1.1232	0.0706	0.4600
GROWTH	503	0.1186	0.4156	-0.5844	0.0412	2.0335
Observations	***503***					

6.3.3. Correlations analysis

Table 7 and 8 below present a Person correlation matrix between the coefficients of the main variables in models M1 and M2. The Pearson correlation matrix only measures correlation between paired variables, unlike multiple regressions analysis which compares partial correlation by allowing the effects of other variables. A significant correlation on the Pearson matrix does not necessarily mean a significant result after multiple regression analysis. Therefore, the inferences that can be drawn from the observation of table 7 and 8 are very limited. However, the correlation matrix serves as diagnostic evidence and serves to warn for possible multicollinearity (Pong et al 1994). The only observed high correlation is between size and audit fees (0.86***). However, this is expected as large clients pay high audit fees, but any further interpretations cannot be made based on these results. In overall, the results presented in table 7 and 8 do not signal a problem for multicollinearity and therefore no further analysis is needed.

Table 7: Correlation matrix (Audit fee Model)

	AuditFee	*Gender*	*Exp*	*Spe*	*Busyness*	*UNI*	*Social*	*SIZE*	*ROA*	*LEV*	*LOSS*	*REC_INV*	*BIG4*	*DEC_YE*
lnAuditFee	1.00													
GenderM1F0	0.06	1.00												
Exp	0.03	-0.14**	1.00											
Spe	-0.15**	0.08	-0.10*	1.00										
Busyness	-0.27***	-0.05	0.02	0.14**	1.00									
UNI	0.04	0.01	0.07	-0.07	-0.02	1.00								
Social	0.02	-0.03	-0.01	0.03	-0.01	0.01	1.00							
SIZE	0.86***	0.01	0.06	-0.27***	-0.24***	0.04	0.01	1.00						
ROA	0.38***	0.01	0.06	-0.42***	-0.19***	-0.04	-0.02	0.50***	1.00					
LEV	0.20***	-0.04	-0.04	-0.13**	-0.06	-0.01	0.02	0.15**	-0.06	1.00				
LOSS	-0.33***	-0.04	-0.05	0.24***	0.14**	0.00	0.01	-0.46***	-0.62***	0.05	1.00			
REC_INV	0.02	-0.09	0.04	-0.32***	-0.11*	0.03	-0.04	-0.01	0.19***	0.01	-0.13*	1.00		
BIG4	0.50***	-0.01	-0.07	-0.01	-0.16**	0.07	-0.00	0.41***	0.15**	0.08	-0.11*	-0.05	1.00	
DEC_YE	-0.01	-0.02	-0.10*	0.10	0.12*	-0.02	-0.01	-0.04	-0.06	-0.00	0.12*	-0.06	0.02	1.00
SALES_G	0.08	0.02	-0.04	-0.00	-0.05	0.00	0.05	0.08	0.09	0.06	-0.05	0.01	0.02	0.03
GROWTH	0.10*	0.07	-0.08	0.13**	0.02	0.04	0.04	0.12*	-0.03	-0.06	-0.10	-0.08	0.03	0.06
BTM	-0.11*	-0.05	0.11*	-0.12*	0.06	0.03	-0.05	0.01	0.06	-0.45***	0.04	0.12*	-0.07	-0.01
EMPLS	0.63***	0.00	0.15**	-0.24***	-0.17***	0.00	-0.02	0.67***	0.34***	0.20***	-0.35***	0.06	0.18***	-0.13**
ACQUI	0.43***	0.03	-0.01	-0.12*	-0.14**	0.03	0.02	0.41***	0.29***	-0.00	-0.28***	0.05	0.13**	-0.07
BUS_SEG	0.35***	0.07	0.07	-0.20***	-0.11*	0.03	0.01	0.32***	0.22***	-0.01	-0.11*	0.16**	0.08	-0.05

	SALES_G	*GROWTH*	*BTM*	*EMPLS*	*ACQUI*	*BUS_SEG*
SALES_G	1.00					
GROWTH	0.24***	1.00				
BTM	-0.07	-0.10*	1.00			
EMPLS	0.02	0.06	-0.13*	1.00		
ACQUI	0.03	0.20***	-0.09	0.37***	1.00	
BUS_SEG	-0.07	-0.01	-0.00	0.33***	0.20***	1.00

* p<0.05** p<0.01*** p<0.001

Table 8: Correlation matrix (Earnings quality model)

	Abs_DAC	*Gender*	*Exp*	*Spe*	*Busyness*	*UNI*	*Social*	*SIZE*	*ROA*	*LEV*	*LOSS*	*REC_INV*	*BIG4*
Abs_DAC	1.00												
Gender	-0.06	1.00											
Exp	-0.01	-0.14**	1.00										
Spe	0.29***	0.08	-0.10*	1.00									
Busyness	0.26***	-0.05	0.02	0.14**	1.00								
UNI	0.01	0.01	0.06	-0.07	-0.01	1.00							
Social	0.05	-0.03	-0.01	0.03	-0.02	-0.00	1.00						
SIZE	-0.41***	0.01	0.05	-0.27***	-0.24***	0.04	0.01	1.00					
ROA	-0.42***	0.01	0.05	-0.42***	-0.19***	-0.04	-0.02	0.50***	1.00				
LEV	0.18***	-0.04	-0.04	-0.12*	-0.06	-0.02	0.02	0.16**	-0.06	1.00			
LOSS	0.30***	-0.04	-0.05	0.25***	0.14**	-0.00	0.01	-0.46***	-0.62***	0.05	1.00		
REC_INV	-0.07	-0.08	0.04	-0.31***	-0.11*	0.03	-0.04	-0.01	0.19***	0.02	-0.12*	1.00	
BIG4	-0.18***	-0.01	-0.08	-0.01	-0.15**	0.07	-0.01	0.42***	0.16**	0.08	-0.12*	-0.05	1.00
DEC_YE	0.08	-0.03	-0.10*	0.09	0.12*	-0.02	-0.01	-0.04	-0.06	-0.01	0.12*	-0.07	0.02
SALES_G	0.12*	0.02	-0.04	-0.00	-0.06	-0.00	0.05	0.08	0.09	0.07	-0.05	0.01	0.02
GROWTH	0.16**	0.07	-0.08	0.13**	0.01	0.04	0.04	0.12*	-0.03	-0.05	-0.09	-0.08	0.03
BTM	-0.14**	-0.06	0.12*	-0.12*	0.05	0.02	-0.04	-0.01	0.06	-0.45***	0.04	0.10*	-0.08
CFO	-0.28***	-0.00	0.05	-0.36***	-0.18***	-0.05	-0.00	0.44***	0.90***	-0.04	-0.50***	0.10*	0.14**
ACQUI	-0.23***	0.04	-0.02	-0.12*	-0.14**	0.03	0.02	0.41***	0.29***	0.00	-0.28***	0.06	0.13**
BUS_SEG	-0.15**	0.07	0.06	-0.20***	-0.11*	0.03	0.00	0.32***	0.21***	0.00	-0.11*	0.17***	0.08

	DEC_YE	*SALES_G*	*GROWTH*	*BTM*	*CFO*	*ACQUI*	*BUS_SEG*
Abs_DAC							
DEC_YE	1.00						
SALES_G	0.03	1.00					
GROWTH	0.06	0.24***	1.00				
BTM	-0.01	-0.06	-0.10*	1.00			
CFO	-0.04	0.21***	0.05	0.01	1.00		
ACQUI	-0.07	0.03	0.20***	-0.10*	0.24***	1.00	
BUS_SEG	-0.06	-0.07	-0.01	-0.02	0.17***	0.20***	1.00
	p<0.05	**	p<0.01	***	p<0.001"		

7. Regressions results

7.1. Partner characteristics and Audit fee

My first model investigates the association between audit fees and 6 audit partner characteristics. Table 9 below shows the test results for the regression model. Columns 1 of table 9 represents the regression for audit fees against all partner characteristics and control variables. Columns 2 to 7 represent the regression against gender, experience, specialization, busyness, university ranking and social connections respectively. From the result, the adjusted R^2 shows that the full model, containing all partner characteristic and control variables explains 80.6% of the variations in the dependent variable; audit fees. The coefficients for gender (0.13) and specialization (0.084) are positive and significant at 10 and 1 percent levels respectively ($p<0.1$ and $p<0.01$). This suggests that female partners and partners specialized in certain industries command a higher fee premium. These findings are accordance with recent research (Burke *et al* 2018; Zimmerman et at 2018), and echo findings from international context discussed in the hypothesis development (Ittonen and Peni, 2012; Ittonen, Vahamaa, and Vahamaa, 2013; Hardies, Breesch, and Branson, 2015).

However, positive significant findings for audit fees and female partners ought to be carefully interpreted. As discussed in the hypothesis development, the are several potential explanations for the positive association with audit fees. For example, gendered differences in risk tolerance, demand and supply factors or market perception of the audit quality provided by female auditors. Another explanation could be that female auditors have high expectations for their responsibility and therefore spend additional time and effort for their tasks. All these are a possible theoretical explanation to the female partner fee premium (Ittonen et al 2010).

Industry specialization is significant at 1% level ($p<0.0l$) which means that specializing in a specific industry attracts higher audit fee premium. Further, I observe a negative association between partner busyness and audit fees significant at the 10 percent level ($p<0.1$) as shown in table 7 column 5. This could imply that busy partners put less effort (Sundgren and Svanstrom 2014; Burke et al 2018) or that they audit relatively smaller clients who pay lower audit fees. However, I must point out that when combined with other partner characteristics, although the coefficient remains negative, the significance is lost and the R^2 in column 5 reduces from 0.811 to 0.806 in column 1. This indicates that some of the non-significant partner factors reduce the explanatory power of the model. All the above findings

point to the hypothesized theory that the market considers “high-quality” partner characteristic and rewards their services with premiums.

Lastly, In accordance with hypotheses (H_{5a} & H_{6a}), I find no significant association for these traits with fees. The coefficients for experience (Exp), educational background (UNI) and Social connections ($Social$) are not significant at all levels. The control variables *SIZE, LEV, LOSS, REC_INV, BIG4, ACQUI and BUS_SEG* are positively significant in all the columns. This confirms that audit firm and client factor drive audit costs. From the reaults, large, highly levered and loss-making clients pay significantly higher audit fees. Receivables, inventories, acquisitions, and business segments show the level of effort required to conduct the audit is positively associated with fees. BIG4 positive and significant which shows that large audit firms charge relatively higher audit fees. The associations are as per expectation in relation to other studies on audit fee determinants. Table 9 below shows these findings.

Table 9: Audit fees and audit partner characteristics

$$\textit{AuditFee}=\beta_0+\beta_1\,\textit{Gender}+\beta_2\,\textit{Exp}+\beta_3\,\textit{Spe}+\beta_4\,\textit{Busyness}+\beta_5\,\textit{UNI}+\beta_6\,\textit{Social}+\beta_7\,SIZE+\beta_8\,ROA+\beta_9\,LEV+\beta_{10}\,LOSS+\beta_{11}\,REC\_INV+\beta_{12}\,BIG4+\beta_{13}\,DEC\_YE+\beta_{14}\,SALES\_G+\beta_{15}\,GROWTH+\beta_{16}\,BTM+\beta_{17}\,EMPLS+\beta_{18}\,ACQUI + Firm/Industry\ fixed\ effects +\varepsilon$$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender	0.132*	0.130*					
	(1.82)	(1.94)					
Exp	-0.001		-0.002				
	(-0.16)		(-0.50)				
Spe	0.084***			0.083***			
	(3.56)			(3.65)			
Busyness	-0.024				-0.031*		
	(-1.20)				(-1.68)		
UNI	0.012					0.030	
	(0.20)					(0.49)	
Social	-0.033						0.002
	(-0.55)						(0.03)
SIZE	0.467***	0.465***	0.478***	0.462***	0.464***	0.467***	0.467***
	(16.87)	(18.06)	(17.11)	(18.14)	(17.97)	(18.10)	(18.10)
ROA	-0.124	-0.121	-0.137	-0.116	-0.126	-0.118	-0.121
	(-0.75)	(-0.83)	(-0.81)	(-0.80)	(-0.86)	(-0.80)	(-0.83)
LEV	0.311***	0.332***	0.302***	0.328***	0.333***	0.330***	0.331***
	(2.72)	(3.18)	(2.60)	(3.18)	(3.17)	(3.14)	(3.15)
LOSS	0.182**	0.189**	0.198**	0.171**	0.190**	0.189**	0.189**
	(2.30)	(2.54)	(2.45)	(2.32)	(2.55)	(2.53)	(2.52)
REC_INV	0.535**	0.466**	0.567**	0.464**	0.428**	0.464**	0.463**
	(2.39)	(2.34)	(2.51)	(2.36)	(2.14)	(2.32)	(2.31)
BIG4	0.339***	0.334***	0.326***	0.344***	0.318***	0.328***	0.329***
	(4.90)	(5.13)	(4.68)	(5.34)	(4.86)	(5.01)	(5.02)
DEC_YE	0.282***	0.278***	0.269***	0.276***	0.289***	0.276***	0.276***
	(3.36)	(3.58)	(3.17)	(3.61)	(3.71)	(3.55)	(3.55)
SALES_G	0.054	0.067	0.066	0.057	0.065	0.065	0.064
	(0.87)	(1.22)	(1.04)	(1.06)	(1.19)	(1.18)	(1.16)
GROWTH	-0.064	-0.063	-0.062	-0.056	-0.054	-0.057	-0.056
	(-0.83)	(-0.88)	(-0.79)	(-0.80)	(-0.76)	(-0.79)	(-0.78)
BTM	-0.079	-0.080	-0.085	-0.084	-0.080	-0.086	-0.084
	(-1.10)	(-1.17)	(-1.16)	(-1.24)	(-1.17)	(-1.25)	(-1.23)
EMPLS	0.016	0.023	0.014	0.021	0.020	0.021	0.020
	(0.71)	(1.08)	(0.60)	(1.03)	(0.97)	(0.98)	(0.96)
ACQUI	0.197***	0.138**	0.168**	0.157**	0.137**	0.133**	0.135**
	(2.77)	(2.11)	(2.34)	(2.42)	(2.10)	(2.03)	(2.05)
BUS_SEG	0.024***	0.026***	0.025***	0.027***	0.026***	0.027***	0.027***
	(3.60)	(4.24)	(3.66)	(4.41)	(4.24)	(4.32)	(4.31)
Constant	1.760	9.553***	9.483***	9.682***	9.593***	9.534***	9.530***
	(0.74)	(16.47)	(11.29)	(16.82)	(16.49)	(16.36)	(16.26)
Obs.	411	457	411	457	457	457	457
Adj R^2	0.806	0.811	0.799	0.815	0.811	0.809	0.809
Ind & Yr FE	YES	YES	YES	YES	YES	YES	YES

*, ** and *** indicate the significance level at P<0.1, P<0.05 and P<0.01

7.2. Partner characteristics and Earnings quality

The second regression analysis investigates the effect of auditor characteristics on earnings quality. I do this by regression partner characteristics against absolute discretionary accruals ($AbsDAC$). Negative or positive accruals influence the quality of earnings reported in the financial statements, therefore any association with the absolute values is an indication on earnings management. My hypotheses for partner characteristics (H_{1b} to H_{5b}) is that there is no variation in earnings quality with audit partner characteristics. The results of the model are presented in table 10 below. Column 1 includes all the partner characteristics into the model while in columns 2 to 7, each of the characteristics is regressed separately against the $AbsDAC$. The R^2 for the model is on average 37 percent. Although the model is not significant, the test for overall significance, F-test, is highly significant ($p<0.01$). This is an indication that my sample data provides enough evidence to conclude that the regression model fits the data better than the model without the independent variables.

In column 1, the coefficient for gender (0.017) is negative and significant at the 10 percent level. ($p<0.1$). When regressed independently, the coefficient for $Gender$ remains negative and significant at the 5 percent level ($p<0.05$) as shown in column 2, while controlling for fixed industry and firm effects. This observation suggests that female audit partners are likely to report lower levels of absolute accruals (1.7%) than men. This could be an indication that women are more risk-averse, perform their duties more diligently and are a produce higher earnings (audit) quality. This finding is of importance since the existing literature on the effect of gender on earnings quality in the US is contradicting. Zimmerman *et al* (2018) find a negative association of audit partner gender and absolute accruals. Burke *et al* (2018) on the other hand does not find a significant association between accruals and partner gender . This is despite both research papers using similar databases. Burke gives an argument for the insignificant findings on examining audit quality over a short period of time; the first year of partner disclosure, and that the PCAOB disclosure requirement shifted audit quality at the firm level and not at the partner level. Therefore, my findings provide a superior evidence as my data covers longer period.

The coefficient for partner experience (Exp) is positive and insignificant in column 1. When Exp is regressed separately from other partner traits, the results in column 3 show a significant positive association with absolute accruals ($p<0.1$ and coefficient 0.001). These results indicate that experienced partners are associated with a higher level of absolute accruals (lower earnings quality). A possible explanation for this could be due to overconfidence.

Experienced partners who become accustomed to repetitive tasks may become over-confident and pay less attention while compiling audit reports resulting in lower audit quality. The coefficient for specialization (Spe) indicates a negative association of specialization with reported accruals. However, it is not significant hence no inferences can be made on its association with earnings quality.

The coefficient for partner busyness (0.010), is positive and significant at 1 percent level ($p<0.01$). This indicates that busy partners report higher levels of absolute accruals and are associated with lower earnings quality. This observation seems to coincide well with the findings for busyness on the audit fee models. On the audit fee model, Busyness is negatively associated with fees suggesting busy audit partners audit relatively smaller clients who pay lower fees. Existing research shows that smaller firms pay lower audit fees and are more likely to manage earnings as well. From this, conclude that that busy partners audit smaller firms, receive lower premiums, and are likely to produce lower earnings quality.

The coefficients for the other variables, university (UNI) and social connection ($Social$) are insignificant. I therefore do not observe any association between university ranking, social connections and earnings quality based on this sample. Finally, the control variables remain consistent with the existing literature. As results show, larger and profitable firms have lower discretional accruals while highly levered firms with higher fluctuations in assets are associated with higher levels of discretionary accruals. All the results are presented in Table 10.

7.3. Additional analysis

My main measure for earnings quality considers discretionary accruals estimated using an adjusted Jones' model. In this section, I consider an alternative measure using abnormal working capital accruals ($AbsWAC$), following a model like that used by Zimmerman et al (2018). The results of this regression are presented in table 11. Although the coefficients for partner characteristics obtained have the same signs as the main findings presented on the paper, they fail to show any significant association $AbsWAC$. A possible explanation of the insignificant results could like in the estimation of $AbsWAC$.. Calculation of earnings quality based on abnormal working capital accruals requires at least 5 years of data for a good estimation. The data on the PCOAB database does not go that farm which causes the number of observation in my model drop by half. The rest of the results for this test are presented in table 11.

Table 10: Audit fees and audit partner characteristics

$$AbsDAC=\beta_0+\beta_1 Gender+\beta_2 EXP+\beta_3 Spe+\beta_3 Busyness+\beta_4 UNI+\beta_5 Social+\beta_6 AUF+\beta_7 SIZE+\beta_8 ROA+\beta_9 LOSS+\beta_{10} LEV+\beta_{11} GROWTH+\beta_{12} CFO+\beta_{13} BIG4+ Firm/Industry\ fixed\ effects + \varepsilon$$

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender	-0.017*	-0.019**					
	(-1.67)	(-2.04)					
Exp	0.001		0.001*				
	(1.33)		(1.78)				
Spe	-0.001			-0.001			
	(-0.25)			(-0.38)			
Busyness	0.010***				0.009***		
	(3.55)				(3.64)		
UNI	0.007					0.007	
	(0.82)					(0.78)	
Social	0.001						-0.001
	(0.17)						(-0.18)
SIZE	-0.015***	-0.014***	-0.016***	-0.014***	-0.013***	-0.014***	-0.014***
	(-4.76)	(-4.89)	(-5.19)	(-4.88)	(-4.66)	(-4.90)	(-4.91)
ROA	-0.214***	-0.220***	-0.213***	-0.221***	-0.228***	-0.220***	-0.222***
	(-4.86)	(-5.34)	(-4.75)	(-5.32)	(-5.59)	(-5.32)	(-5.34)
LEV	0.085***	0.084***	0.087***	0.085***	0.085***	0.085***	0.085***
	(5.47)	(5.88)	(5.52)	(5.87)	(5.98)	(5.86)	(5.87)
LOSS	-0.004	-0.009	-0.003	-0.009	-0.009	-0.009	-0.009
	(-0.34)	(-0.84)	(-0.28)	(-0.81)	(-0.92)	(-0.83)	(-0.84)
REC_INV	0.017	-0.001	0.003	-0.001	0.010	-0.000	-0.001
	(0.58)	(-0.05)	(0.09)	(-0.04)	(0.38)	(-0.01)	(-0.05)
BIG4	-0.003	-0.010	-0.005	-0.010	-0.006	-0.010	-0.010
	(-0.31)	(-1.14)	(-0.49)	(-1.09)	(-0.69)	(-1.10)	(-1.08)
DEC_YE	0.008	-0.002	0.013	-0.001	-0.005	-0.001	-0.001
	(0.71)	(-0.14)	(1.08)	(-0.12)	(-0.45)	(-0.13)	(-0.13)
SALES_G	0.011	0.010	0.010	0.011	0.010	0.011	0.010
	(1.26)	(1.32)	(1.09)	(1.37)	(1.29)	(1.38)	(1.35)
GROWTH	0.040***	0.045***	0.040***	0.044***	0.043***	0.044***	0.044***
	(3.72)	(4.50)	(3.73)	(4.38)	(4.38)	(4.37)	(4.38)
BTM	-0.001	0.004	0.000	0.005	0.004	0.005	0.005
	(-0.14)	(0.48)	(0.04)	(0.55)	(0.48)	(0.51)	(0.54)
CFO	0.199***	0.181***	0.196***	0.182***	0.192***	0.182***	0.183***
	(4.46)	(4.35)	(4.33)	(4.33)	(4.64)	(4.35)	(4.35)
ACQUI	-0.009	-0.010	-0.008	-0.009	-0.010	-0.009	-0.009
	(-0.95)	(-1.06)	(-0.81)	(-1.03)	(-1.07)	(-1.03)	(-1.00)
BUS_SEG	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(1.50)	(1.29)	(1.27)	(1.19)	(1.44)	(1.21)	(1.20)
Constant	0.042	0.107	0.068	0.258	0.095	0.114	0.114
	(0.50)	(0.98)	(0.81)	(0.79)	(0.87)	(1.04)	(1.03)
Obs.	415	462	415	462	462	462	462
Adj. R^2	0.373	0.373	0.351	0.366	0.386	0.367	0.366
Ind & Yr FE	YES	YES	YES	YES	YES	YES	YES

*, ** and *** indicate the significance level at P<0.1, P<0.05 and P<0.01

8. Conclusion

The aim of this study is to investigate whether audit partner characteristics cause variations in audit outcomes in the US market. I use a database consisting of 600 partner names disclosed in the PCCAOB database to investigate this association. Although the association of partner characteristics and audit outcomes is extensively documented in other countries, literature for the US is scant and relatively new owing to the unavailability of data prior to 2016. The PCAOB proposed APD regulation with the argument that it would promote partner accountability and information environment. Contrarily, audit firms argued that partners in the US were already subjected to heavy regulations and additional APD would not be beneficial (Burke et al 2018). The findings for this paper support PCAOB's motivation in enhancing information environment. They are also consistent with findings from other countries where APD has been recently adopted, such as in the UK (Carcello and Li 2013).

The findings of this research show that individual partner traits influence audit outcomes. First, I find a positive association between audit fees, female partners and industry specialist. I also find that partner busyness is negatively associated with audit fees. Female partners and industry specialist may devote more hours or due to their demand, are able to command higher fee premiums than their counterparts. Audit partners that have a higher number of clients in their portfolio are associated lower audit fees. This could be a sign that they do not put enough effort into the client's report, or they audit relatively smaller clients that pay lower fees. Overall, these observations suggest disclosure of audit partner name is informative to the market. By examining the various data points, the market can interpret partners' high-quality signals, rewarding them with fee premiums and vice versa. Secondly, my empirical results show that partner gender, experience and busyness influence earnings(audit) quality. Females partners are associated with lower levels of absolute discretionary accruals while more experienced and busy partners are associated with higher levels of absolute accruals. Female audit partners report higher earnings quality. Busy partners have divided attention as result pay less attention to their client's reports, or they audit smaller clients that are associated with earnings management.

Overall my findings support PCAOB's motivation to adopt audit partner disclosure to improve the information environment and enhance accountability. It extends the research literature in this field demonstrates that findings from international markets can be generalized

to the US context. The findings on both earnings quality and audit fees prove that with new regulations, public scrutiny and increased reputational risks, individual partner characteristics influence audit outcomes. A takeaway from this paper based on these findings, is that auditing firms should promote specialization within their employees and ensure partners have a relatively lower number of clients in their portfolios to ensure high-quality service to their clients. In addition, stakeholders care about high-quality signals. Disclosing names and other auditors' characteristics reduces information costs, and help clients select efficient and appropriate audit services.

The findings are subject to some limitations. First, the concept of individual auditor characteristics examined here is abstract and difficult to measure, therefore I can only make inferences based on the proxies used, which may not be the exact measure of a specific characteristic. Secondly, these partner characteristics are subject to other external factors such as the business environment and economic status that could also influence individual judgments and thus audit outcomes.

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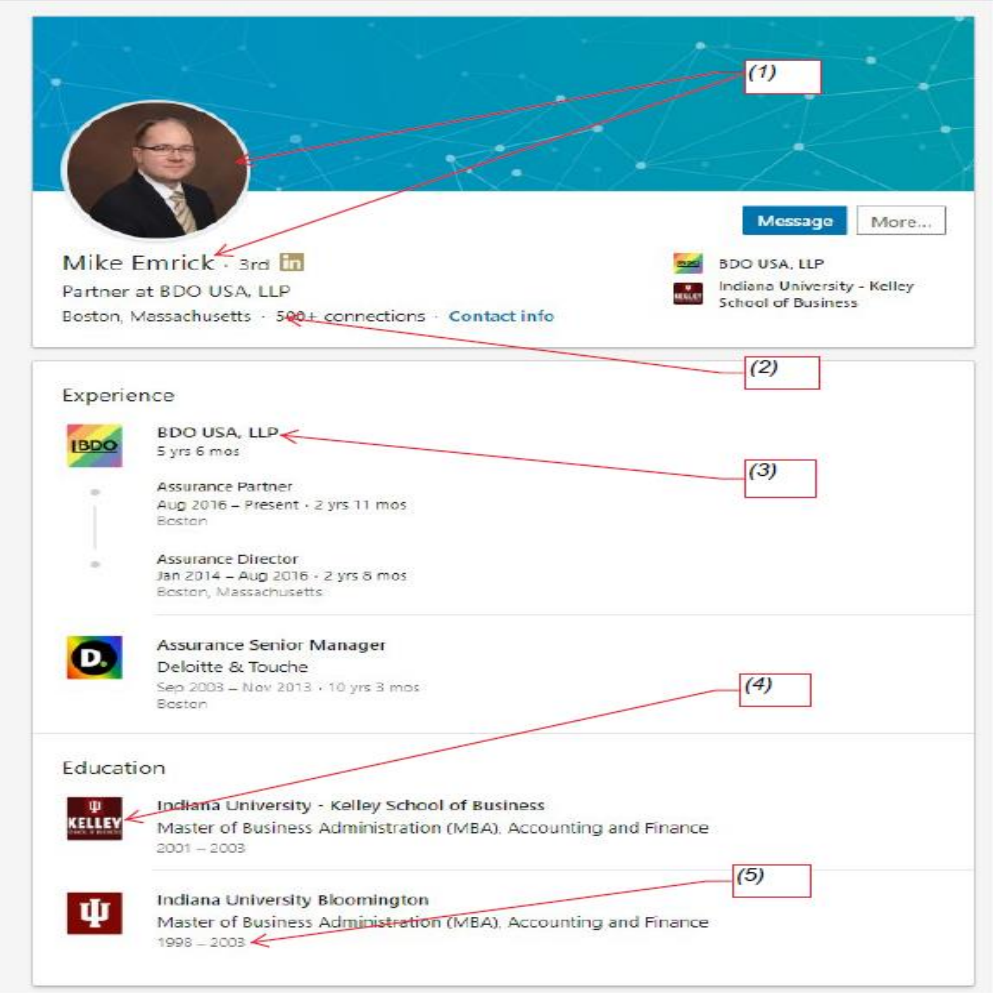
10. Appendix

1. Variable definition

Test Variable	*Variable definition (M1 and M2)*
$Gender$	1 if the partner is female, 0 if male.
Exp	number of years since the partner's baccalaureate degree
Spe	Industry Specialization, measured by the cumulative number of signature of auditor i in industry k before year t
MSc	education level, 0 if achieved bachelor and 1 if master's level
$Busyness$	auditor busyness measure by the number of tasks for auditor i in year t
UNI	Is equal to 1 if the partner attended university consider ranked as top 100 based on US ranking of the university according to Times Higher Education World University rankings https://www.timeshighereducation.com
$Social$	If a partner as 500 connections on LinkedIn, and otherwise zero
Dependent variables	
$AuditFee$	Is the natural log of audit fees in millions
$AbsDAC$	is the absolute value of the discretionary accruals estimated using *equation 2*
Control variables	
$SIZE$	is the natural log of total assets in millions.
ROA	return on assets calculated as earnings before interest and tax divided by lagged assets (Compustat)
LEV	total liabilities divided by total assets [at-ceq/at] (Compustat)
$LOSS$	equals one if the company's reported net income is below zero (Compustat);
REC_{INV}	the sum of inventory and accounts receivable divided by total assets
$BIG4$	m1 if for a Big 4 auditor firm in the US, and zero otherwise (PwC, KPMG, Deloitte, EY) [Audit Analytics]
DEC_{YE}	Equals to one if the company has a December fiscal year-end, else 0.
$SALES_G$	Is the change in sales divided by lagged sales
$GROWTH$	Change in assets from the prior year
BTM	Book value of equity divided by market value of equity
$EMPLS$	The square root of the number Compustat)
CFO	Cash flow from operation lagged by total assets
$ACQUI$	Equals to 1 if a firm had acquisition, otherwise zero
Ind & Yr. FE	Industry and fixed year effects

2. Partner characteristics: Audit partner profile on LinkedIn



LinkedIn Corporation © 2019

(1) – Gender of the partner is established based on the name and profile picture

(2) – No of social connection on LinkedIn (equals1, if 500 and 0 otherwise)

(3) – Cross-checking if the audit firms are matched with the data provided by the PCAOB

(4) –The last institution where the partner attained either their bachelors or masters if applicable

(5)- bachelor's graduating year is the base for calculating experience.

3. Data extracted from the PCAOB database

CIK Number	(Fiscal) Year	Engagement Partner ID	Full Name	Firm Name
1293282	2017	24311648	Mike James Emrick	BDO USA, LLP

Table 11: Additional analysis

$$AbsWAC=\beta_0+\beta_1 Gender+\beta_2 EXP+\beta_3 Spe+\beta_3 Busyness+\beta_4 UNI+\beta_5 Social+\beta_6 AUF+\beta_7 SIZE+\beta_8 ROA+\beta_9 LOSS+\beta_{10} LEV+\beta_{11} GROWTH+\beta_{12} CFO+\beta_{13} BIG4+ Firm/Industry\ fixed\ effects + \varepsilon$$

VARIABLES	(1) *AbsWAC*
Gender	-0.013
	(-0.91)
Exp	-0.000
	(-0.44)
Spe	-0.002
	(-1.41)
Busyness	0.003
	(1.53)
Social	-0.006
	(-0.50)
UNI	-0.015
	(-1.23)
SIZE	-0.003
	(-0.68)
LEV	0.013
	(0.89)
LOSS	0.036**
	(2.38)
ROA	-0.096***
	(-4.03)
GROWTH	-0.003
	(-0.29)
cfo	0.064
	(1.53)
lnAuditFee	0.002
	(0.34)
Constant	0.186*
	(1.71)
Observations	237
Adjusted R-squared	0.178
Industry and Year FE	YES

*, ** and *** indicate the significance level at P<0.1, P<0.05 and P<0.01