

Master Thesis

Impact of Engagement Partners Characteristics on Audit Quality: Evidence from the US

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MSc in Accounting, Auditing and Control

Abstract: This research investigates the effect of engagement partner characteristics on audit quality. Using an American setting where the name of engagement partner is recently disclosed, I decompose engagement partner characteristics into three dimensions, namely gender, working years, education background, and examine the relation between these characteristics and audit quality. Results show that the number of years the partner has been working in auditing is negatively related to absolute discretionary accruals, hence implying that more experienced engagement partners are more aggressive and provide audits of lower quality. While the effect of engagement partner's gender and education background are little. I further explore the impact of engagement partner characteristics on audit quality by examining the association of engagement partner characteristics with the extent of income-increasing and income-decreasing earnings management respectively. I find that engagement partners with accounting degree are more easily agree with income-increasing earnings management while engagement partners with CPA qualification show more tolerance on income-decreasing earnings management. In general, my findings suggest engagement partner characteristics do affect audit quality and ascertain the usefulness of the recent mandatory disclosure of engagement partner name.

Keywords: Engagement partner; audit quality; engagement partner characteristics

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Date: October 2018

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1. Introduction

This study examines the relation between audit partner characteristics and audit quality. More specifically, this research focuses on individual partner characteristics instead of audit firm-level factors, and whether and how it affects audit quality. This research is motivated by the recent mandatory rule requiring American audit firms to disclose engagement partner name (PCAOB,2015). Given that, this study will add evidence of the effect of engagement partner characteristics on audit quality to existing literature. This research answers the following research question.

“Do audit partners characteristics affect audit quality?”

Recent years have witnessed a series of accounting and auditing scandals, such as Enron and the collapse of Arthur Anderson. This phenomenon draws investors, regulators, and academics attention to audit quality. A large majority of researchers conduct auditing studies on audit firm or office level, their findings suggest that bigger audit firms as well as offices provide audits of higher quality (e.g. DeAngelo, 1981; Francis & Yu, 2009). Limited auditing studies are conducted on individual auditor level. However, because most audit firms are set up by partnerships, the individual characteristics of audit partners may also play a significant role in audit outcomes.

Recently, regulators and academics are increasingly interested in the association between personal characteristics of auditor and audit quality. Many prior studies demonstrate that top managers characteristics influence corporate practices and decision-making (Bertrand and Schoar, 2003; Bamber et al., 2010; Ge et al., 2011). Since audits is managed by engagement partners, it is possible that engagement partners characteristics affect audit outcomes. According to Lennox and Wu (2018), the presumption of audit firm-level researches, which assumes partners offer a consistent level of quality throughout audit firms, has been challenged by recent studies conducted at partners level. Defond & Francis (2004) suggests that partners’ own incentives and characteristics are more important determinants of audit quality rather than the characteristics of audit firms, because audit activities are managed by engagement partners in a specific office. Nelson and Tan (2005) also note that audit partners individual characteristics

and attributes such as skills and personality influence audit outcomes. Besides, Gul et al. (2013) find that the effect of individual engagement partner on audit quality can be partly explained by their personal characteristics including education background, experience, etc. On the other hand, regulators also focus on the effect of individual engagement partner on audit quality. In 2015, Public Company Accounting Oversight Board (PCAOB) adopt a new rule requiring the disclosure of engagement partner name (PCAOB, 2015). PCAOB argue that the disclosure of engagement partner identity could improve audit quality by increasing engagement partner's accountability and the transparency of audits, and this disclosure could help investors to identify the quality of an audit (PCAOB, 2009). Although the above policy and literatures suggest that engagement partner characteristics do affect audit quality, Jeppesen (2007) argue that control mechanisms, such as standardization of work procedure and centralized strategic decision-making, are commonly used in audit firms to restrict audit and partners to maintain relatively consistent audit quality. Those control mechanisms may mitigate the influence of partners characteristics on audit quality. Therefore, the research question proposed in this thesis remains interesting and worth examining due to these contradictory arguments of prior literatures.

As I mentioned above, PCAOB adopted a new rule requiring audit firms to disclose engagement partner name since 2017 (PCAOB, 2015). But before this decision, regulators and audit professionals had a long debate on whether the identity of engagement partner should be disclosed. Professionals argue that the disclosure of engagement partner identity could make auditors face higher reputational risk (Carcello & Santore, 2015), while PCAOB argues this disclosure could improve audit quality by increasing the transparency of audits and help investors to identify audit quality (PCAOB, 2009). Hence, the answer of this research question may be useful for regulators and investors.

To answer this research question, I conduct my research based on data from the US. The sample of this research is composed of S&P 500 firms and their engagement partners and covers fiscal year 2016 and 2017. Personal characteristics data of engagement partners are manually collected from LinkedIn. In this research, engagement partner characteristics consist of three dimensions, that is gender, education background, and numbers of years the partner has been

working in auditing (which is related to age and experience). Following prior studies (e.g. Gul et al., 2013; Ittonen et al., 2013), I use discretionary accruals to measure audit quality. In order to further explore the effect of engagement partner characteristics on audit quality, I also examine the association of engagement partner characteristics with positive and absolute negative discretionary accruals respectively. I expect to observe significant associations between engagement partner characteristics variables and audit quality.

The empirical findings of this research suggest that engagement partner characteristics do affect audit quality. More specifically, the time an engagement partner worked in auditing significantly associated with audit quality, more experienced engagement partners are more aggressive and provide audits of lower quality. Moreover, the findings of this research also show that engagement partners with accounting education background appear to be more aggressive since they show more tolerance on income-increasing earnings management. While engagement partners with CPA qualification are easier to agree with income-decreasing earnings management.

This research contributes to existing auditing literature by increasing the understanding of the role engagement partners personal characteristics play in judging audit quality. Better understanding the relation between engagement partner characteristics could help investors better judge the quality of audits. Furthermore, most prior auditing studies conducted on engagement partner level are based on data from developing countries or relatively small economies, while this research contributes to the current literature by adding empirical evidence from the US, which has been regarded as the most developed and dynamic market in the world. Additionally, this research also contributes to the debate of mandatory disclosure of engagement partner identity, and implicates that this disclosure is beneficial since engagement partners characteristics do influence audit quality.

The remainder of this research is structured as follows. Section 2 discusses the institutional background of the disclosure of engagement partner, and reviews the relevant literature. Section 3 introduces the theory that in relation to the effect of engagement partner characteristics, and develops hypotheses. Section 4 describes my research design, data, and sample selection.

Section 5 reports empirical results and analysis. Section 6 contains the conclusion and limitations of this research, and suggestions for future research.

2. Theoretical Background and Literature Review

2.1 Theoretical and institutional background

Bounded rationality theory argues that cognitive limitations affect individuals decision making (Simon, 1962). Based on bounded rationality theory, Hambrick and Mason (1984) consider organization outcomes as the reflection of top managers' cognitive and values bases. They therefore put forward upper echelons theory that it is impossible for managers to fully understand all aspects of the internal and external environment due to the complexity of them, managers make strategic choices based on their own personal interpretations, which are formed by their experience, professional and education background, age and etc. Top managers characteristics hence affect their strategic decision making and firms' operation and performance. Correspondingly, regarding audit firms, since an audit is managed by an engagement partner, it is possible that engagement partners characteristics are determinants of audit quality. On the other hand, DeAngelo (1981) suggest that audit quality is the probability that an auditor detect the breach of the accounting standards in financial statements and report it. Prior researches document that one's professional skills, risk tolerance and decision-making are related to their characteristics such as gender, education background and age (e.g. Levin et al., 1988; Kubeck et al., 1996; Bertrand & Schoar, 2003). Thus, it is possible that engagement partner characteristics influence their ability of detecting accounting breach and their judgment of reporting it, and hence affect audit quality.

In recent years, there has been a growing body of literature on audit partner. In 2009, PCAOB introduced a new regulation requiring the disclosure of audit partner (PCAOB, 2009). This motivated an increase of research of audit partner (Lennox & Wu, 2017). Before this, most auditing researches had been conducted on audit firm and then audit office level.

DeAngelo (1981) finds that firm size does affect audit quality, large firms generally provide higher audit quality, contradicting regulators' argument that audit quality is irrelevant to audit firm size. Francis and Wilson (1988) also find that large audit firms tend to provide

audits of high quality. They suggest that since large audit firms have established good reputation over the years, they tend to provide higher-quality audits in order to maintain their reputation. Prior studies, which were conducted at audit firm level, provide similar findings that audit quality is positively associated with audit firm size (e.g. Teoh & Wong, 1993; Craswell, 1995; Francis et al., 1999).

Auditing literature has gradually shifted from audit firm level to audit office level. Reynolds and Francis (2000) argue that the difference between audit firm and audit office is significant, because the audit office is more economically dependent on a specific client than the audit firm. A single client has little impact to a Big N firm, but may account for a large part of a practice office revenue (Francis et al., 1999). Recent studies such as Francis and Yu (2009) find that larger audit offices provide audits of higher quality.

Recently, auditing literature of audit partners has increased significantly. It may be motivated by PCAOB's consideration of disclosing the identity of engagement partner (PCAOB, 2009). PCAOB argue that the disclosure of engagement partner identity could promote audit quality by increasing the accountability of engagement partners and the transparency of audits, and this disclosure could help investors to identify the quality of an audit (PCAOB, 2009). DeFond and Francis (2005) indicate that auditor incentives are more important at partner level as audits is managed by engagement partners; individual partners' independence and competence may differ from each other. Nelson and Tan (2005) also argue that audit partners individual characteristics and attributes such as skills and personality influence audit outcomes. Many recent studies based on evidence from different countries find that audit quality is affected by auditor or partner's personal characteristics, such as gender, age, education, expertise, etc. (Li et al, 2017; Goodwin and Wu, 2016; Gul et al, 2013; Chin & Chi, 2009).

So far, most of the existing auditing research on audit partner level was conducted based on data from developing countries such as China, because partners information remains undisclosed in many developed jurisdictions such as the US. PCAOB has considered disclosing engagement partners since 2009, and revised the method of this disclosure several times over years (Burke & Hoitash, 2017). They first required engagement partners to sign their name on

audit reports (PCAOB, 2009). After their debate with audit professionals, On Jan 31 2017, the PCAOB and the SEC required audit firms to disclose the name of engagement partners since then (PCAOB 2015; SEC 2016; Cunningham et al. 2017). It may boost a boom of auditing research on audit partner based on evidence from the US.

2.2 Literature review

In this chapter, I introduce prior auditing studies about engagement partner characteristics, and its relation to audit quality. I first review the literature about the effect of engagement partner characteristics, and then divide characteristics into gender, age, and education in followed subsections.

2.2.1 Effect of engagement partner characteristics

Several studies reveal that individual managers characteristics affect organization performance and behavior. For instance, Bertrand and Schoar (2003) demonstrate that individual managers characteristics statistically and economically affect the behavior and performance of firms, and executives with higher-performed characteristics earn higher compensation. Additionally, Gilson and Mnookin (1985) find that the competences of law firm partners vary from each other and more competent law partners receive higher profits. Furthermore, Bamber et al. (2010) document that top manager's demographic characteristics such as age and career experience, affect corporate voluntary financial disclosure.

With respect to auditing research, Nelson and Tan (2005) conclude that auditors bring their personal characteristics such as knowledge, abilities, and personality, and cognitive constraints to audit tasks, which affects auditor's judgment. Some recent auditing literatures focus on the effect of engagement partner characteristics.

For instance, Taylor (2011) investigate the association between audit fee and engagement partner fixed effect based on data from Australia. They find that audit fee is affected by engagement partner inherent characteristics rather than audit firm characteristics. However, this evidence is biased because the author only uses the data from one year. Besides, Gul et al. (2013) document that the effect of individual engagement partner on audit quality can be partly

explained by their personal characteristics including education background, experience, etc.

2.2.2 Engagement partner's gender

Psychology and behavioral studies acknowledge a significant difference between males and females. For example, females are more conservative and cautious in risk-taking than males (Levin et al., 1988; Eckel and Grossman, 2002), more sensitive and diligent in information processing (Meyers-Levy & Sternthal, 1991), and more likely to comply with rules and behave ethically (Pierce & Sweeney, 2010). These personality and psychological traits may affect engagement partners behavior in auditing process and affect audit outcomes.

With respect to auditing literature, researchers examine the impact of engagement partner's gender on audit quality. Ittonen et al. (2013) explore the association between engagement partner's gender and accruals quality based on Finnish and Swedish firms. They argue that female engagement partners are more diligent and risk-adverse than male engagement partners, and report that client firms engaged with female partners are associated with smaller discretionary accruals.

Similarly, Li et al. (2017) document that female engagement partners are related to smaller discretionary accruals in their examination on the contagion effect of audit failures. And the contagion effects of audits failures are more significant for male auditors. Besides, Hardies et al. (2015) examine the presence of female audit fee premium, and find that female engagement partners are associated with higher audit fee. They infer that this fee premium may result from the difference between male and female on professional skills, risk preference and diligence, etc.

However, a few relevant studies show contrary findings. Gold et al (2009) investigate the effect of auditor gender on auditor's judgment, their findings show that females are less accurate than male auditors.

2.2.3 Engagement partner's age

Prior studies examined the relation between age and work performance or incentives. Kubeck et al. (1996) suggest that worker's job-related training performance decreases as their

age increases. Besides, one's work incentives impair as their age increase (Holmstrom, 1999). In terms of auditing, it is possible that older engagement partners provide lower-quality audits, because they may have weaker incentives to learn updating financial reporting standards compared with younger partners.

In accordance with the aforementioned suggestion, recent auditing researches reveal the effect of engagement partner's age on audit quality. Sundgren and Svanstrom (2014) conduct a research on the association between audit quality and auditor individual characteristics including age, they report that older engagement partners show less propensity on issuing going concern opinions for succeeding bankrupt firms.

Additionally, in Goodwin and Wu's (2016) examination of relation between audit quality and audit partner busyness, they include partner's age as a control variable, and find older partners issue less going concern opinions and are associated with higher discretionary accruals. They argue that older partners are less accurate in audit work. Finally, Li et al. (2017) document a positive relation between engagement partner age and audit failures. These literatures suggest a negative relation between engagement partner age and audit quality.

2.2.4 Engagement partner's education background

Gul et al. (2013) argue that engagement partners' professional skills, knowledge, values, and risk tolerance are influenced by their education background. Prior literatures suggest that CFO with MBA degree are more aggressive than the others (Bertrand & Schoar, 2003). A few recent auditing literatures have researched the relation between engagement partner education and audit quality and show confounded findings.

Chu et al. (2017) use data from the UK to examine the association between auditor accounting education background and audit quality. According to their findings, compared with auditors having other social science degree, auditors having accounting degree associated with smaller discretionary accruals and higher audit fees. Similarly, Li et al. (2017) also document that engagement partners who majored in accounting are associated with smaller discretionary accruals. However, the study of Gul et al. (2013) shows no significant relation between engagement partners accounting background and audit quality.

With respect to engagement partner education level, relevant literatures also provide mixed results. Based on data from China, Gul et al. (2013) report that engagement partners with master or higher degree are more aggressive in audit reporting and associated with larger discretionary accruals. Nevertheless, Li et al. (2017) collected data from China as well but find no significant association between engagement partner education level and audit quality.

3. Hypothesis Development

3.1 Effect of engagement partner characteristic on audit quality

Based on bounded rationality (Simon, 1962), Hambrick and Mason (1984) put forward upper echelons theory¹ that consider organization outcomes as the reflection of top managers' cognitive and values bases. Upper echelons theory argues that top managers characteristics such as age, professional skills, education background, affect their strategic decision making and firms' operation and performance.

Prior literatures have supported this theory. For example, Bertrand and Schoar (2003) demonstrated that individual managers characteristics statistically and economically affect the behavior and performance of firms. Bamber et al. (2010) ascertain that companies' voluntary financial disclosure is affected by executives' style, which built up by executives' experience, education background and age.

Recent studies indicate that manager characteristics effect can be applied to auditing research and demonstrate that engagement partner characteristics does affect audit quality. Researchers document that engagement partner characteristics, such as gender, age, education background, are associated with audit quality (e.g. Gul et al., 2013; Goodwin and Wu, 2016; Li et al., 2017).

3.2 Effect of gender on audit quality

Traits difference between males and females has long been acknowledged in psychology and behavioral literatures (e.g. Levin, 1988; Meyers-Levy & Sternthal, 1991; Pierce & Sweeney, 2010). Audit partner level literatures also suggest that engagement partner gender does impact

¹ See section 2.1 for details.

audit quality.

Ittonen et al. (2013) argue that female and male engagement partners are different on diligence and risk tolerance, and document that female engagement partners are associated with smaller discretionary accruals. Their findings are confirmed by Hardies et al. (2015) and Li et al. (2017) that female engagement partners appear to provide higher-quality audits. Nevertheless, Gold et al (2009) report that female auditor is less accurate in judgment than male auditor.

These literatures provide empirical evidences to suggest that gender influence audit quality, but the findings are mixed. Therefore, I formulate the following hypothesis in null form since the directional prediction is unclear.

H1: Engagement partner gender does not affect audit quality, ceteris paribus.

3.3 Effect of working time and audit quality

Prior behavioral economics literature suggests that workers' performance and incentives impair over time (Kubeck et al., 1996; Holmstrom, 1999). Several researches conducted on audit partner level provide consistent empirical evidence. Goodwin and Wu (2016) document a negative relation between engagement partner age and audit quality as firms engaged with older partners are associated with larger discretionary accruals. Sundgren and Svanstrom (2014) show that older engagement partner issue less going concern opinions. Li et al. (2017) also find that older engagement partners provide lower-quality audits.

In conclusion, engagement partner age appears to negatively associated with audit quality. However, the data of American engagement partner age is unavailable. I hereby decide to investigate the relation between engagement partner working years in auditing and audit quality. Therefore, I propose the following alternative hypothesis.

H2: There is a negative relation between engagement partner working years and audit quality, ceteris paribus.

3.4 Effect of education on audit quality

According to upper echelons theory, top managers education background influences their

strategic choice (Hambrick and Mason, 1984). An audit is managed by engagement partner who play the role of top manager in the audit engagement team. Thus, it is plausible that engagement partners education background affect audit outcomes.

Recent literatures on audit partner suggest that engagement partner's major in university affects audit quality. Chu et al. (2016) and Li et al. (2017) report that engagement partners with an accounting degree are associated with smaller discretionary accruals. Taking these empirical evidences into account, I expect engagement partners with accounting degree provide higher quality audits. Hence, I specify the following hypothesis.

H3: Engagement partner with accounting degree are associated with higher audit quality, ceteris paribus.

In the case of engagement partner's education level, two studies provide relevant evidence. Gul et al. (2013) document that clients of engagement partners with a master degree have larger discretionary accruals. While Li et al. (2017) find no significant relation between engagement partner education level and audit quality. Taken these evidences together, I expect engagement partners with master degree or above to associate with lower audit quality. I propose the following hypothesis.

H4: Engagement partners with master and above degree are associated with lower audit quality, ceteris paribus.

Additionally, I intend to investigate whether engagement partners with CPA qualification provide audits of higher quality. One needs to pass exams to acquire CPA qualification, which is equivalent to a comprehensive accounting education. Although CPA holders have long been recognized as more professional and competent in audit work, little literature explores the relation between engagement partners CPA qualification and audit quality, which makes me unable to predict whether it will promote or harm audit quality. Therefore, I formulate the following hypothesis in the null form.

H5: There is no relation between engagement partners CPA qualification and audit quality, ceteris paribus.

4. Research Design

The predictive validity framework (Libby boxes) can be found in the Appendix I. Following the research of Ittonen et al.(2013), I examine the associations between engagement partner characteristics and audit quality by running cross-sectional regressions on the sample of S&P 500 firms and its engagement partners.

4.1 Audit quality

Prior literatures developed many proxies to measure audit quality, such as abnormal accruals (e.g. Chi and Chin, 2011; Gul et al., 2013; Li et al., 2017), going concern opinions (e.g. Sundgren and Svanström, 2014; Hardies et al., 2015; Goodwin & Wu, 2016), audit fees (e.g. Taylor, 2011; Chu et al., 2017; Chen et al., 2017) and auditor size (e.g. DeAngelo, 1981).

In this research, I follow prior studies and I use discretionary accruals as the measure of audit quality. Discretionary accruals capture the extent of manipulation in financial reporting, and thus capture financial reporting quality. Since audit quality can be partly expressed by financial reporting quality, discretionary is an appropriate measure of audit quality (Defond & Zhang, 2014). As argued by prior literature, higher discretionary accruals indicate higher propensity of aggressive management and hence lower-quality audits and vice versa (Becker, 1998).

4.2 Econometrical model

In this research, audit quality is captured by discretionary accruals calculated by Modified Jones Model (Dechow et al., 1995). Modified Jones Model has been extensively used in many auditing studies conducted on audit partner level (Ittonen et al., 2013; Gul et al., 2013; Goodwin & Wu, 2016; Li et al., 2017).

The first step of analyzing hypothesized relation is to calculate discretionary accruals. I follow the approach of Kothari et al. (2005), which is based on Modified Jones Model (Dechow et al., 1995). The first equation of accrual-based earnings management is stated as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \lambda_1 \frac{1}{A_{i,t-1}} + \lambda_2 \frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} + \lambda_3 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

Where TA, total accruals, equals to earnings before extraordinary items minus operation cash flows for firm i in year t ; ΔREV means the change in revenues for firm i in year t from last year $t-1$; ΔREC is the change in account receivables for firm i ; PPE is the gross property, plant and equipment of firm i in year t . All the aforementioned variables are scaled by lagged value of assets.

After the calculation of discretionary accruals, in order to test my hypotheses, I examine the association between engagement partner characteristics and absolute discretionary accruals. Prior literatures suggest that auditors are more conservative on income-increasing management than income-decreasing management to avoid higher litigation risk (DeFond & Jiambalvo 1993; Caramanis & Lennox, 2008). According to the literatures I discussed in section 2, engagement partners characteristics, such as gender and education background, affect their risk preference. Therefore, I also perform additional analysis on the effect of engagement partner characteristics on both income-increasing and income-decreasing earnings management. That is, I will examine the relation between engagement characteristics and discretionary accruals using the following regression models:

$$|DA| = \alpha_0 + \alpha_1 GENER + \alpha_2 WY + \alpha_3 MAJOR + \alpha_4 MASTER + \alpha_5 CPA + \alpha_6 LEV + \alpha_7 SIZE + \alpha_8 OCF + \alpha_9 ROA + \alpha_{10} LOSS + \alpha_{11} BM + \varepsilon \quad (1)$$

$$POSITIVE DA = \beta_0 + \beta_1 GENER + \beta_2 WY + \beta_3 MAJOR + \beta_4 MASTER + \beta_5 CPA + \beta_6 LEV + \beta_7 SIZE + \beta_8 OCF + \beta_9 ROA + \beta_{10} LOSS + \beta_{11} BM + \varepsilon \quad (2)$$

$$|NEGATIVE DA| = \gamma_0 + \gamma_1 GENER + \gamma_2 WY + \gamma_3 MAJOR + \gamma_4 MASTER + \gamma_5 CPA + \gamma_6 LEV + \gamma_7 SIZE + \gamma_8 OCF + \gamma_9 ROA + \gamma_{10} LOSS + \gamma_{11} BM + \varepsilon \quad (3)$$

Where DA represents the absolute discretionary accruals calculated by modified Jones model (Dechow, 1995). In order to test my hypotheses, first, I use absolute discretionary accruals to measure audit quality. And then, I split the sample based on the sign of discretionary accruals and measure the extent of income increasing and income decreasing earnings management by positive and absolute negative discretionary accruals.

The variables of interests are expressed as dummy variables. GENDER captures an

engagement partner's gender, it equals 1 if an engagement partner is male, equal 0 otherwise. WY measures the years of an engagement partner worked in auditing, it equals 1 if an engagement partner working years is greater than the median of all engagement partners in the sample, equal 0 otherwise. MAJOR captures an engagement partner's major in university, it equals 1 if an engagement partner holds an accounting degree, equal 0 otherwise. CPA represents whether an engagement partner has CPA qualification, it equals 1 if an engagement partner is a CPA holder, equals 0 otherwise. MASTER captures engagement partners education level, it equals 1 if an engagement partner has a master or above degree, equals 0 otherwise. According to my hypotheses, in the regression with absolute discretionary accruals, I expect the sign of WY and MASTER to be positive, and the sign of MAJOR negative.

Based on relevant researches (e.g. Ittonen et al., 2013; Li et al., 2017), I include the following control variables. SIZE captures firm's size and calculated by natural logarithm of total assets. LEV is the debt asset ratio of a firm. OCF is the operation cash flows derived from cash flow statement. ROA is the return on assets and calculated by net income divided by average total assets. BM is the book-to-market ratio, calculated by the book value of equity divided by market value of equity. LOSS is a dummy variable, it equals 1 if a firm report a net loss, equal 0 otherwise. Ittonen et al. (2013) argue that leverage, ROA, operation cash flows and reporting a loss are indicators of firm's financial performance, Dechow et al.(1995) find that Modified Jones Model is less precise for firms with extreme financial performance. Thus, I include these variables to control for the effect of firm's characteristics and performance on discretionary accruals.

4.3 Sample and data

I use Standard & Poor's 500 firms and their engagement partners as a sample. Because I have to manually collect the data for independent variables (engagement partners gender, years of working in auditing, major, degree level and CPA qualification), S&P 500 firms is a suitable dataset as it contains only 500 companies. Prior empirical studies find that audit firm size is a determinant of audit quality, larger firms tend to provide audits of higher quality (e.g. DeAngelo, 1981; Francis and Wilson, 1988). In fact, 99.1% of S&P 500 companies are audited by Big 4

audit firms, which mitigate the audit firm fixed effect on audit quality. The sample period is the fiscal year 2016 to 2017, since 56.9%% of S&P 500 firms started to disclosure engagement partner name in 2016.

I start data collection with collecting annual data for calculating discretionary accruals and control variables of S&P 500 firms. This dataset is derived from Compustat Capital IQ database through WRDS. It contains 1568 firm-year observations. After this, I download the entire firm filing database from PCAOB, which include engagement partner name. This database consists of 25,923 observations. Then I merge the two datasets based on CIK (Central Index Key) number and fiscal year by using Stata. The merged dataset contains 1617 firm-year observations. I exclude financial institutions from my sample, because of their special firm characteristics. I also delete duplicates and observations with missing values for modified jones model. The variables for calculating discretionary accruals are winsorized to 1% and 99% percentiles. After these refining criteria, there are 830 firm-year observations left in the sample.

Afterwards, I manually retrieve engagement partner characteristics data, that is, gender, working years, major, CPA qualification and degree level, from LinkedIn. Then I delete the observations with omitted information, which results in the final sample with 439 firm-year observations and 321 engagement partners.

Table 1- Sample selection

Sample selection procedure	Firm-year observations
Merge Firm Filing dataset with S&P 500 firms dataset from fiscal year 2016 to 2017 derived from Compustat	1617
Firms between industry code 6000-6999	(321)
Duplicates drop	(49)
Missing values for Modified Jones Model	(417)
Missing values for control variables	(8)
Missing engagement partner name	(142)
Missing engagement partner information	(181)
Less than 3 observations in industry-year group	(60)
<i>Final sample</i>	<i>439</i>

5. Empirical Results

5.1 Descriptive statistics

Table 2 shows the descriptive statistics of all firm-years observations and all engagement partners in my sample. This sample contains 321 individual engagement partners and 439 firm-year observations. The number of individual engagement partners is different from the number of firm-year observations, because some firms in this sample have one-year observation while the other firms have two-year observations. In order to show the feature of engagement partners in my sample more clearly, I include Big 4 and Working years in this table. Big4 is a dummy variable, it equals 1 if an engagement partner works for a Big 4 audit firm, equals 0 otherwise. Working years is a continuous variable, it represents the number of years an engagement partner worked in auditing.

Panel A of Table 2 reports the descriptive statistics of characteristics variables of all engagement partners. As shown in this table, the sample contains 321 engagement partners. The mean of GENDER is 0.842, which suggests that 84.2% of engagement partners in my sample are male. The mean of MAJOR is 0.761, that is, most (76.1%) engagement partners hold an accounting degree. A minority (10.2%) of engagement partners in this sample have a master degree, since the mean of MASTER is 0.102. The mean of CPA is 0.609, which means 60.9% of engagement partners are registered as CPA. Working years vary from 10 to 41, its mean (26.45) and median (26) are very close, which indicated that it appears to distribute evenly.

Panel B of Table 2 shows the descriptive statistics for the full sample. This sample consists of 439 firm-year observations, and it displays high variation. For example, debt asset ratio (LEV) fluctuates from 0.09 to 2.19 with a mean of 0.62, ROA ranges from -0.35 to 0.35, book-to-market ratio (BM) varies from -0.61 to 4.35. The descriptive statistics for these firm characteristics indicator suggest that this sample is diverse. Furthermore, the values of mean and median of $|DA|$, the dependent variable, is very close to 0, because discretionary accruals are residuals in Modified Jones model. Besides, the mean of LOSS is 0.150, suggesting only 15% of firms report a loss. Moreover, almost all (99.1%) companies in this sample engage with Big 4 audit firms, since the mean of Big4 is 0.991.

Table 3 shows the correlation matrix, it reports the correlation coefficients of all variables in the regression model. Firstly, I observe that WY is positively and significantly correlated with absolute discretionary accruals, suggesting that client firms engaged with partners with more working years in auditing appear to associate with higher absolute discretionary accruals and thus lower audit quality. This result consists with my prediction in section 3.3. Besides, LEV and ROA are negatively correlated with absolute discretionary accruals, while LOSS is positively correlated with absolute discretionary accruals. This indicates that firms reporting a loss, or with lower debt asset ratio and return on assets, are tending to associate with a higher extent of earnings management. Additionally, GENDER and WY, MAJOR and CPA, are both positively correlated, while MASTER and CPA are negatively correlated. Furthermore, WY and GENDER are positively correlated with SIZE, which indicates that bigger firms might tend to engage with older and male partners. Finally, because the absolute values of coefficients of independent variables are relatively small (less than 0.8), the probability of multicollinearity is low.

Table 2 - Descriptive statistics

Panel A - Descriptive statistics for engagement partners						
Variables	Observations	Mean	Min	Median	Max	SD
GENDER	321	0.842	0	1	1	0.366
WY	321	0.506	0	0	1	0.501
MAJOR	321	0.761	0	1	1	0.427
CPA	321	0.609	0	1	1	0.489
MBA	321	0.102	0	0	1	0.304
Big4	321	0.991	0	1	1	0.096
Working years	321	26.45	10	26	41	6.122
Panel B - Descriptive statistics for the full sample						
Variable	Observations	Mean	Min	Median	Max	SD
DA	439	-0.0002	-0.1619	0.0000	0.1487	0.0370
GENDER	439	0.8295	0	1	1	0.3765
WY	439	0.5886	0	1	1	0.4926
MAJOR	439	0.7523	0	1	1	0.4322
CPA	439	0.5977	0	1	1	0.4909
MASTER	439	0.1114	0	0	1	0.3149
LEV	439	0.6351	0.0888	0.6238	2.1926	0.2194
SIZE	439	9.6825	6.9471	9.6900	13.0038	1.0958
OCF	439	0.1202	-0.0567	0.1065	0.3816	0.0700
ROA	439	0.0578	-0.3481	0.0589	0.3491	0.0796
LOSS	439	0.1500	0	0	1	0.3575
BM	439	0.3900	-0.6052	0.3047	4.3481	0.4221
Big4	439	0.9909	0	1	1	0.0951

Table 3 - Correlation matrix

	DA	GENDER	WY	MAJOR	CPA	MASTER	LEV	SIZE	OCF	ROA	BM	LOSS
DA	1.000											
GENDER	0.019	1.000										
WY	0.098*	0.188***	1.000									
MAJOR	0.032	-0.093	-0.029	1.000								
CPA	0.038	0.012	0.055	0.197***	1.000							
MASTER	0.006	-0.031	0.075	0.053	-0.094*	1.000						
LEV	-0.117*	-0.054	0.066	0.046	0.068	-0.015	1.000					
SIZE	0.006	0.109*	0.125**	0.058	0.090	0.007	-0.034	1.000				
OCF	-0.051	-0.021	-0.061	-0.091	0.002	-0.066	-0.077	-0.272***	1.000			
ROA	-0.096*	-0.054	-0.020	-0.029	-0.047	-0.019	-0.056	-0.158***	0.657***	1.000		
BM	0.076	-0.043	0.041	0.057	0.028	0.008	-0.289***	0.288***	-0.380***	-0.266***	1.000	
LOSS	0.188***	0.005	0.040	-0.024	0.006	0.013	-0.035	0.044	-0.325***	-0.665***	0.188***	1.000

*, **, *** significant at 0.10, 0.05, 0.01 levels, respectively.

5.2 Regression results

The first column of table 4 reports the results from estimating the regression model of absolute discretionary accruals on engagement partner characteristics variables. According to this table, the R-square for this regression model is 0.062 and the F-statistics is significant at 0.05 significance level. As I explained in section 4.1, Absolute discretionary accruals, the dependent variable, is the proxy of audit quality. Again, the coefficients of interest are GENDER, WY, MAJOR, CPA MASTER.

The coefficient of WY is positive and statistically significant (0.0057, $p < 0.05$), which consists with my expectation. This evidence suggests that client firms engaged with partners with more working years in auditing are associated with higher absolute discretionary accruals. That is, more experienced engagement partners are more aggressive and provide lower-quality audits. This evidence is consistent with prior literature that older engagement partners are associated with lower audit quality (Sundgren and Svanstrom, 2014; Goodwin and Wu, 2016; Li et al., 2017). Hence, I accept hypothesis 2 that there is a negative relation between engagement partner working years and audit quality. The coefficient of GENDER is negative, indicating that male engagement partners appear to associate with higher-quality audits. However, this evidence is insufficient due to the non-significant coefficient. Therefore, I accept hypothesis 1 that there is no significant relation between engagement partner gender and audit quality. The sign of the coefficients of MAJOR and MASTER are opposite to my prediction. The positive coefficient of MAJOR shows that engagement partners with accounting degrees are associated with lower audit quality. The negative coefficient of MASTER argues that engagement partners with master or above degrees provide higher-quality audits. Nonetheless, I deduce that engagement partner major and degree level does not significantly affect audit quality, because both coefficients are not significant. Thus, I reject hypothesis 3 and 4. The coefficient of CPA is positive, suggesting engagement partners with CPA qualification are associated with lower audit quality. But this evidence is deficient due to the non-significant coefficient of CPA. Therefore, I accept hypothesis 5 that there is no significant relation between engagement partner CPA qualification and audit quality.

The other variables in Table 4 are control variables that control for firm's characteristics. The coefficient of LEV is negative and statistically significant (-0.0158, $p < 0.05$), which shows a positive relation between debt asset ratio and audit quality. A possible interpretation is that the higher the debt asset ratio, the more the company relies on external financing, and external financing brings external supervision, which may contribute to the improvement of audit quality. The results also show a positive and significant relation between LOSS (0.0166, $p < 0.05$) and absolute discretionary accruals, suggesting that firms with negative income are associated with lower audit quality.

5.3 Positive and negative discretionary accruals analysis

So far, I have examined the relation between engagement partner characteristics and audit quality by running the regression model of absolute discretionary accruals on engagement partner characteristics. In order to further investigate the effect of engagement partner characteristics on audit quality, I split the full sample based on the sign of discretionary accruals and run the regression model 2 and 3 to examine the association of engagement partner characteristics with positive and absolute negative discretionary accruals respectively.

The second and third column of table 4 shows the results of the supplement analysis which include positive and negative discretionary accruals as dependent variables. The subsample regressed with positive discretionary accruals consists of 223 firm-year observations, while the subsample regressed with negative discretionary accruals contains 207 firm-year observations. The R-square of these two models are 0.39 and 0.31 respectively, the F-statistics of these models are both significant at 0.01 significance level.

The coefficients of GENDER are the same in model 2 and model 3, suggesting that the effect of engagement partner gender on income-increasing and income-decreasing accruals are basically the same, male engagement partners are associated with the higher extent of income-increasing and income-decreasing earnings management. However, both coefficients are not significant, indicating that engagement partner gender does not affect audit quality.

In accordance with the estimation results of model 1, the coefficients of WY are positive and significant in both model 2 and model 3. These estimation results suggest that engagement

partner working years are positively associated with both positive and absolute negative discretionary accruals. That is, compared with less experience engagement partners, partners with more working years in auditing are more aggressive and provide lower-quality audits.

The coefficient of MAJOR is positive in both model 2 and model 3, but only significant in model 2, showing engagement partners with accounting degrees are associated with higher positive discretionary accruals comparing with engagement partners without the accounting degree. This result also suggests that engagement partners with the accounting degree are more likely to agree with income-increasing earnings management instead of income-decreasing earnings management.

In terms of the effect of engagement partner education level, the coefficients of MASTER are negative but not significant in both model 2 and model 3, which is consistent with the estimation results of model 1. This result suggests that engagement partner education level has little effect on audit quality.

The coefficients of CPA are positive in model 2 and 3, but only significant in model 3, suggesting that firms engaged with engagement partners holding CPA are associated with the larger magnitude of income-decreasing earnings management. Moreover, engagement partners with CPA qualification are more likely to accept income-decreasing earnings management. However, because the coefficient of CPA in the estimation results for model 1 is non-significant, I cannot conclude a relation between engagement partner CPA qualification and audit quality.

The estimates of control variables reported in the second and third column of Table 4 show the relation of firm's performance indicator with income-increasing and -decreasing earnings management. The coefficients of OCF (operation cash flows) is positive and significant in model 2, while negative and significant in model 3. This result indicates that firms with higher operation cash flows are associated with the higher extent of income-decreasing earnings management and lower extent of income-increasing earnings management. With respect to ROA, its coefficient is positive in model 2 but negative in model 3, and they are significant at same significance level (0.01) in both model 2 and 3. These estimates suggest firms with higher return on assets ratio are larger magnitude of income-increasing earnings

management and smaller magnitude of income-decreasing earnings management. Additionally, the coefficient of LOSS in model 2 is positive and significant, which shows that firms reporting a loss are related to higher extent of income-increasing earnings management. Combined with my prior findings, this evidence may be a possible explanation of the conclusion that firms reporting a loss are associated with lower audit quality.

Table 4 - Regression results for model 1, 2, 3

Variables	DA (1)	Positive DA (2)	Negative DA (3)
Constant	0.0311** (2.40)	0.0339** (-2.03)	0.0072 (0.39)
Engagement partner characteristics variables			
GENDER	-0.0000 (-0.01)	0.0006 (-0.14)	0.0006 (0.14)
WY	0.0057** (2.17)	0.0056* (1.76)	0.0084** (2.47)
MAJOR	0.0025 (0.83)	0.0058* (1.85)	0.0014 (0.32)
CPA	0.0021 (0.76)	0.0009 (0.30)	0.0065* (1.73)
MASTER	-0.0004 (-0.10)	-0.0020 (-0.51)	-0.0000 (-0.00)
Control variables			
LEV	-0.0158** -2.51	-0.0121 (-1.29)	-0.0165 (-1.50)
SIZE	-0.0005 (-0.44)	-0.0013 (-0.94)	0.0004 (0.27)
OCF	-0.0118 (-0.27)	-0.2934*** (-5.53)	0.2012*** (2.99)
ROA	0.0197 (0.33)	0.3867*** (5.75)	-0.2400*** (-2.98)
BM	-0.0009 (-0.14)	0.0063 (1.49)	-0.0055 (-0.98)
LOSS	0.0166** (2.35)	0.0290*** (3.43)	0.0014 (0.21)
F-stat.	2.48**	5.43***	4.59***
R ²	0.062	0.3873	0.3110
Observations	439	223	207

*, **, *** significant at 0.10, 0.05, 0.01 levels, respectively

Table 5 - Robustness checks

	DA (1)	DA (2)
Constant	0.0259*** (4.56)	0.0299** (2.30)
Engagement partner characteristics variables		
GENDER	-0.0003 (-0.09)	-0.0000 (-0.00)
WY	0.0057** (2.09)	0.0056** (2.15)
MAJOR	0.0024 (0.82)	0.0025 (0.83)
CPA	0.0018 (0.67)	0.0021 (0.76)
MASTER	-0.0004 (-0.09)	-0.0004 (-0.10)
Control variables		
LEV	-0.0155*** (-2.92)	-0.0159** (-2.52)
SIZE	0.0141*** (2.87)	-0.0005 (-0.42)
OCF		-0.0128 (-0.30)
ROA		0.0199 (0.33)
BM		-0.0010 (-0.16)
LOSS		0.0170** (2.43)
F-stat	3.78**	2.53**
Year-fixed effect	No	Yes
R ²	0.0600	0.063
Observations	439	439

*, **, *** significant at 0.10, 0.05, 0.01 levels, respectively

5.4 Robustness checks

In order to examine the robustness of the empirical findings in this research, I conduct two additional tests. The results of these tests are reported in Table 5. First, for the purpose of alleviating the effect of superfluous variables, I omit several firm performance indicator

variables, that is SIZE, OCF, and ROA. Because these variables are all related to total assets, and none of the estimates of these variables in model 1 is significant. I run regression model 1 by only including LEV and LOSS as control variables, and the estimation results are statistically similar to the results of model 1 reported in the first column of Table 4. The coefficient of WY in this model remains positive and significant at 0.05 significance level, suggesting that engagement partners with more working years are associated with lower audit quality.

Furthermore, I include year-fixed effect in my regression model. My sample covers fiscal year 2016 and 2017, while the rule requiring the disclosure of engagement partner comes into force in 2017, it seems that year-fixed effect may affect my findings. The estimation results of the model including year-fixed effect are quantitatively similar to the results of regression model 1. The coefficients that were significant in the estimation of model 1 remain significant at the same significance level in this model.

6. Conclusion

Motivated by the recent mandatory disclosure of engagement partner and relevant debate (PCAOB, 2009; PCAOB, 2015), I propose the following research question: do engagement partner characteristics affect audit quality? In order to answer this question, I test several hypotheses by examining the association between engagement partner characteristics and audit quality.

According to my results, only my second hypothesis can be accepted. That is, results show a negative relation between engagement partners years of working in auditing and absolute discretionary accruals. This suggests that more experienced engagement partners are more aggressive, and the quality of audits provided by an engagement partner impairs as their working years increase. This finding consists with prior studies (Sundgren and Svanstrom, 2016; Goodwin and Wu, 2016; Li et al., 2017). In combination with prior studies (Kubeck et al., 1996; Holmstrom, 1999), a possible explanation for this is that more experienced engagement partners may have weaker incentive to work hard and learn updating financial reporting standards. I reject the other hypotheses because no relevant significant relation can be observed. Therefore, empirical results of this research suggest that engagement partner's gender and education

background do not significantly affect audit quality.

In order to further explore the effect of engagement partner characteristics on audit quality, I also perform supplement analysis on the relation of engagement partner personal characteristics with positive and absolute negative discretionary accruals. Results show that engagement partners with an accounting degree are associated with higher positive discretionary accruals. This implies that engagement partners with accounting education background appear to be more aggressive since they are more tolerant on income-increasing earnings management. Results also report that engagement partners with CPA qualification are associated with higher absolute negative discretionary accruals. That is, engagement partners with CPA qualification are easier to accept income-decreasing earnings management.

Based on the above findings, I can conclude that engagement characteristics, that is years of working in auditing, affect audit quality. However, due to deficient evidence, I cannot draw conclusions on whether other engagement characteristics, namely gender and education background, influence audit quality.

This research contributes to current auditing research conducted on individual auditor level by heightening the understanding of the relation between engagement partner characteristics and audit quality. Also, this research adds evidence form the US to relevant literature. Furthermore, in terms of the debate of the mandatory rule which requires the disclosure of engagement partner identity, this research implicates that this disclosure is beneficial, and investors could use the disclosed information to judge the quality of an audit, since empirical results suggesting engagement partner characteristics do affect audit quality.

This research has also several limitations. First, the generalization of this research is questioned, because I only use an American dataset to examine the proposed relation, and the sample is relatively small and only cover two fiscal years since most firms did not disclose engagement partner name before 2016. Second, the data of engagement partner characteristics is manually collected from LinkedIn, because it is the only available data source to obtain necessary engagement partner personal information. Third, the proxy of audit quality. I use discretionary accruals as the only proxy of audit quality, since audit quality cannot be measured

directly. Discretionary accruals capture the extent of manipulation in financial reporting, and thus captures financial reporting quality. Nonetheless, audit quality is a component of financial reporting quality, it cannot be fully reflected by financial reporting quality (DeFond and Zhang, 2014). Therefore, using the sole proxy as the measure of audit quality biases the empirical results of this research. Finally, this research is concerned with endogeneity problems. It is possible that some firm characteristics affect both audit quality and its appointment of engagement partner. For instance, firms with worse financial reporting quality may tend to engage with more experienced partners, because they expect more experienced engagement partners to be more tolerant on earnings management.

As discussed above, the sample of this research is relatively small and only covers two fiscal years, future research could expand the sample size and time period after the mandatory disclosure of engagement partner. Furthermore, prior literatures provide mixed findings on the effect of engagement partner gender and education background on audit quality (see section 2.2.2 and 2.2.4), this research does not observe significant relations of these characteristics with audit quality neither. Thus, future research can further examine the effect of engagement partner gender and education background on audit quality.

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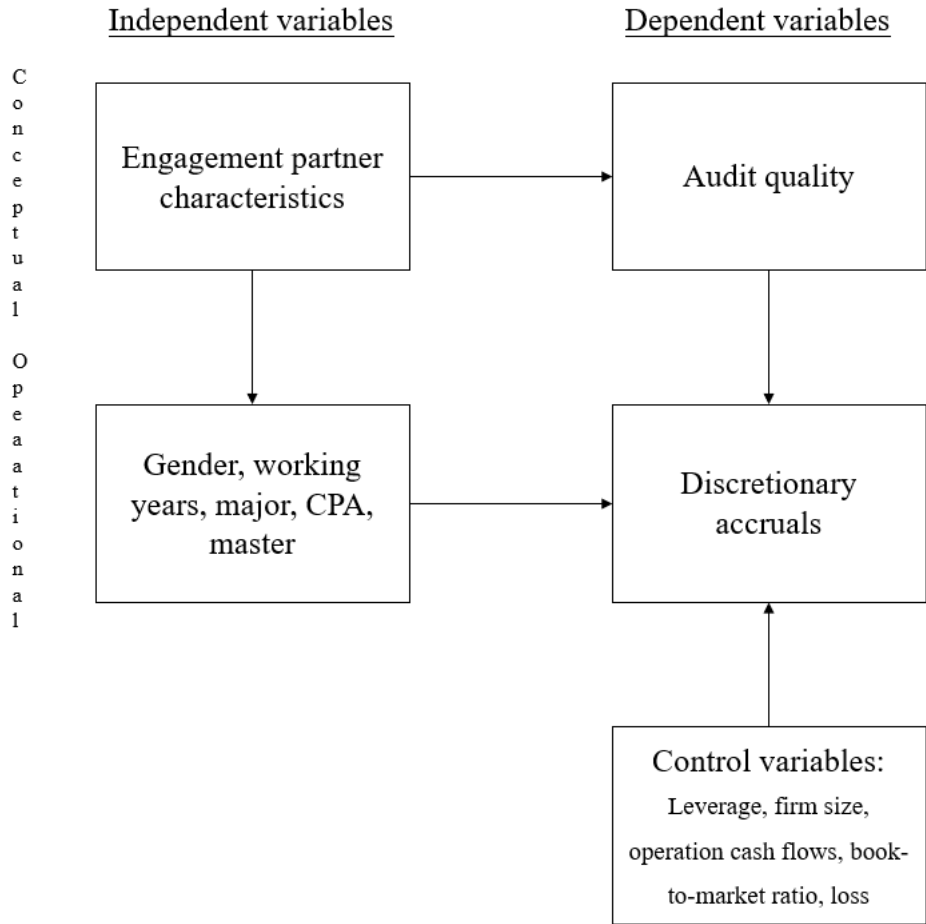
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Appendix I: Libby Boxes



Appendix II: Variable Definitions

Variables	Definitions
DA	The absolute value of discretionary accruals calculated by Modified Jones Model
POSITIVE DA	The value of positive discretionary accruals calculated by Modified Jones model
NEGATIVE DA	The absolute value of negative discretionary accruals calculated by Modified Jones Model
GENDER	The gender of an engagement partner, equals 1 if an engagement partner is male, equal 0 otherwise.
WY	The years of an engagement partner has been working in auditing, it equals 1 if an engagement partner working years is greater than the median of all engagement partners in the sample, equal 0 otherwise.
MAJOR	An engagement partner's major in college, it equals 1 if an engagement partner holds an accounting degree, equal 0 otherwise.
CPA	It represents whether an engagement partner has CPA qualification, it equals 1 if an engagement partner is a CPA holder, equals 0 otherwise.
MASTER	An engagement partner's education level, it equals 1 if an engagement partner has a master or above degree, equals 0 otherwise.
LEV	LEV is the debt asset ratio of a firm. Calculated by total debts divided by total assets
SIZE	Firm size. It is calculated by natural logarithm of total assets.
OCF	Operation cash flows. Calculated by operation cash flows derived from cash flows statement scaled by lagged total assets
ROA	Return on asset. Calculated by net income divided by average total assets.
BM	Book-to-market ratio. calculated by the book value of equity divided by market value of equity.
LOSS	Dummy variable that equals 1 if a firm report a net loss, equal 0 otherwise.