Competitive pressure, audit quality and industry specialization strategies

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Abstract

This study examines whether pressure from close competitors affects the quality level delivered by the incumbent auditor. We argue that audit firms compete by means of industry specialization and earn fee premiums by specializing into certain industries which enables them to increase their knowledge in the industry and business risks of the client. Consistent with recent evidence that the audit fee premium increases with the ability of the incumbent auditor to distinguish itself from its closest competitor (Numan and Willekens, 2011), we predict audit quality to be negatively associated with competitive pressure from the closest competitor in the industry. We test this prediction using U.S. office level data, and find that both the likelihood of issuing a going concern opinion to a financially distressed firm and accrual-based earnings quality decrease as competitive pressure from the closest competitor in the industry increases. In addition, our results suggest that an auditor's industry expertise advantage over the closest competitor rather than industry expertise *per se* is positively associated with audit quality. Overall, our results suggest that competitive pressure from the closest (i.e. most similar) competitor has a negative effect on audit quality.

JEL classification:
Key words: audit markets; audit quality; competition; industry specialization

INTRODUCTION

The purpose of this study is to examine whether competitive pressure affects the quality level delivered by the incumbent auditor. More specifically, we examine whether the likelihood of issuing a going concern opinion to a financially distressed firm and the level of earnings quality are affected by the presence of close competitors in the audit market at office level. Audit regulators around the world expressed their concern about the increased market concentration and the Big 4 dominance in the market for audit services, and potential adverse effects it may have on audit quality. Recent literature investigates the relationship between audit market concentration and audit quality (see Kallapur et al. 2010; Francis et al. 2010). However, these studies find mixed results when testing general market concentration measures to proxy for competition. This could be reflective of a lack of consensus in the industrial organization literature about the theoretical link between market concentration and product quality. Dedman and Lennox (2009) also argue that high industry concentration does not necessarily correspond with low competition intensity. Although Cournot type of competition models show that increased concentration leads to less price competition (Cabral, 2000), these models assume that prices and products are homogeneous and suppliers compete on quantity. In the market for audit services, audit fees are tailored towards the specific characteristics of the clients and there is evidence that auditors compete on price. In particular, previous audit literature has shown that audit firms compete by specializing into certain industries to create a sustainable competitive advantage relative to non-specialist auditors (Casterella et al. 2004; Numan and Willekens, 2011). Therefore, it could be that other competition measures than general market concentration *per se* affect audit quality, such as industry specialization strategies by other close competitors in the market.

Our study complements prior literature that examines the relationship between audit quality and competition, and aims at disentangling industry expertise and competition effects on audit quality. We argue that audit firms compete by means of industry specialization and earn fee premiums by specializing into certain industries (e.g. Casterella et al. 2004; Numan and Willekens 2011). We further posit that this additional fee premium enables the audit firm to exert higher effort, and therefore industry experts are able to increase their knowledge in the industry and business risks of the client. However, the client values higher quality services more the more the incumbent audit firm is able to distinguish itself from its closest competitors (Hotelling 1929; Chan et al. 2004; Numan and Willekens 2011). We use both the likelihood of issuing a going concern opinion to financially distressed firms and accrual-based earnings quality as measures of audit quality, and predict that audit quality is negatively associated with increased competitive pressure from the incumbent auditor's closest competitor based on the following arguments. First, when audit firms are more alike in terms of industry specialization the client will be less willing to pay a fee premium, and therefore, the audit firm is less able to additionally invest in higher effort. Second, the closer the incumbent audit firm is with its closest competitor in terms of industry specialization, the higher the client's willingness to switch between auditors (Hotelling 1929). As there is evidence that the issuance of a going concern opinion increases the likelihood of switching (Geiger et al. 1998), we conjecture that an audit firm that faces increased competitive pressure from its closest competitor will be less willing to issue a going concern opinion. In the same vein we predict that the incumbent audit firm will become less strict in enforcing accounting standards on clients leading to more tolerance vis-à-vis abnormal accruals, as the risk of switching increases with competitive pressure.

We test our hypotheses using U.S. data of relatively large public companies for the years 2005-2008. In line with recent literature (e.g., Francis et al. 2005; Numan and Willekens 2011), we assume that competition between audit firms takes place at the local office level. We therefore define audit markets as 2-digit SIC industry segments per U.S. Metropolitan

Statistical Area (MSA) at the local office level. Our test variable is based on the industry specialization location variable used in Numan and Willekens (2011) and captures the distance between the incumbent auditor's industry specialization level and that of its closest competitor in the market. Note that this measure is derived from prior literature on discriminatory pricing in bank lending (Degryse and Ongena, 2005).

Our results indicate that audit quality is not only affected by industry expertise, but also by competitive pressure from the incumbent auditor's closest competitor. In particular, we find that the likelihood of issuing a going concern opinion to a financially distressed firm decreases as competitive pressure from the closest competitor increases. Besides, earnings quality also decreases as the competitive pressure (measured based on market share distance) from the closest competitor increases. In addition, it appears that industry expertise *per se* is not sufficient to affect audit quality, as it is no longer significantly associated with audit quality measures when controls for competitive pressure from the closest competitor are included in the analysis. These results are consistent with the industry expertise advantage an audit firm has over its closest competitor being a main driver of audit quality, rather than industry expertise *per se*. Overall, our results suggest that pressure from close competitors has a negative effect on audit quality.

The remainder of the paper is organized as follows. First, we discuss previous literature on competition between audit firms, the relation with audit quality and formulate our hypothesis. Next, we describe our empirical design and sample selection. After that empirical results and sensitivity analyses are presented. The study concludes with a discussion of our results and limitations of the study.

PREVIOUS LITERATURE AND HYPOTHESIS

Competition

Studies that examine competition in the market for audit services, mostly examine the relation between market concentration and fees (e.g. Pearson and Trompeter 1994; Bandophandya and Kao 2004; Willekens and Achmadi 2003; Feldman 2006). However the evidence in these studies is mixed. On the one hand, Pearson and Trompeter (1994) find that industry concentration negatively affects audit fees, suggesting that higher concentration is associated with increased price competition, and also Bandyopadhyay and Kao (2004) do not find support for their prediction that audit fees are higher in more concentrated markets. On the other hand, Willekens and Achmadi (2003) find that audit fees are positively associated with the auditor's market share and Feldman (2006) finds that since the demise of Arthur Andersen, both market concentration and audit fees have increased. Pearson and Trompeter (1994) suggest that concentration measures may not be appropriate to assess competition in the audit market as they are unable to capture (potential) price competition among market leaders.

Cournot type of competition models indeed show that market concentration proxies for competition, but in these models it is assumed that markets are homogeneous in the sense that prices and type of products are similar (Cabral, 2000). Dedman and Lennox (2009) argue that there are both theoretical and empirical problems with using concentration as measure of competition. From a theoretical perspective, for example, a competitive outcome could be obtained with just one or two suppliers in the market, as the threat of entry from new rivals can even lead the monopolist to charge a competitive price (Baumol et al., 1982). From an empirical perspective, the use of concentration measures assumes that all firms in an industry face the same level of competition, which is often not the case in practice. For example, one large firm within an industry may face less competitive pressure than its smaller competitors.

Furthermore, firms tend to perceive their markets as much narrower than SIC codes, where the geographical distance between firms is also an important factor.

Recent literature that studied the relation between audit quality and competition, focus on general measures of market concentration as a measure of competition (Kallapur et al. 2010; Francis et al. 2010). However, it is unclear from a theoretical perspective how market concentration affects the quality of services that are delivered. Francis et al. (2010) conclude from the Industrial Organization literature that the effect of concentration on quality is very difficult to assess, and that theoretical and empirical evidence provide mixed results. In an international study Francis et al. (2010) examine two measures of concentration: the total Big 4 market share in a country and the national Big 4 Herfindahl index within a country. Big 4 clients in a country with a larger big 4 market share, have higher earnings quality compared to big four clients in countries with a lower big 4 market share. However, for countries where there is a greater level of market concentration within the Big 4 client group, Big 4 clients have lower earnings quality.

Kallapur et al. (2010) also examine the relation between earnings quality and audit market concentration. Kallapur et al. (2010) argue that market concentration is a good proxy for competition across different geographical markets within the same industry. However, whether this also is applicable to the audit industry is uncertain as previous literature has shown mixed evidence with respect to the relation between concentration and audit fees (i.e. Pearson and Trompeter 1994). Different from Francis et al. (2010), Kallapur et al. (2010) measure auditor concentration at the city level, in line with prior evidence that shows that audit firms are local (i.e. Ferguson et al. 2003; Francis et al. 2005), and find a positive association between audit market concentration and audit quality.

Previous auditing literature has shown that clients value audits differently and are willing to pay different fees for audits performed by different types of auditors. Shockley and

Holt (1983) show that clients differentiate between different types of audit firms, and also audit fee studies indicate that, ceteris paribus, certain clients are willing to pay a premium for audits performed by Big N audit firms (see, e.g., Hay et al. 2006) and industry specialist auditors (e.g., Craswell et al., 1995; Francis et al., 2005). These findings are consistent with the assumption that the audit market has a large number of heterogeneous clients that pay a unique audit fee based on client-specific characteristics. In addition, recent literature shows that audit firms compete by means of industry specialization and earn fee premia by specializing themselves into certain industries (i.e. Casterella et al. 2004). Quality differences between audit services only matter in industries where competitors differentiate their service levels towards a client. Clients are willing to pay fee premiums for those audit firms that offer more specialized services. In differentiated product markets it is not general market concentration per se that affects this relationship, but specialization strategies of other close competitors in the market.

Reichelt and Wang (2010) examine whether audit quality is higher for industry specialists at national and city-office levels. However, they do not take into account competitive pressure from the closest competitors in the market. They base their measure of industry expertise on previous industry specialization literature in which no distinction is made between the level of industry expertise and industry market share dominance. Therefore, they are not able to distinguish whether industry experts indeed deliver higher audit quality and how market dominance or competitive pressure would affect this relationship.

A model that examines how firms compete with each other when their products are differentiated is the Hotelling model (1929). Extensions of the Hotelling model developed spatial competition models in markets with discriminatory pricing (i.e. Hoover 1936; Lederer and Hurter 1986). Spatial competition theory suggests that firms compete on price and quantity once all the firms in the market have made product entry and space decisions (Hotelling, 1929; Shapiro, 1989). Competing firms that differentiate their products may be able to maintain prices that are higher than marginal cost in equilibrium without losing market share. Numan and Willekens (2011) examine competition between audit firms based on spatial competition theory on differentiated product oligopolies. They predict that the audit fee charged by the auditor increases in the alignment between the auditor's specialization choice and the client's preferences (i.e. industry expertise), and in the industry market share distance between the incumbent audit office and his closest competitor. That is, audit firms compete by specializing themselves into industries and by creating a sustainable competitive advantage over the non-specialists. Clients are only willing to pay a fee premium when quality is indeed higher compared to competitors in the market. When competitors are close in terms of specialization levels, competition increases and fee premiums decline. On a city level, Numan and Willekens (2011) find that audit fees not only increase in the level of industry expertise, but also in the market share distance with the closest competitor. These results indicate that industry specialist premiums reported in prior studies are partly attributable to market power through industry specialization distance. An important source of rents accruing to audit offices is market location and differentiation.

In this study, we examine the effect of competition on audit quality based on spatial competition theory and the competition measures introduced in Numan and Willekens (2011) at city level audit markets. This modelling choice is motivated by the argument that auditor expertise is tied to individual professionals' deep personal knowledge of clients, which cannot be readily disseminated by the firm to other individuals (see, e.g., Ferguson et al., 2003; Francis et al., 2005). Indeed, Francis et al. (2005) show that for the U.S. audit market, fee premiums are paid for industry specialization at the local audit firm level rather than at the national level. Dedman and Lennox (2009) also indicate that firms perceive their markets to be smaller than SIC industries, as geographical distance between firms also affects competition. Besides, using the city location of the client implicitly assumes that auditors geographically locate around clients, which is in line with spatial competition theory (Hotelling, 1929). Numan and Willekens (2011) find that competitive pressure in a spatial competition setting only has a fee impact on city level, and not on the national level.

Audit quality

DeAngelo (1981) defines audit quality as the market-assessed joint probability that a given auditor will both (1) discover a breach in the client's accounting system and (2) report the breach. Prior literature has measured audit quality in terms of earnings quality but also used the propensity to issue a qualified going-concern opinion (for an extensive overview of audit quality literature see Francis 2004).

In the early 1990s, audit firms started to promote their industry based expertise (Casterella et al. 2004) and also fee literature observed that industry market shares were not evenly distributed across accounting firms (Francis 2004). Recent literature argues that industry experts make large specific investments in building up their knowledge in a certain industry and often have a more contextual and less procedural audit approach (Reichelt and Wang 2010; Blokdijk et al. 2006). Therefore, they have better skills in measuring a client's risk of business failure and have a greater knowledge of industry accounting practices. Therefore, industry experts are better able to identify misrepresentations and irregularities. In addition, because of reputation effects, they will impose stricter standards on the judgments of their staff to protect their reputation against possible litigation in order to minimize the risk of misleading reporting (Reynolds and Francis 2000; Reichelt and Wang 2010). There is ample evidence that industry experts deliver higher audit quality. Audit fees are higher for industry specialists implying higher audit quality (e.g., Craswell et al. 1995; Francis et al. 2005), earnings are of higher quality when the auditor is an industry expert (e.g., Balsam et al. 2003; Krishnan 2003; Reichelt and Wang 2010) and in addition, the propensity to issue a qualified going concern opinion is higher (Reichelt and Wang 2010; Lim and Tan 2008; Bruynseels et al. 2011).

In line with previous literature, we argue that audit firms compete by means of industry specialization and earn fee premia by specializing themselves into certain industries, similar to theory developed in spatial competition models (e.g. Casterella et al. 2004; Numan and Willekens 2011). In his seminal work, Simunic (1980) argues that higher fees improve audit firm quality, as with an additional fee premium the audit firm is able to provide higher effort. Therefore, we argue that industry experts are able to increase their knowledge in the industry and business risks of the client by earning a fee premium. However, if competition increases, fee premia decline and this would have a negative impact on quality. In spatial competition models, the biggest pressure on pricing derives from the competitor who is the closest supplier (Hotelling 1929; Chan et al. 2004). When competitors are close in terms of specialization levels, the client is no longer willing to pay an additional premium for the delivered quality level of one audit firm as his competitor delivers a similar quality level. Therefore, the audit firm does no longer have the resources to provide high effort and thus high audit quality. Due to less investments in specific industry knowledge and the client's business, audit firms that face competitive pressure are less likely to detect misrepresentations and irregularities and have less understanding of the client's business risk. Besides, the closer both firms are in terms of industry specialization, the higher the client's willingness to switch between auditors (Hotelling 1929). This puts pressure on an audit firm to impose less strict standards on clients regarding earnings quality, as the risk of switching increases. In addition, clients are more likely to switch auditors when they receive a going concern opinion (Geiger et al. 1998), and therefore, an audit firm that faces increased competitive pressure from its closest competitor will be less likely to issue a going concern opinion. Based on the argumentation above, we test the following hypothesis:

Hypothesis:

Ceteris paribus, audit quality is decreasing in competitive pressure from the incumbent auditor's closest competitor.

RESEARCH DESIGN

Going concern analysis

First of all, we look at the likelihood of issuing a going concern opinion to a financially distressed firm as a proxy for audit quality. High quality auditors are more likely to issue a going concern opinion in times of financial distress, as they have the expertise and the independence to do so. Previous literature shows that larger auditors (Weber and Willenborg 2003), larger audit fees (Geiger and Rama 2003) and national industry expertise (Lim and Tan 2008) increase the likelihood that the auditor will issue a going concern opinion to financially distressed firms. When city industry experts indeed deliver a higher level of quality, as is suggested by previous audit literature, they are also more likely to issue a going concern opinion.

To test our hypothesis, we specify a logistic regression model that assesses the likelihood of receiving a going concern opinion that includes a number of explanatory variables that come from prior studies (Lim and Tan 2008; Li 2009). In addition we include two test variables that are designed to capture the incumbent auditor's relative location in the audit market, based on test variables used in Numan and Willekens (2011). Specifically, we run the following regression specification:

$$
\begin{aligned}
&\text{P (going concern)} = a_o + a_1\text{Competitive pressure closest competitor} + a_2\text{Industry expertise (office)} \\
&+ a_3\text{ Herfindex\_msa} + a_4\text{Size} + a_5\text{Current ratio} + a_6\text{Leverage} + a_7\text{Leverage change} + a_8\text{Roa} \\
&+ a_9\text{Cfo\_lag1} + a_{10}\text{Sales\_turn} + a_{11}\text{MTB} + a_{12}\text{ Ln\_tenure} + a_{13}\text{Big4} + a_{14}\text{Industry expertise (national)} \\
&+ \text{year\_2006} + \text{year\_2007} + \text{year\_2008} + \varepsilon.
\end{aligned} \tag{1}
$$

A definition of all variables is provided in Table 1.

Competitive pressure from the closest competitor

Our test variables are based on Numan and Willekens (2011) who examine the effect of the closest competitor in terms of industry specialization on audit fees. The specification of the measures is based on a study by Degryse and Ongena (2005), who document spatial price discrimination in bank lending based on location theory. Degryse and Ongena (2005) examine the effect on loan conditions of a bank's location relative to the closest competitor, measured as the (geographical) distance between the lender and the closest competitor.

Consistent with prior audit literature we define audit markets using 2-digit SIC industries (Francis et al. 2005). Recent literature indicates that auditors tend to specialize in certain industries and that clients are willing to pay a premium for an industry specialist (e.g., Craswell et al. 1995; Francis et al. 2005). We therefore use industry specialization as the differentiation strategy that is applied by the incumbent audit firm to maintain a competitive advantage. We assume that competition between audit offices takes place at city level, and therefore, we use local audit offices based on U.S. MSAs as our unit of analyses. This assumption is in line with Dedman and Lennox (2009), who suggest that firms perceive their markets to be smaller than SIC industries, as geographical location also impacts competition. In addition, the local office choice is in line with Hotelling (1929) theory, as working from the MSA of the client implicitly assumes that auditors geographically locate around clients. The finding in Numan and Willekens (2011) support this argument as they only find a relationship between audit fees and spatial competitive pressure on MSA level. At the office level, industry expertise is tied to individual professionals' deep personal knowledge of clients, which cannot be readily disseminated by the firm to other individuals (e.g., Ferguson et al. 2003; Francis et al. 2005).

We follow Numan and Willekens (2011) and define competitive pressure from the closest competitor as the absolute difference between the incumbent audit office's market share in the client's industry and the market share of the competitor that is closest (in terms of market share) to that of the incumbent auditor.[1] As such, this measure captures how much the closest competitor differs from the incumbent auditor in terms of industry specialization. To make the interpretation of the analysis more intuitive, we take the negative of this absolute distance, which results in the variable *Competitive pressure closest competitor*. We expect a negative relationship between *Competitive pressure closest competitor* and the likelihood of issuing a going concern opinion to a financially distressed firm.

Other competitor variables

We include industry expertise of the incumbent auditor itself as a control variable. Industry expertise is often measured in terms of the audit firm's industry market share within a particular industry. The underlying assumption is that the audit firm with the largest market share also has developed the largest knowledge base within a particular industry. However, industry market share also captures to some extent market how well an audit firm differentiated itself from its competitors. The purpose of this research is to disentangle the effect of industry expertise on audit quality from competition effects. On one hand, we do this by controlling for the presence of closely related competitors in terms of market power, while including two proxies for auditor industry specialization based on industry market share.

[1] Note that we take the *absolute* distance between the incumbent and his closest competitor, as competitive pressure can originate not only from a close competitor who has more market share, but also from one who has less market share than the incumbent auditor. In addition, an absolute measure is warranted as the effect of auditor specialization per se is already controlled for in the analysis.

However, these variables are highly related and correlated, already indicating that industry expertise and market power towards a closest competitor are related.

Therefore, we also explore an alternative measure of industry specialization that is not related to market power within an industry; that is we also define industry expertise as the revenue share an audit firm has obtained within an industry relative to his total fee revenue. An important motivation why industry specialists deliver higher quality is by knowledge building within the audit firm at national and local level in a particular industry. It may be beneficial for an audit firm to develop this industry knowledge when an audit firm generates a substantial part of his revenue in a particular industry. An auditor will have an incentive to devote most of his resources into those industries in which he generates the most revenue and therefore, audit firms may also be considered as industry specialist in those markets in which they have a high portfolio market share (Neal and Riley, 2004). Therefore, we define *Industry expertise* in terms of the relative revenue share an audit firm generates in a 2-digit SIC industry relative to the total revenue generated by an audit firm in a MSA.

In order to compare our results with prior studies, we also employ two proxies of industry expertise based on industry market share. First*,* *Industry leader* is an indicator variable equal to 1 if incumbent audit office *i* is the market leader (highest market share) in an audit market, and 0 otherwise. Second, following Reichelt and Wang (2010) *Industry specialist* is an indicator variable equal to 1 if incumbent audit office *i* has a market share larger than 50%, and 0 otherwise on office level, and a market share larger than 30%, and 0 otherwise at national level. Note that we base our measures on market share computed as the percentage of total audit fees in a 2-digit SIC industry per MSA in year *t*.

We use local audit offices (based on U.S. MSAs) rather than national audit firms as our main unit of analysis. This is motivated by the argument that auditor expertise is tied to individual professionals' deep personal knowledge of clients, and therefore cannot be readily disseminated by the firm to other individuals, which is consistent with recent audit pricing studies (see, e.g., Ferguson et al., 2003; Francis et al., 2005). Francis et al. (2005) indeed show that for the U.S. audit market fee premiums are paid for industry specialization at the local audit firm level, and not at the national level. However, as a control variable we also include industry expertise measures at the national level (*industry expertise (national)*).

Consistent with Degryse and Ongena (2005) we explicitly control for potential market power effects due to general supplier concentration by including the Herfindahl index as a control variable in the model (*Herfindex_msa*). Previous audit literature often uses concentration measures to capture competition (e.g. Pearson and Trompeter 1994; Bandyopadhya and Kao 2004; Willekens and Achmadi 2003; Feldman 2006). In addition, Kallapur et al. (2010) also directly test the impact of audit fee concentration on audit quality and find that there is a positive association between audit market concentration and accrual quality. *Competitive pressure closest competitor, Industry expertise, Industry leader, Industry specialist* and the *Herfindex_msa* are calculated using all observations for which audit fee and location data are available in Compustat Industrial Annual and Audit analytics.

Other control variables

In line with prior literature, we include control variables that capture the likelihood of issuing a going concern opinion (Lim and Tan 2008; Li 2009); client size (*Size*), extent of financial distress, client new financing and whether the audit firm is a big 4 company. Prior literature finds a negative association between client size and the issuance of a going concern opinion (McKeown et al. 1991; Mutchler et al. 1997; Lim and Tan 2008 and Li 2009), as audit firms may think larger firms have more resources to avoid bankruptcy and larger companies have more negotiation power with auditors in the opinion decision process. To capture financial distress we include *Current ratio, Leverage, Leverage change, Roa,* *Cfo_lag1, Sales_turn* and *MTB*. We expect negative associations between liquidity (*Current ratio*) and the probability of issuing a going concern as well as between *Roa, Cfo_lag1, Sales_turn*, *MTB* and *Going concern*. We expect positive associations between leverage (*Leverage, Change leverage*) and *Going concern*. In addition, we include auditor tenure (*Ln_tenure*) and expect a positive relation. We also expect that big 4 audit firms (*Big4*) are more likely to issue a going concern opinion, as larger audit firms have more quasi rents at stake if there is a questionable audit (DeAngelo 1981), although prior studies find inconsistent results (e.g. Mutchler et al. 1997; DeFond et al. 2002; Li 2009).

Earnings quality analysis

In addition to the going concern analyses, we follow previous studies and look at earnings quality as a proxy for audit quality (i.e. Francis et al. 1999; Balsam et al. 2003; Krishnan 2003; Reichelt and Wang 2010). The link between earnings quality and audit quality is based on the argument that high-quality auditors are more likely to detect questionable accounting practices and misrepresentations by managers than low quality auditors (Gul et al. 2009). In addition, when management does not address the concerns raised by the auditor regarding the quality of the earnings, a high-quality auditor is more likely to issue a qualified audit report. Prior research has indicated that industry expertise is associated with higher earnings quality (Balsam et al. 2003; Krishnan 2003; Reichelt and Wang 2010).

Earnings quality cannot be directly observed but is instead inferred by researchers form certain statistical properties and characteristics of earnings numbers (Schipper and Vincent, 2003). Following Reichelt and Wang (2010), we estimate performance-adjusted abnormal accrual based on the cross-sectional Jones [1991] model. Abnormal accruals are derived from an econometric estimation of “expected accruals” and represent the degree to which accruals have been potentially managed in order to achieve strategic earnings objectives (i.e. Jones 1991, DeFond and Jiambalvo 1994, Dechow et al. 1996; Kothari et al. 2005). We test the following model for each of the two-digit SIC industry groups[2] per year to estimate discretionary accruals, which are given by the residual term ε_{it}:

$$TA_{it} = \beta_0 (1 / A_{it-1}) + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \beta_3 ROA_{it-1} + \varepsilon_{it} . \qquad (2)$$

where:

TA_{it} = Total accruals (net income from continuing operations minus operating cash flow) for firm *i* in year *t* divided by total assets at the end of year *t-1*,

A_{it-1} = Total assets for company *i* at the end of year *t-1,*

ΔREV_{it} = Change in revenue from prior year for firm *i* and the end of year *t* divided by total assets at the end of year *t-1,*

PPE_{it} = gross property, plant and equipment for firm *i* at the end of year *t* divided by total assets and the end of year *t-1,*

ROA_{it-1} = Return on assets, measured by net income for firm *i* fot year *t-1* divided by average total assets for year *t-1*, and

ε_{it} = error term

Abnormal accruals are given by the residual term $\varepsilon_{it.}$ and represent the amount of earnings that potentially have been distorted. To test our hypothesis, we specify a regression model that includes the absolute value of abnormal accruals as a dependent variable. As independent variables, we include a number of explanatory variables that come from prior studies (Lim and Tan 2008; Reichelt and Wang 2010). In addition we include the same two test variables as discussed above, designed to capture the incumbent auditor's relative location in the audit market, based on test variables used in Numan and Willekens (2011). We

[2] There should be at least 20 firms in each industry group for each year.

discuss the key explanatory variables in more detail below. Specifically, we run the following regression specification[3]:

$$\text{Abs\_abnormal\_accruals} = \alpha_o + \alpha_1 \text{Competitive pressure closest competitor} + \alpha_2 \text{Industry expertise (office)} + \alpha_3 \text{Herfindex\_MSA} + \alpha_4 \text{Size} + \alpha_5 \text{Std\_cfo} + \alpha_6 \text{Cfo} + \alpha_7 \text{Leverage} + \alpha_8 \text{Loss} + \alpha_9 \text{MTB} + \alpha_{10} \text{Litigation} + \alpha_{11} \text{Current ratio} + \alpha_{12} \text{ROA} + \alpha_{13} \text{Sales\_turn} + \alpha_{14} \text{Total accruals lag} + \alpha_{15} \text{Ln\_tenure} + \alpha_{16} \text{Big4} + \alpha_{17} \text{Industry expertise (national)} + \varepsilon. \quad (3)$$

A definition of all variables in provided in Table 1.

The variables *Competitive pressure closest competitor, Industry expertise* and *Herfindex_msa* are already discussed above. We expect a positive relation between *Competitive pressure closest competitor* and the level of absolute abnormal accruals. Besides we expect a negative association between *Industry expertise* and the level of absolute abnormal accruals.

Other control variables

In line with previous literature we include a set of control variables that are associated with the level of absolute abnormal accruals (Lim and Tan 2008; Reichelt and Wang 2010). *Size* is included because larger firms tend to have lower absolute abnormal accruals (Dechow and Dichev 2002). We also expect abnormal accruals to be lower for firms with high operating cash flows (*Cfo*), higher leverage (*Leverage*) longer auditor tenure (*Ln_tenure*) and for firms that are audited by a Big4 firm (*Big4*). In addition, we expect absolute abnormal accruals to be higher for firms with more growth opportunities (*MTB*), higher litigation risk *(Litigation)* higher nonaccrual earnings volatility (*Std_cfo*) and higher prior year accruals (*Total_accruals_lag*). Furthermore, we expect the level of absolute abnormal accruals to be higher for firms with higher bankruptcy risk. Therefore, we include the control variables *Loss,*

[3] Firms and year subscripts are omitted for brevity. Industry indicator variables and year indicator variables are not added to equation (2) since abnormal accruals are estimated by two-digit SIC category and year.

Current ratio, ROA and Sales_turn. We expect a positive coefficient for *Loss* and negative coefficients for *Current ratio, ROA* and *Sales_turn*.

SAMPLE SELECTION

We collect financial statement data and client location data from Compustat Industrial Annual. We collect audit firm information and going concern opinions from Audit analytics. The sample selection procedure is outlined in Table 2.

For the going concern analysis, we start with 12,821 client firm-year observations for the years 2005-2008, for which all data items are available in Compustat and Audit Analytics. Like Francis et al (2005), we require a minimum of two clients per 2-digit SIC industry per MSA, to make sure the audit offices are able to compete for different clients. This reduces our sample size to 10,563 observations. In addition we also exclude 738 observations in city markets where there is only one audit supplier who is de facto a monopolist in the market. Following prior research (DeFond et al. 2002; Lim and Tan 2008; Li 2009), we restrict our analyses to financially distressed companies, where financially distressed firms are defined as firms that report either negative net income or negative operating cash flows during the current fiscal year. This leads to a sample of 4,810 firm-year observations. Finally, we truncate our data at the top and bottom 1% level, which results in 4,134 firm-year observations including 845 firms[4] that received a going concern opinion, and 2,108 unique clients.

For the earnings quality analysis we start with a sample of 10,753 client firm-year observations, for which all data items are available in Compustat and Audit analytics in the

[4] In our sample, 20.4% of the financially distressed firms receive a going concern opinion. Reichelt and Wang (2009) 29.9% of their sample receives a going concern opinion in the period 2003-2007. Li (2009) and Lim and Tan (2008) report a smaller number; about 7% of the firms in their samples receive a going concern opinion. The sample period of Li (2009) is 2001 and 2003 and the sample period of Lim and Tan is 2000-2001

years 2005-2008. In this sample we also require a minimum of two clients per 2-digit SIC industry per MSA, to make sure the audit offices are able to compete for different clients. This reduces our sample size to 8,863 observations. We also exclude 339 monopolistic markets from the sample. Finally, to control for outliers, we truncate all regression variables in model (1) at the top and bottom 1 percent levels.

Our final sample consists of 7,071 firm-year observations for the 2005-2008 period, and 2,640 unique clients.

[Insert Table 2 here]

RESULTS

Descriptive statistics

Table 3, Panel A. shows the descriptive statistics for the going concern sample. From the total sample of 4,134 observations, 845 (20.4%) received a going concern opinion. The relative number of firms that received a going concern opinion is evenly distributed across the sample years (2005 = 22.2%, 2006=18.5%, 2007=22.0%, 2008=18.9%). In the going concern sample, the average (median) industry market share distance between an audit firm and its closest competitor is 14.0% (3.4%) (*Competitive pressure closest competitor*). On average (median) an audit firm generates 31.8% (17.0%) of his total MSA fees in one 2-digit SIC industry *(Industry Expertise (office))*. On a national level, the average (median) percentage of *Industry expertise (national)* is somewhat lower (16.5% (8.9%)), indicating that at national level, audit fees earned by an audit firm are more widely dispersed across different SIC industries. On average, 25.0% of the clients are audited by an *Industry leader(office)* at office level and 13.8% of the clients are audited by an *Industry leader (national)* at the national level. The average percentage *Industry specialist (office)* at the office level is 18.3%, while at the national level *Industry specialist (national)* has an average of 11.8%.

Table 3, Panel B. presents the descriptive statistics for the regression variables of the abnormal accrual sample. The mean (median) absolute abnormal level of accruals *(abs_abn_accruals)* is 0.111 (0.079). Furthermore, the mean (median) distance between an audit firm and its closest competitor in terms of industry market share is 18.6% (7%) (*Competitive pressure closest competitor*). The average (median) percentage of fees that an audit firm generates in a 2-digit SIC industry is 24.3% (11.2%) of the fees that are generated in the total MSA by that audit firm *(Industry expertise (office))*. Like in the going concern sample, the average (median) percentage of *Industry expertise (national)* on a national level is somewhat lower (11.9% (7.4%)). In addition, on office level, 33.9% of the clients are audited by and *Industry leader (office)*, while at national level 20.2% is audited by an *Industry leader (national)*. On office level, 24.2% of the clients are audited by an *Industry specialist (office)*, on national *(Industry specialist (national))* level this percentage is 17.6%.

[Insert Table 3 here]

Regression results

Table 4, Panel A and Panel B present Pearson and Spearman correlations between our regression variables. As indicated before, market share measures of industry specialization, *Industry leader (office)* and *Industry specialist (office)* are correlated with *Competitive pressure closest competitor* as they both based on market share calculations. In the going concern (accrual) sample, the pearson correlation between *Industry leader (office)* and *Competitive pressure closest competitor* and *Industry specialist (office)* and *Competitive pressure closest competitor* is respectively -0.52 (-0.51) and -0.61 (-0.63). The correlation between *Competitive pressure closest competitor* between our alternative *Industry expertise (office)* variable is however -0.02 (-0.08) in the going concern (accrual) sample indicating that these two constructs are more independent.

[Insert Table 4 here]

Results for the going concern sample

Table 5, Panel A, B and C present the regression results for the estimation of equation 1) using the going concern sample of 4,134 observations of financially distressed firms. In Panel A, of Table 5 we use *Industry expertise (office)* as our measure of industry specialization, whereas we use *Industry leader (office)* and *Industry specialist (office)* in Panel B and Panel C, respectively. In each table, we report the results of three regressions: 1) a regression testing only for the effect of our measures of industry specialization and other control variables that affect the likelihood of issuing a going concern opinion (e.g. Li 2009; Lim and Tan 2008), 2) a regression including the Herfindahl index variable (*Herfindex_msa*) to be consistent with prior studies that use more general concentration measures as proxy for competition (Kallapur et al. 2010, Francis et al. 2010) and a control variable for industry specialization at the national level and 3) a regression testing our model as specified in equation 1), and thus testing for the effects of both industry specialization and competitive pressure from the closest competitor together. All regression models in Table 5 are significant (p-value<0.01), with Pseudo R^2s ranging between 0.5089 and 0.5105.

The results in Table 5, Panel A show that the coefficient on *Competitive pressure closest competitor* is negative (-0.506) and significant (p-value=0.0440), indicating that when a competitor puts more pressure on an incumbent audit firm in terms of closeness in market share, the lower the likelihood that the incumbent auditor will issue a going concern opinion to a financially distressed firm. In addition, *Industry expertise (office)* is positive (resp. coefficients are 0.434, 0.499 and 0.450) and significant (p-value <0.05) in all three regressions in Table 5, Panel A, indicating that an industry expert is more likely to issue a going concern opinion to a financial distressed firm. The *Herfindex_msa* variable is not significantly related to the likelihood of issuing a going concern opinion to a financially distressed firm.

The results in Table 5, Panel B and Panel C are consistent with the results in Panel A. In both panels, *Competitive pressure closest competitor* is negatively related to the likelihood of issuing a going concern opinion (coefficient Panel B = -0.479, p-value = 0.0781, coefficient in Panel C = -0.553, p-value = 0.0524). The results in Panel B indicate that without control for *Competitive pressure closest competitor, Industry leader (office)* is positively related to the likelihood of issuing a going concern opinion (resp. coefficients are 0.264 and 0.274 and p-values<0.10). However, when *Competitive pressure closest competitor* is included, the coefficient on *Industry leader (office)* becomes insignificant (coefficient=0.153, p-value=0.3802). Table 5, Panel C shows that *Industry specialist (office)* is not significantly related to the likelihood of issuing a going concern opinion. Also *Herfindex_msa* is not significant in both Table 5, Panel B and Table 5, Panel C.

The regression coefficients on the control variables are consistent with expected signs, except for *Leverage change*, which has a significant negative coefficient in all regressions (p-value<0.01).The Industry expertise variables at national level are not significant. The coefficient on the *Big 4* variable is negative and significant in most regressions (p-value<0.10), which is similar to the findings of Reichelt and Wang (2010).

Taken together, the results indicate that competitive pressure has an adverse affect on audit quality, measured in terms of the likelihood of issuing a going concern opinion to a financially distressed firm. In addition, the results indicate that *Industry expertise (office*) and

Industry leader (office) are positively associated with audit quality, but for *Industry leader* (office) this effect disappears when controlling for competitive pressure of close competitors. Also more general measures of competition, such as market concentration are not related with audit quality. The results suggest that industry specialization is used as a differentiation strategy to compete between audit firms.

[Insert Table 5 here]

Robustness checks and supplementary analyses for the going concern

As a robustness check we also winsorize our results at the 1% level. Consistent with our hypothesis, the coefficient on *competitive pressure closest competitor* is negative in all regressions specifications, but not significant (coefficient *competitive pressure closest competitor* as presented in Table 5, Panel A=-0.2530, p-value=0.2257). Next, we require a minimum of more than four (instead of more than two) observations for each city-industry audit market to ensure that our results are not driven by industry experts with only three or four clients in an audit market. Our results are consistent with our hypothesis (coefficient *competitive pressure closest competitor* as presented in Table 5, Panel A=-0.8475, p-value=0.0043).

Results for the Accrual sample

Table 6 presents the results of estimating eq. (3) with an OLS regression, with clustering per year. Again, like in the going concern sample, the different Panels in Table 6 show three different measures of industry specialization; *Industry expertise (office), Industry leader (office)* and *Industry specialist (office).* In each table, we report the results of three regressions: 1) a regression testing only for the effect of our measures of industry specialization and other control variables that affect the level of absolute abnormal accruals, consistent with previous literature, 2) a regression including the Herfindahl index variable (*Herfindex_msa*) to be consistent with prior studies that use more general concentration measures as proxy for competition (Kallapur et al. 2010, Francis et al. 2010) and a control variable for industry specialization at the national level and 3) a regression testing our model as specified in equation 3), and thus testing for the effects of both industry specialization and competitive pressure from the closest competitor together. All regression models in Table 6 are significant (P-value <0.01), with an adjusted R^2 ranging between 0.2531 and 0.2562.

The results in Table 6, Panel A show that, consistent with our hypothesis, *Competitive pressure closest competitor* is positively related to the level of absolute abnormal accruals (coefficient=0.022, p-value=0.0115), indicating that earnings quality is negatively affected by the competitive pressure from the closest auditor. *Industry expertise (office)* is not significantly related to the level of absolute abnormal accruals, even as the *Herfindex_msa* variable in all three regressions in Table 6, Panel A.

In addition, Table 6, Panel B and Table 6, Panel C also show results consistent with the hypothesis. In both Panels, *Competitive pressure closest competitor* is positive and significant (Panel B, coefficient=0.028, p-value=0.0005 and Panel C, coefficient=0.024, p-value=0.0006). Like in Panel A, *Industry leader (office)* and *Industry leader (expertise)* are not significantly related to the level of absolute abnormal accruals. Except when we control for *Competitive pressure closest competitor* in Table 6, Panel B, *Industry leader (office)* becomes positive and significant (coefficient=0.009, p-value=0.0640), indicating that industry leaders are associated with higher absolute abnormal accruals, while controlling for competitive pressure of closely related competitors. Similar to Panel A, *Herfindex_msa* is not significantly related to the absolute level of abnormal accruals in all regression in Table 6 Panel B and Panel C.

The regression coefficients on the client-level control variables *Size, Std_cfo, Cfo, MTB*, *Litigation ROA* and *Sales_turn* are consistent with expected signs based on previous research. However, the variable *Loss* has a negative coefficient in all regressions (p-value<0.05), inconsistent with previous research. In addition, *Leverage, Current ratio, Ln_tenure, Total_accruals_lag*, and the Industry specialization variables at national level are not significant. The variable *Big4* is also not significant in most analyses, except in Table 6, Panel A, when *Herfindex_msa* and *Competitive pressure closest competitor* are included as control variables. In these two regressions Big4 has a positive coefficient (resp. coefficients 0.011 and 0.013, p-values<0.10), which is inconsistent with findings in previous research.

Consistent with the going concern sample, the results show that competitive pressure from the closest competitor negatively affects the audit quality delivered by the incumbent audit firm, expressed in terms of earnings quality. In addition, the results show that industry leaders, or industry specialist, measured in terms of fee market share, do not provide higher levels of audit quality. Like in the going concern sample, more general measures of competition, such as market concentration are not related with absolute abnormal accruals. Overall, both the going concern analysis and the abnormal accrual analysis show that competitive pressure from the closest competitor negatively affects the audit quality level delivered by the incumbent auditor.

[Insert Table 6 here]

Robustness checks and supplementary analyses for the accrual sample

As a sensitivity analyses, we also split the abnormal accrual sample in observations with income-increasing accruals and income-decreasing accruals. For the sample with income-increasing accruals, our results are consistent with our main analysis, suggesting competitive pressure is more likely to affect auditors concerns about income-increasing earnings management (coefficient *competitive pressure closest competitor* as presented in Table 6, Panel A = 0.017, p-value=0.043). For the sample with income-decreasing accruals we do not find significant results (coefficient *competitive pressure closest competitor* as presented in Table 6, Panel A = 0.005, p-value=0.4832). .

As a robustness check we also winsorize our results at the 1% level and find consistent results (coefficient *competitive pressure closest competitor* as presented in Table 6, Panel A = 0.0201, p-value=0.0103). In addition, we also split our sample between Big 4 and Non-Big 4 firms and for both samples results are consistent with our hypothesis. For both the Big 4 and the non-Big 4 sample we find a positive and significant coefficient for *competitive pressure closest competitor*.[5] In the accrual sample, we also run a sensitivity test were we require a minimum of more than four (instead of more than two) observations for each city-industry audit market. Results are consistent with our hypothesis (coefficient *competitive pressure closest competitor* as presented in Table 6, Panel A=0.0127, p-value=0.0288).

CONCLUSIONS AND LIMITATIONS

In this study, we examine whether audit quality is affected by competitive pressure from close competitors in the market for audit services. We measure audit quality in terms of the likelihood of issuing a going-concern opinion to a financially distressed firm and earnings quality. We assume that audit firms compete by specializing into certain industries to create a sustainable competitive advantage relative to non-specialist auditors (Casterella et al. 2004; Numan and Willekens, 2011). This differentiation strategy is valued by clients more the more the incumbent audit firm can keep ahead of other competitors in terms of their differentiation

[5] For the Big 4 sample the coefficient competitive pressure as presented in Table 6, Panel A = 0.0119, p-value=0.028.
For the non- Big 4 sample the coefficient competitive pressure as presented in Table 6, Panel A = 0.029, p-value=0.046.

strategy. Based on spatial competition theory (Hotelling 1929; Chan et al. 2004) we predict that, at the local audit office level, the biggest pressure on pricing derives from the competitor whose differentiation strategy is most similar to the differentiation strategy of the incumbent auditor. We predict that audit quality is negatively associated with competitive pressure from the incumbent auditor's closest competitor for two reasons. First, the client will no longer be willing to pay a premium for the delivered quality level if there is close competition and as a result the incumbent audit firm will have less resources to maintain its high quality standards. Second, the closer both firms are in terms of industry specialization, the higher the client's willingness to switch between auditors (Hotelling 1929). This puts pressure on an audit firm to become less strict, as the risk of switching increases.

The results are consistent with our predictions. In particular we find that the likelihood of issuing a going concern opinion and accruals-based earnings quality are affected by industry expertise advantage of the incumbent auditor over its closest competitor rather than by industry expertise *per se*. When there is more competitive pressure from the closest competing audit firm, the incumbent audit firm is less likely to issue a going concern opinion and earnings quality will be lower.

Our study complements prior literature that examines the relationship between audit quality and competition based on more general measures of market concentration, as such measures do not directly pick up competition between close competitors. We motivate the choice of our competition measure based on spatial competition theory which fits the market for audit services that is characterized by a large number of heterogeneous clients that pay a unique audit fee based on client-specific characteristics, and hence can be seen as a differentiated market (Chan et al. 2004).

Our study is subject to several limitations. First, we proxy for audit quality and look how variation in these proxies may be explained, but cannot make assessments about the general level of audit quality in the market for audit services. Second, our measures of industry expertise are subject to measurement error, since actual industry expertise is not directly observable from archival data (Reichelt and Wang 2010). In addition, the choice of an industry expert could be endogenous, and identifying the determinants of auditor location choice is an challenging question for future research. Nevertheless, our results suggest that competitive pressure from close competitors affects audit quality.

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Appendix

Table 1. Variable definitions

Dependent variables	
Going concern	Indicator variable equal to 1 if firm received a going concern opinion, 0 otherwise
Abs_abn_accruals	The absolute value of abnormal accruals (from equation 1) above)
Independent variables	
Competitive pressure closest competitor	-1* (Smallest absolute market share difference between the incumbent auditor and his closest competitor). An audit market is defined as a two-digit SIC industry in a U.S. Metropolitan Statistical Area (MSA, U.S. Census Bureau definition).
Industry expertise (office)	Fees an audit firm generates in a 2-digit SIC industry per Metropolitan Statistical Area (MSA) as a percentage of the total fees generated by an audit firm in a MSA.
Industry expertise (national)	Fees an audit firm generates in a 2-digit SIC industry as a percentage of the total fees generated by an audit firm national wide.
Industry leader (office)	Indicator variable equal to 1 when an audit firm has the largest fee market share in an audit market, 0 otherwise. An audit market is defined as a two-digit SIC industry in a U.S. Metropolitan Statistical Area (MSA, U.S. Census Bureau definition).
Industry leader (national)	Indicator variable equal to 1 when an audit firm has the largest fee market share in an audit market, 0 otherwise. An audit market is defined as a two-digit SIC industry.
Industry specialist (office)	Indicator variable equal to 1 when an audit firm has a fee market share of at least 50%, 0 otherwise. An audit market is defined as a two-digit SIC industry in a U.S. Metropolitan Statistical Area (MSA, U.S. Census Bureau definition).
Industry specialist (national)	Indicator variable equal to 1 when an audit firm has a fee market share of at least 30%, 0 otherwise. An audit market is defined as a two-digit SIC industry.
Herfindex_msa	Herfindahl concentration index per audit market. An audit market is defined as a U.S. Metropolitan Statistical Area (MSA, U.S. Census Bureau definition).
Size	Natural log of total assets
Std_cfo	The standard deviation of operating cash flows (scaled by total assets) from *t-4* to *t*
Cfo	Operating cash flow scaled by total assets
Cfo_lag1	Operating cash flow scaled by total assets in previous year
Current ratio	Ratio of current assets to current liabilities
Leverage	Ratio of long-term debt to total assets
Leverage change	Change in Leverage compared to previous year
Roa	Ratio of earnings before interest and tax to total assets
Loss	Indicator variable equal to 1 if loss, 0 otherwise

Loss_lag1	Indicator variable equal to 1 if loss in previous year, 0 otherwise
Litigation	Indicator variable equal to 1 if the company operates in a high litigation industry (SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961 and 7370-7370), and 0 otherwise
Sales_turn	Ratio of sales to total assets
MTB	Ratio of market value of the firm to total assets
Total_accruals_lag	Total accruals scaled by total assets in previous year
Ln_tenure	The natural logarithm of the number of years that the auditor has audited the firm's financial statements
Big4	Indicator variable equal to one if incumbent auditor is a big 4 audit firm, 0 otherwise
Year_2006	Indicator variable equal to one if year =2006, 0 otherwise
Year_2007	Indicator variable equal to one if year =2007, 0 otherwise
Year_2008	Indicator variable equal to one if year =2008, 0 otherwise

Table 2. Sample selection, years 2005-2008

Panel A: Sample for going concern opinion analysis		
Total observations with all variables available in Compustat and Audit Analytics	12,821	
Less than two observations per audit market	(2,258)	
Markets with only one audit firm active (monopolies)	(738)	
Total Sample		9,825
Of which distressed firms*	4,810	
Truncating all regression variables at top and bottom 1% level	(676)	
Final size distressed sample		**4,134**
Panel A: Sample for abnormal accrual analysis		
Total observations with all variables available in Compustat and Audit Analytics	10,753	
Less than two observations per audit market	(1,889)	
Markets with only one audit firm active (monopolies)	(339)	
Truncating all regression variables at top and bottom 1% level	(1,349)	
Total sample		**7,071**

*Definition distressed firm is based on Lim and Tan (2008) and Li (2008):
Firms with either negative earnings or negative operating cash flows

Table 3, Panel A. Descriptive statistics going concern sample

	N	Mean	StdDev	Min	P25	Median	P75	Max
Dependent variable								
Going concern	4134	0.204	0.403	0.000	0.000	0.000	0.000	1.000
Independent variables								
Competitive pressure closest competitor	4134	-0.140	0.219	-0.955	-0.167	-0.034	-0.004	0.000
Industry expertise (office)	4134	0.318	0.341	0.004	0.056	0.170	0.467	1.000
Industry expertise (national)	4134	0.165	0.211	0.000	0.056	0.089	0.172	1.000
Industry leader (office)	4134	0.250	0.433	0.000	0.000	0.000	1.000	1.000
Industry leader (national)	4134	0.138	0.345	0.000	0.000	0.000	0.000	1.000
Industry specialist (office)	4134	0.183	0.387	0.000	0.000	0.000	0.000	1.000
Industry specialist (national)	4134	0.118	0.322	0.000	0.000	0.000	0.000	1.000
Herfindex_msa	4134	0.278	0.074	0.164	0.240	0.261	0.291	0.993
Total assets in million $	4134	384	1147	0.050	15	56	201	11550
Size	4134	3.974	2.119	-2.996	2.689	4.033	5.301	9.354
Current ratio	4134	3.274	3.723	0.007	1.124	2.035	3.978	29.396
Leverage	4134	0.176	0.304	0.000	0.000	0.022	0.253	2.745
Leverage change	4134	0.023	0.189	-1.087	-0.005	0.000	0.034	1.333
Roa	4134	-0.679	1.962	-31.676	-0.567	-0.208	-0.049	0.299
Loss_lag1	4134	0.753	0.432	0.000	1.000	1.000	1.000	1.000
Cfo_lag1	4134	-0.325	0.944	-11.383	-0.308	-0.063	0.039	0.420
Sales_turn	4134	0.885	0.863	0.000	0.213	0.663	1.293	4.820
MTB	4134	2.615	8.803	-55.072	0.718	1.758	3.842	80.351
Big4	4134	0.483	0.500	0.000	0.000	0.000	1.000	1.000
Ln_tenure	4134	1.669	0.792	0.000	1.099	1.792	2.197	3.401
Year_2006	4134	0.284	0.451	0.000	0.000	0.000	1.000	1.000
Year_2007	4134	0.195	0.397	0.000	0.000	0.000	0.000	1.000
Year_2008	4134	0.216	0.412	0.000	0.000	0.000	0.000	1.000

Variables are as defined in Table 1

Table 3, Panel B. Descriptive statistics abnormal accruals sample

	N	Mean	StdDev	Min	P25	Median	P75	Max
Dependent variable								
Abs_abn_accruals	7071	0.111	0.119	0.001	0.037	0.079	0.144	1.194
Independent variables								
Competitive pressure closest competitor	7071	-0.186	0.248	-0.970	-0.246	-0.070	-0.017	0.000
Industry expertise (office)	7071	0.243	0.295	0.004	0.039	0.112	0.320	1.000
Industry expertise (national)	7071	0.119	0.172	0.003	0.033	0.074	0.113	1.000
Industry leader (office)	7071	0.339	0.473	0.000	0.000	0.000	1.000	1.000
Industry leader (national)	7071	0.202	0.402	0.000	0.000	0.000	0.000	1.000
Industry specialist (office)	7071	0.242	0.429	0.000	0.000	0.000	0.000	1.000
Industry specialist (national)	7071	0.176	0.381	0.000	0.000	0.000	0.000	1.000
Herfindex_msa	7071	0.281	0.074	0.164	0.240	0.262	0.296	0.993
Total assets in million $	7071	1444	3702	0.625	53	218	950	30734
Size	7071	5.423	2.048	-0.470	3.962	5.383	6.856	10.333
Std_cfo	7071	0.111	0.183	0.008	0.033	0.058	0.116	2.816
Cfo	7071	-0.009	0.282	-2.927	-0.024	0.066	0.125	0.327
Leverage	7071	0.154	0.210	0.000	0.000	0.061	0.249	1.487
Loss	7071	0.411	0.492	0.000	0.000	0.000	1.000	1.000
MTB	7071	2.860	4.209	-24.011	1.258	2.143	3.661	37.904
Litigation	7071	0.338	0.473	0.000	0.000	0.000	1.000	1.000
Current ratio	7071	3.014	2.617	0.082	1.401	2.166	3.645	19.901
Roa	7071	-0.102	0.386	-5.283	-0.119	0.026	0.075	0.298
Sales_turn	7071	1.026	0.740	0.000	0.504	0.880	1.374	4.253
Total_accruals_lag	7071	-0.081	0.184	-2.553	-0.094	-0.046	-0.012	0.266
Ln_tenure	7071	1.866	0.838	0.000	1.386	1.946	2.485	3.526
Big4	7071	0.673	0.469	0.000	0.000	1.000	1.000	1.000

Variables are as defined in Table 1

Table 4, Panel A. Correlations going concern sample (N 4,134)

	Variable	1	2	3	4	5	6	7	8	9	10
1	Going concern	1.00	0.20 ***	0.21 ***	-0.14 ***	-0.12 ***	-0.04 **	-0.48 ***	-0.42 ***	-0.05 ***	0.00
2	Competitive pressure closest competitor	0.07 ***	1.00	0.10 ***	-0.58 ***	-0.56 ***	-0.21 ***	-0.39 ***	-0.11 ***	-0.13 ***	0.00
3	Industry expertise (office)	0.23 ***	-0.02	1.00	-0.09 ***	-0.04 **	0.19 ***	-0.30 ***	-0.20 ***	-0.02	-0.02
4	Indsutry leader (office)	-0.14 ***	-0.52 ***	-0.13 ***	1.00	0.82 ***	0.04 ***	0.33 ***	0.14 ***	0.07 ***	-0.01
5	Industry specialist (office)	-0.12 ***	-0.61 ***	-0.07 ***	0.82 ***	1.00	0.06 ***	0.27 ***	0.12 ***	0.06 ***	-0.02
6	Herfindex_msa	-0.01	-0.20 ***	0.23 ***	0.06 ***	0.09 ***	1.00	0.04 **	0.02	0.00	-0.05 ***
7	Size	-0.50 ***	-0.20 ***	-0.31 ***	0.33 ***	0.27 ***	0.01	1.00	0.18 ***	0.29 ***	0.05 ***
8	Current ratio	-0.24 ***	-0.01	-0.10 ***	0.08 ***	0.08 ***	-0.01	0.04 ***	1.00	-0.25 ***	-0.04 ***
9	Leverage	0.06 ***	-0.04 **	0.01	0.03 **	0.02	0.01	0.14 ***	-0.16 ***	1.00	0.40 ***
10	Leverage change	0.05 ***	0.03 *	-0.01	-0.03 **	-0.04 ***	-0.03 **	-0.03 **	-0.05 ***	0.51 ***	1.00
11	Roa	-0.41 ***	-0.06 ***	-0.10 ***	0.11 ***	0.09 ***	0.03 **	0.45 ***	0.13 ***	-0.02	-0.09 ***
12	Loss_lag1	0.21 ***	0.08 ***	0.08 ***	-0.07 ***	-0.05 ***	-0.02	-0.29 ***	0.04 **	0.04 **	-0.01
13	Cfo_lag1	-0.44 ***	-0.08 ***	-0.09 ***	0.11 ***	0.09 ***	0.03 **	0.50 ***	0.11 ***	-0.02	-0.10 ***
14	Sales_turn	-0.03 **	-0.03 *	0.00	-0.04 **	-0.02	-0.01	-0.04 **	-0.33 ***	0.00	0.00
15	MTB	-0.09 ***	0.01	-0.03 *	0.02	0.02	-0.01	0.01	0.11 ***	-0.12 ***	-0.07 ***
16	Big4	-0.30 ***	-0.27 ***	-0.47 ***	0.47 ***	0.37 ***	0.04 **	0.58 ***	0.14 ***	0.05 ***	-0.01
17	Ln_tenure	0.00	-0.12 ***	-0.11 ***	0.16 ***	0.13 ***	0.02	0.11 ***	0.00	0.08 ***	0.05 ***
18	Industry expertise (national)	0.19 ***	0.13 ***	0.59 ***	-0.22 ***	-0.19 ***	0.00	-0.33 ***	-0.04 **	-0.02	0.03 *
19	Industry leader (national)	-0.12 ***	-0.15 ***	-0.17 ***	0.30 ***	0.20 ***	0.04 ***	0.27 ***	0.07 ***	0.01	-0.03 *
20	Industry specialist (national)	-0.11 ***	-0.21 ***	-0.15 ***	0.33 ***	0.24 ***	0.03 **	0.25 ***	0.07 ***	0.01	-0.03 **

Tabel 4, Panel A. Correlations going concern sample, continued (N = 4,134)

	Variable	11	12	13	14	15	16	17	18	19	20
1	Going concern	-0.49 ***	0.21 ***	-0.41 ***	-0.09 ***	-0.22 ***	-0.30 ***	0.00	0.21 ***	-0.12 ***	-0.11 ***
2	Competitive pressure closest competitor	-0.19 ***	0.11 ***	-0.20 ***	-0.04 ***	-0.04 ***	-0.50 ***	-0.18 ***	0.35 ***	-0.25 ***	-0.29 ***
3	Industry expertise (office)	-0.12 ***	0.09 ***	-0.12 ***	-0.03 **	-0.03 *	-0.49 ***	-0.14 ***	0.53 ***	-0.17 ***	-0.14 ***
4	Indsutry leader (office)	0.11 ***	-0.07 ***	0.10 ***	-0.03 **	0.04 ***	0.47 ***	0.17 ***	-0.27 ***	0.30 ***	0.33 ***
5	Industry specialist (office)	0.09 ***	-0.05 ***	0.08 ***	-0.02	0.05 ***	0.37 ***	0.13 ***	-0.26 ***	0.20 ***	0.24 ***
6	Herfindex_msa	0.05 ***	-0.01	0.04 ***	-0.02	0.05 ***	0.10 ***	0.02	-0.01	0.06 ***	0.06 ***
7	Size	0.55 ***	-0.29 ***	0.54 ***	0.04 ***	0.02	0.60	0.13 ***	-0.39 ***	0.28 ***	0.27 ***
8	Current ratio	0.12 ***	-0.02	0.00	-0.34 ***	0.33 ***	0.27	0.02	-0.13 ***	0.11 ***	0.11 ***
9	Leverage	0.12 ***	-0.05 ***	0.16 ***	0.09 ***	-0.16 ***	0.09	0.08 ***	-0.13 ***	0.03 *	0.03 *
10	Leverage change	-0.08 ***	-0.03 **	0.00	0.00	-0.12 ***	0.01	0.04 ***	-0.02	-0.03 *	-0.02
11	Roa	1.00	-0.42 ***	0.67 ***	0.31 ***	0.03 ***	0.18 ***	0.04 ***	-0.21 ***	0.10 ***	0.11 ***
12	Loss_lag1	-0.16 ***	1.00	-0.52 ***	-0.24 ***	0.08 ***	-0.10 ***	-0.09 ***	0.15 ***	-0.04 ***	-0.05 ***
13	Cfo_lag1	0.66 ***	-0.22 ***	1.00	0.35 ***	-0.07 ***	0.18 ***	0.07 ***	-0.21 ***	0.10 ***	0.08 ***
14	Sales_turn	0.08 ***	-0.17 ***	0.12 ***	1.00	-0.22 ***	-0.08 ***	-0.03	-0.08 ***	-0.04 ***	-0.02
15	MTB	0.09 ***	0.05 ***	0.07 ***	-0.12 ***	1.00	0.09 ***	-0.06 ***	-0.03	0.05 ***	0.04 ***
16	Big4	0.18 ***	-0.10 ***	0.18 ***	-0.12 ***	0.02	1.00	0.33 ***	-0.47 ***	0.41 ***	0.38 ***
17	Ln_tenure	-0.02	-0.08 ***	0.03 *	-0.05 ***	-0.03 **	0.32 ***	1.00	-0.10 ***	0.14 ***	0.14 ***
18	Industry expertise (national)	-0.09 ***	0.08 ***	-0.08 ***	0.00	-0.02	-0.44 ***	-0.06 ***	1.00	-0.13 ***	-0.14 ***
19	Industry leader (national)	0.08 ***	-0.04 ***	0.08 ***	-0.06 ***	0.03 *	0.41 ***	0.13 ***	-0.17 ***	1.00	0.78 ***
20	Industry specialist (national)	0.08 ***	-0.05 ***	0.07 ***	-0.03 **	0.02	0.38 ***	0.13 ***	-0.16 ***	0.78 ***	1.00

Variables are defined as in Table 1 Pearson Correlations: Below diagonal, Spearman Correlations: Above diagonal.

p-value <0.1 *
p-value<0.05 **
p-value <0.01 ***

Table 4, Panel B. Correlations abnormal accruals sample (N = 7,077)

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	Abs_abn_accruals	1.00	0.14 ***	0.08 ***	-0.05 ***	-0.07 ***	-0.02	-0.24 ***	0.38 ***	0.04 ***	-0.16 ***	0.08 ***
2	Competitve pressure closest competitor	0.11 ***	1.00	0.02	-0.57 ***	-0.61 ***	-0.23 ***	-0.35 ***	0.23 ***	-0.15 ***	-0.15 ***	0.16 ***
3	Industry expertise (office)	0.07 ***	-0.08 ***	1.00	0.02 *	0.07 ***	0.27 ***	-0.16 ***	0.10 ***	-0.06 ***	0.00	0.07 ***
4	Industry leader (office)	-0.06 ***	-0.51 ***	-0.05 ***	1.00	0.79 ***	0.07 ***	0.33 ***	-0.16 ***	0.10 ***	0.11 ***	-0.10 ***
5	Industry specialist (office)	-0.07 ***	-0.63 ***	0.02	0.79 ***	1.00	0.12 ***	0.27 ***	-0.14 ***	0.06 ***	0.12 ***	-0.06 ***
6	Herfindex_msa	-0.04 ***	-0.23 ***	0.27 ***	0.08 ***	0.14 ***	1.00	0.05 ***	-0.07 ***	0.05 ***	0.01	-0.05 ***
7	Size	-0.30 ***	-0.23 ***	-0.22 ***	0.33 ***	0.27 ***	0.05 ***	1.00	-0.60 ***	0.44 ***	0.38 ***	-0.40 ***
8	Std_cfo	0.42 ***	0.10 ***	0.09 ***	-0.10 ***	-0.08 ***	-0.06 ***	-0.40 ***	1.00	-0.39 ***	-0.27 ***	0.40 ***
9	Cfo	-0.41 ***	-0.10 ***	-0.04 ***	0.08 ***	0.05 ***	0.07 ***	0.44 ***	-0.54 ***	1.00	0.04 ***	-0.63 ***
10	Leverage	-0.08 ***	-0.10 ***	0.00	0.08 ***	0.08 ***	0.05 ***	0.26 ***	-0.08 ***	0.00	1.00	-0.04 ***
11	Loss	0.17 ***	0.11 ***	0.07 ***	-0.10 ***	-0.06 ***	-0.07 ***	-0.40 ***	0.31 ***	-0.49 ***	0.04 ***	1.00
12	MTB	0.15 ***	-0.02	-0.02	0.04 ***	0.04 ***	0.00	-0.02	0.09 ***	-0.04 ***	-0.12 ***	-0.04 ***
13	Litigation	0.13 ***	0.08 ***	-0.07 ***	0.01	-0.01	-0.05 ***	-0.13 ***	0.16 ***	-0.20 ***	-0.10 ***	0.17 ***
14	Current ratio	0.09 ***	0.08 ***	-0.05 ***	-0.03 **	-0.04 ***	-0.02	-0.18 ***	0.10 ***	-0.10 ***	-0.22 ***	0.06 ***
15	Roa	-0.37 ***	-0.10 ***	-0.07 ***	0.10 ***	0.07 ***	0.07 ***	0.43 ***	-0.51 ***	0.83 ***	-0.04 ***	-0.55 ***
16	Sales_turn	-0.13 ***	-0.08 ***	-0.04 ***	-0.02	0.02	-0.03 ***	-0.07 ***	-0.14 ***	0.25 ***	-0.07 ***	-0.18 ***
17	Total_accruals_lag	-0.20 ***	-0.06 ***	-0.06 ***	0.05 ***	0.04 ***	0.03 **	0.23 ***	-0.24 ***	0.35 ***	-0.08 ***	-0.25 ***
18	Ln_tenure	-0.07 ***	-0.16 ***	-0.11 ***	0.18 ***	0.15 ***	0.04 ***	0.23 ***	-0.10 ***	0.09 ***	0.04 ***	-0.13 ***
19	Big4	-0.13 ***	-0.22 ***	-0.43 ***	0.40 ***	0.30 ***	0.06 ***	0.58 ***	-0.21 ***	0.17 ***	0.11 ***	-0.18 ***
20	Industry expertise (national)	0.13 ***	0.14 ***	0.55 ***	-0.21 ***	-0.18 ***	0.00	-0.35 ***	0.15 ***	-0.11 ***	-0.08 ***	0.11 ***
21	Industry leader (national)	-0.05 ***	-0.14 ***	-0.15 ***	0.27 ***	0.19 ***	0.04 ***	0.24 ***	-0.08 ***	0.09 ***	0.03 **	-0.09 ***
22	Industry specialist (national)	-0.07 ***	-0.19 ***	-0.13 ***	0.30 ***	0.24 ***	0.06 ***	0.24 ***	-0.07 ***	0.08 ***	0.03 ***	-0.09 ***

Table 4, Panel B. Correlations abnormal accruals sample, continued (N = 7,077)

	Variable	12		13		14		15		16		17		18		19		20		21		22	
1	Abs_abn_accruals	0.22	***	0.11	***	0.10	***	-0.05	***	-0.13	***	-0.13	***	-0.07	***	-0.09	***	0.23	***	-0.04	***	-0.08	***
2	Competitve pressure closest competitor	-0.03	***	0.07	***	0.04	***	-0.16	***	-0.08	***	-0.05	***	-0.21	***	-0.42	***	0.34	***	-0.22	***	-0.27	***
3	Industry expertise (office)	0.01		-0.06	***	-0.08	***	-0.06	***	-0.09	***	-0.01	***	-0.12	***	-0.40	***	0.40	***	-0.14	***	-0.12	***
4	Industry leader (office)	0.05	***	0.01		-0.02		0.10	***	-0.01		0.01		0.18	***	0.40	***	-0.21	***	0.27	***	0.30	***
5	Industry specialist (office)	0.03	***	-0.01		-0.05	***	0.06	***	0.02		0.01		0.14	***	0.30	***	-0.23	***	0.19	***	0.24	***
6	Herfindex_msa	0.05	***	-0.02	**	0.01		0.05	***	-0.05	***	0.01		0.04	***	0.09	***	0.00		0.06	***	0.06	***
7	Size	0.04	***	-0.14	***	-0.18	***	0.41	***	-0.04	***	0.11	***	0.24	***	0.59	***	-0.37	***	0.25	***	0.24	***
8	Std_cfo	0.07	***	0.21	***	0.17	***	-0.38	***	-0.10	***	-0.13	***	-0.20	***	-0.28	***	0.28	***	-0.12	***	-0.13	***
9	Cfo	0.16	***	-0.14	***	-0.09	***	0.74	***	0.26	***	0.10	***	0.11	***	0.21	***	-0.19	***	0.11	***	0.08	***
10	Leverage	-0.10	***	-0.16	***	-0.36	***	-0.01		-0.01		-0.02		0.06	***	0.12	***	-0.20	***	0.04	***	0.05	***
11	Loss	-0.15	***	0.17	***	-0.01		-0.85	***	-0.24	***	-0.25	***	-0.13	***	-0.18	***	0.18	***	-0.09	***	-0.09	***
12	MTB	1.00		0.07	***	0.10	***	0.23	***	-0.09	***	0.02	*	0.02		0.11	***	0.00		0.06	***	0.04	***
13	Litigation	0.06	***	1.00		0.22	***	-0.16	***	-0.10	***	-0.09	***	0.00		0.04	***	0.12	***	0.01		0.02	**
14	Current ratio	0.05	***	0.21	***	1.00		0.05	***	-0.24	***	0.16	***	0.02		0.06	***	0.06	***	0.00		0.00	
15	Roa	0.00		-0.17	***	-0.01		1.00		0.29	***	0.27	***	0.13	***	0.18	***	-0.18	***	0.09	***	0.10	***
16	Sales_turn	-0.07	***	-0.08	***	-0.29	***	0.20	***	1.00		0.11	***	0.02		-0.10	***	-0.16	***	-0.02		0.03	***
17	Total_accruals_lag	0.04	***	-0.07	***	0.10	***	0.47	***	0.07	***	1.00		0.04	***	0.01		-0.03	***	-0.01		0.04	***
18	Ln_tenure	-0.01		-0.01		-0.02		0.10	***	0.01		0.05	***	1.00		0.35	***	-0.11	***	0.13	***	0.14	***
19	Big4	0.04	***	0.04	***	0.02	*	0.18	***	-0.11	***	0.10	***	0.35	***	1.00		-0.40	***	0.35	***	0.32	***
20	Industry expertise (national)	-0.02	**	-0.01		0.03	**	-0.13	***	-0.03	***	-0.08	***	-0.07	***	-0.46	***	1.00		-0.08	***	-0.12	***
21	Industry leader (national)	0.04	***	0.01		-0.01		0.09	***	-0.03	**	0.04	***	0.13	***	0.35	***	-0.14	***	1.00		0.75	***
22	Industry specialist (national)	0.03	**	0.02	**	-0.01		0.09	***	0.02		0.05	***	0.14	***	0.32	***	-0.15	***	0.75	***	1.00	

Variables are defined as in Table 1. Pearson Correlations: Below diagonal, Spearman Correlations: Above diagonal.

p-value <0.1 *
p-value<0.05 **
p-value <0.01 ***

Table 5, Panel A. Logistic regressions going concern sample (N = 4,134)
Industry expertise based on portfolio market share of the audit firm
Dependent variable: P (going concern)

Parameter	Estimate	WaldChiSq	Prob	Estimate	WaldChiSq	Prob	Estimate	WaldChiSq	Prob
Intercept	0.346	1.65	0.1987	0.591	3.06	0.0805	0.668	3.83	0.0502
Competitive pressure closest competitor							-0.506	4.06	0.0440
Industry expertise (office)	0.434	5.53	0.0187	0.499	6.74	0.0094	0.450	5.37	0.0205
Herfindex_msa				-0.909	1.45	0.2286	-1.211	2.46	0.1169
Size	-0.460	109.24	0.0000	-0.462	110.23	0.0000	-0.464	110.67	0.0000
Current ratio	-0.336	115.00	0.0000	-0.336	115.22	0.0000	-0.335	114.91	0.0000
Leverage	0.581	8.61	0.0033	0.582	8.65	0.0033	0.580	8.59	0.0034
Leverage change	-1.029	12.54	0.0004	-1.038	12.81	0.0003	-1.020	12.39	0.0004
Roa	-0.652	39.79	0.0000	-0.650	39.51	0.0000	-0.652	39.56	0.0000
Cfo_lag1	-0.802	30.38	0.0000	-0.794	29.68	0.0000	-0.804	30.38	0.0000
Sales_turn	-0.301	21.29	0.0000	-0.304	21.62	0.0000	-0.309	22.32	0.0000
MTB	-0.017	9.98	0.0016	-0.017	10.04	0.0015	-0.017	9.76	0.0018
Ln_tenure	0.162	5.00	0.0253	0.164	5.11	0.0238	0.154	4.50	0.0339
Big4	-0.268	2.94	0.0866	-0.248	2.51	0.1134	-0.305	3.65	0.0560
Industry expertise (national)	-0.061	0.05	0.8249	-0.106	0.14	0.7038	-0.075	0.07	0.7859
Year_2006	-0.281	4.15	0.0417	-0.277	4.00	0.0454	-0.278	4.03	0.0447
Year_2007	0.049	0.11	0.7425	0.029	0.04	0.8482	0.015	0.01	0.9197
Year_2008	0.041	0.07	0.7844	0.036	0.06	0.8096	0.026	0.03	0.8592
Likelihood ratio		1741.45			1742.94			1746.91	
Pseudo R2		0.5093			0.5099			0.5105	

Variables are defined as in Table 1.

Table 5, Panel B. Logistic regressions going concern sample (N = 4,134)
Industry expertise based on industry market share leader
Dependent variable: P (going concern)

Parameter	Estimate	WaldChiSq	Prob	Estimate	WaldChiSq	Prob	Estimate	WaldChiSq	Prob
Intercept	0.618	6.21	0.0127	0.769	5.43	0.0198	0.816	6.04	0.0140
Competitive pressure closest competitor							-0.479	3.10	0.0781
Industry leader (office)	0.264	2.77	0.0962	0.274	2.96	0.0853	0.153	0.77	0.3802
Herfindex_msa				-0.501	0.48	0.4880	-0.783	1.11	0.2925
Size	-0.472	115.35	0.0000	-0.474	115.87	0.0000	-0.474	115.28	0.0000
Current ratio	-0.347	121.25	0.0000	-0.347	121.55	0.0000	-0.345	120.50	0.0000
Leverage	0.581	8.67	0.0032	0.582	8.71	0.0032	0.581	8.69	0.0032
Leverage change	-1.028	12.60	0.0004	-1.035	12.79	0.0003	-1.025	12.57	0.0004
Roa	-0.653	40.00	0.0000	-0.652	39.83	0.0000	-0.652	39.75	0.0000
Cfo_lag1	-0.777	28.71	0.0000	-0.771	28.19	0.0000	-0.785	29.05	0.0000
Sales_turn	-0.322	24.34	0.0000	-0.324	24.65	0.0000	-0.326	24.95	0.0000
MTB	-0.018	10.25	0.0014	-0.018	10.28	0.0013	-0.018	10.05	0.0015
Ln_tenure	0.167	5.35	0.0207	0.168	5.41	0.0201	0.160	4.89	0.0270
Big4	-0.539	10.67	0.0011	-0.541	10.71	0.0011	-0.543	10.78	0.0010
Industry leader (national)	0.179	0.72	0.3972	0.181	0.73	0.3917	0.187	0.78	0.3760
Year_2006	-0.282	4.16	0.0415	-0.279	4.07	0.0435	-0.279	4.07	0.0437
Year_2007	0.016	0.01	0.9164	0.002	0.00	0.9908	-0.007	0.00	0.9608
Year_2008	0.012	0.01	0.9366	0.007	0.00	0.9615	0.001	0.00	0.9930
Likelihood ratio		1738.62			1739.11			1742.16	
Pseudo R2		0.5089			0.5089			0.5094	

Variables are defined as in Table 1.

Table 5, Panel C. Logistic regressions going concern sample (N = 4,134)
Industry expertise based on industry market share specialist
Dependent variable: P (going concern)

Parameter	Estimate	WaldChiSq	Prob	Estimate	WaldChiSq	Prob	Estimate	WaldChiSq	Prob
Intercept	0.637	6.56	0.0104	0.782	5.58	0.0181	0.824	6.13	0.0133
Competitive pressure closest competitor							-0.553	3.76	0.0524
Industry specialist (office)	0.170	0.98	0.3215	0.184	1.13	0.2868	0.001	0.00	0.9979
Herfindex_msa				-0.484	0.44	0.5048	-0.781	1.09	0.2955
Size	-0.474	115.66	0.0000	-0.476	116.14	0.0000	-0.474	115.03	0.0000
Current ratio	-0.348	121.86	0.0000	-0.349	122.14	0.0000	-0.346	120.45	0.0000
Leverage	0.579	8.63	0.0033	0.580	8.67	0.0032	0.580	8.69	0.0032
Leverage change	-1.029	12.60	0.0004	-1.035	12.79	0.0003	-1.029	12.66	0.0004
Roa	-0.653	39.90	0.0000	-0.652	39.72	0.0000	-0.654	39.82	0.0000
Cfo_lag1	-0.771	28.24	0.0000	-0.766	27.76	0.0000	-0.780	28.64	0.0000
Sales_turn	-0.324	24.59	0.0000	-0.326	24.90	0.0000	-0.327	25.05	0.0000
MTB	-0.018	10.34	0.0013	-0.018	10.36	0.0013	-0.018	10.13	0.0015
Ln_tenure	0.166	5.24	0.0221	0.167	5.29	0.0214	0.157	4.69	0.0303
Big4	-0.509	10.39	0.0013	-0.510	10.41	0.0013	-0.515	10.57	0.0011
Industry specialist (national)	0.359	2.66	0.1032	0.361	2.68	0.1017	0.341	2.39	0.1219
Year_2006	-0.284	4.23	0.0397	-0.281	4.15	0.0416	-0.281	4.14	0.0418
Year_2007	0.018	0.01	0.9026	0.005	0.00	0.9738	-0.006	0.00	0.9697
Year_2008	0.020	0.02	0.8924	0.016	0.01	0.9157	0.008	0.00	0.9569
Likelihood ratio		1739.57			1739,03			1742.72	
Pseudo R2		0.5089			0.5089			0.5095	

Variables are defined as in Table 1.

Table 6, Panel A. OLS regressions abnormal accruals sample (N = 7,071)
Industry expertise based on portfolio market share of the audit firm
Dependent variable: absolute abnormal accruals

Parameter	Estimate	t-stat	Prob	Estimate	t-stat	Prob	Estimate	t-stat	Prob
Intercept	0.127	43.45	0.0000	0.133	25.84	0.0001	0.128	22.634	0.0002
Competitve pressure closest competitor							0.022	5.562	0.0115
Industry expertise (office)	0.006	0.57	0.6104	0.008	0.88	0.4451	0.012	1.224	0.3083
Herfindex_msa				-0.023	-1.53	0.2234	-0.011	-0.637	0.5693
Size	-0.007	-6.62	0.0070	-0.007	-6.55	0.0072	-0.007	-6.137	0.0087
Std_cfo	0.152	9.66	0.0024	0.152	9.63	0.0024	0.152	9.614	0.0024
Cfo	-0.075	-2.94	0.0606	-0.075	-2.93	0.0609	-0.076	-2.989	0.0582
Leverage	-0.011	-1.10	0.3513	-0.010	-1.06	0.3674	-0.009	-0.980	0.3994
Loss	-0.022	-4.88	0.0165	-0.022	-4.99	0.0155	-0.022	-5.024	0.0152
MTB	0.003	3.72	0.0339	0.003	3.72	0.0338	0.003	3.749	0.0331
Litigation	0.008	3.59	0.0370	0.008	3.56	0.0379	0.007	3.416	0.0420
Current ratio	0.000	0.52	0.6419	0.000	0.51	0.6451	0.000	0.521	0.6387
Roa	-0.021	-2.50	0.0880	-0.020	-2.47	0.0905	-0.020	-2.450	0.0917
Sales_turn	-0.007	-5.73	0.0106	-0.007	-5.64	0.0110	-0.006	-4.531	0.0201
Total_accruals_lag	-0.030	-2.13	0.1230	-0.030	-2.14	0.1224	-0.029	-2.071	0.1302
Ln_tenure	-0.002	-1.85	0.1618	-0.002	-1.83	0.1639	-0.001	-1.348	0.2705
Big4	0.010	2.22	0.1133	0.011	2.47	0.0903	0.013	2.675	0.0754
Industry expertise (national)	0.025	1.31	0.2824	0.023	1.16	0.3289	0.019	0.986	0.3968
F-value		161.94			151.94		144.25		
Adj. R2		0.2545			0.2546		0.2562		

Variables are defined as in Table 1.

Table 6, Panel B. OLS regressions abnormal accruals sample (N = 7,077)
Industry expertise based on industry market share leader
Dependent variable: absolute abnormal accruals

Parameter	Estimate	t-stat	Prob	Estimate	t-stat	Prob	Estimate	t-stat	Prob
Intercept	0.137	20.00	0.0003	0.141	97.88	0.0000	0.137	101.75	0.0000
Competitve pressure closest competitor							0.028	16.32	0.0005
Industry leader (office)	0.002	0.67	0.5482	0.002	0.68	0.5431	0.009	2.87	0.0640
Herfindex_msa				-0.014	-0.63	0.5710	0.004	0.17	0.8764
Size	-0.008	-8.50	0.0034	-0.008	-8.58	0.0033	-0.008	-8.25	0.0037
Std_cfo	0.153	9.73	0.0023	0.153	9.66	0.0024	0.153	9.63	0.0024
Cfo	-0.073	-2.89	0.0632	-0.073	-2.87	0.0642	-0.073	-2.93	0.0612
Leverage	-0.011	-1.12	0.3430	-0.011	-1.07	0.3622	-0.009	-0.95	0.4101
Loss	-0.022	-4.93	0.0160	-0.022	-5.05	0.0149	-0.023	-5.06	0.0149
MTB	0.003	3.67	0.0350	0.003	3.67	0.0350	0.003	3.68	0.0347
Litigation	0.008	3.31	0.0455	0.008	3.30	0.0459	0.007	3.10	0.0535
Current ratio	0.000	0.39	0.7232	0.000	0.38	0.7316	0.000	0.34	0.7561
Roa	-0.021	-2.42	0.0944	-0.021	-2.40	0.0958	-0.021	-2.38	0.0975
Sales_turn	-0.008	-8.58	0.0033	-0.008	-7.78	0.0044	-0.008	-7.02	0.0059
Total_accruals_lag	-0.030	-2.18	0.1178	-0.030	-2.18	0.1172	-0.029	-2.10	0.1264
Ln_tenure	-0.001	-1.18	0.3215	-0.001	-1.14	0.3358	0.000	-0.55	0.6177
Big4	0.004	1.04	0.3764	0.004	1.06	0.3686	0.004	0.93	0.4221
Industry leader (national)	0.000	0.04	0.9730	0.000	0.05	0.9641	0.000	0.03	0.9751
F-value		160.74			150.72			143.57	
Adj. R2		0.2531			0.2531			0.2553	

Variables are defined as in Table 1.

Table 6, Panel C. OLS regressions abnormal accruals sample (N = 7,077)

Industry expertise based on industry market share specialist

Dependent variable: absolute abnormal accruals

Parameter	Estimate	t-stat	Prob	Estimate	t-stat	Prob	Estimate	t-stat	Prob
Intercept	0.135	18.15	0.0004	0.1377	75.94	0.0000	0.136	87.20	0.0000
Competitve pressure closest competitor							0.024	15.04	0.0006
Industry specialist (office)	-0.004	-1.63	0.2024	-0.0038	-1.29	0.2888	0.004	1.62	0.2037
Herfindex_msa				-0.0088	-0.40	0.7182	0.002	0.10	0.9258
Size	-0.007	-8.17	0.0038	-0.0074	-8.27	0.0037	-0.007	-8.08	0.0040
Std_cfo	0.153	9.80	0.0023	0.1531	9.73	0.0023	0.153	9.72	0.0023
Cfo	-0.074	-2.93	0.0612	-0.0738	-2.91	0.0621	-0.074	-2.93	0.0608
Leverage	-0.011	-1.10	0.3533	-0.0106	-1.05	0.3694	-0.010	-0.98	0.4013
Loss	-0.022	-5.01	0.0153	-0.0221	-5.15	0.0142	-0.023	-5.18	0.0140
MTB	0.003	3.66	0.0352	0.0030	3.66	0.0351	0.003	3.66	0.0352
Litigation	0.008	3.39	0.0427	0.0076	3.41	0.0420	0.007	3.19	0.0498
Current ratio	0.000	0.40	0.7184	0.0003	0.39	0.7227	0.000	0.36	0.7394
Roa	-0.021	-2.40	0.0963	-0.0206	-2.38	0.0972	-0.021	-2.39	0.0964
Sales_turn	-0.008	-8.26	0.0037	-0.0079	-7.45	0.0050	-0.007	-6.86	0.0063
Total_accruals_lag	-0.030	-2.16	0.1194	-0.0301	-2.16	0.1191	-0.030	-2.10	0.1270
Ln_tenure	-0.001	-0.90	0.4324	-0.0007	-0.88	0.4425	0.000	-0.45	0.6805
Big4	0.006	1.76	0.1758	0.0063	1.77	0.1747	0.006	1.70	0.1886
Industry specialist (national)	-0.004	-0.76	0.5017	-0.0042	-0.76	0.5004	-0.004	-0.67	0.5512
F-value		161.03			150.96			143.11	
Adj. R2		0.2235			0.2534			0.2547	

Variables are defined as in Table 1.