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The Relationship between Audit Quality and Competition at the Intersection of the Large and Small Audit Firm Markets

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THE RELATIONSHIP BETWEEN AUDIT QUALITY AND COMPETITION AT THE INTERSECTION OF THE LARGE AND SMALL AUDIT FIRM MARKETS

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I dedicate this dissertation to my family and friends who are always there for me. I could not do this without their support.

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ABSTRACT

This paper examines the relationship between audit quality and several measures of spatial competition. Spatial competition is measured as the smallest absolute difference in audit fee market shares from an audit firm and its closest competitor. In this paper, spatial competition measures are referred to as competitive distances, and they are calculated within the large audit market (Big 4 only), within the small audit market (non-Big 4 only), and between the large and small audit markets. Audit market competition and its effect on audit quality has been an ongoing debate. On one side of the argument, competition may negatively impact audit quality. Increased competition leads to higher likelihood of auditor switching, so auditors compete for client retention by showing more leniency in their audits and by decreasing audit fees. On the other hand, more competition leads to audit innovations, more efficient and effective audits, and higher audit quality. Lastly, competition may not influence audit quality due to the sufficient nature of market-based institutional incentives such as litigation risk, reputation loss, and regulatory compliance. Thus, it is unclear the effect that audit market competition has on audit quality. This study finds that local-industry competition for both large and small audit firm markets does not influence audit quality in the majority of the test settings. This study may be of interest to companies choosing an auditor and to regulators, who have expressed concerns over competition and concentration levels within the audit markets.

CHAPTER 1. INTRODUCTION

This paper studies whether a relationship exists between audit quality and several measures of spatial competition. Audit market concentration and lack of audit market competition have been important topics for policy makers and audit market participants for over a decade. Regulators have expressed concerns that the consolidated audit market may lead to auditor complacency and to a decrease in audit quality (United States Government Accountability Office 2008). Yet, in its report, the Government Accountability Office (GAO) also states that oligopolistic competition may be sufficient to overcome the downfalls of an audit market dominated by Big 4 firms. Academic research has found mixed results when examining tests about regulators' concerns. Additionally, the GAO adopts the stance that little competition exists between large audit firms (Big 4 firms) and small audit firms (non-Big 4 firms) (GAO 2008). However, recent studies have shown that large audit markets are susceptible to competitive pressures of small audit firms (Bills and Stephens 2016; Keune, Mayhew, and Schmidt 2016). In this paper, the results show that within the small audit markets and within large audit markets, little evidence exists to support regulators' concerns about competition and audit quality. Stone (2017) argues that the lack of reported null results biases inferences in favor of rejecting the null, and it is more appropriate to conclude that if most results are null, then evidence is lacking to support rejecting the null.

While the large and small audit markets have different characteristics, Bills and Stephens (2016) and Keune et al. (2016) provide evidence that at a local level, small audit firms and large audit firms compete on price. Specifically, Bills and Stephens (2016) find that large audit firms reduce audit fees more from competitive pressure of small audit firms than from competitive pressure of other large audit firms. Moreover, they show that within the small audit market, small audit firms charge higher fees when small audit firms compete with large audit firms for market share. Given the different effects of spatial competition on audit fees within these two markets, this study examines the small and large audit markets separately to distinguish how competitive pressure within and between these audit markets affects audit quality.

Competition can be measured in different ways (Herfindahl index, leadership, office-client-balance, spatial distance) and at different levels (national, local, local-industry). The focus of this paper is spatial competition. Spatial competition derives from spatial economics, and it is based on how firms compete relative to their product-space locations within the market (Hotelling 1929; Biscaia and Mota 2013). Spatial competition, also known as spatial distance, is measured as the smallest absolute difference in market shares between two companies (competitors). Hereafter, the term competitive distance refers to spatial competition.[1] A decrease in competitive distance indicates that firms are closer together in market share, and it suggests an increase in competitive pressure. On

[1] Previous audit studies have used the term spatial distance as the proxy for spatial competition (Numan and Willekens 2012, 2014; Newton, Persellin, Wang, and Wilkins 2015). In this sense, spatial distance is referencing a competitor's market share (location) relative to its closest competitor's market share (location). Spatial distance can also refer to the geographical distance between two competitors such as miles between their two locations. The term competitive distance denotes a competitor's market share (location) relative to their closest competitor's market share (location) to avoid any confusion with geographical distance.

the other hand, an increase in competitive distance signifies that firms are farther apart in market share, and it implies a decrease in competitive pressure.

This measure of competitive distance described above follows Bills and Stephens (2016) by proxying competition as the smallest absolute audit fee market share difference between the two closest competitors. Audit fee market share is defined at a local-industry level (two-digit SIC, MSA) and at a local level (MSA) for the years 2004-2015. The local level is a broader measure, and it holds industry effects constant. Note, this measure of competitive distance at a local level is less reliable because auditors tend to specialize in industries within an MSA and not just specialize in an MSA (Reichelt and Wang 2010). The local competitive distance results are discussed in Section 5. This paper differentiates from prior research on audit quality and spatial competition by calculating competitive distances from different angles: large audit firm to large audit firm, small audit firm to small audit firm, and between a large audit firm and a small audit firm. Using these measures, this study tests if a relationship exists between audit quality and each measure of competitive distance.

Audit quality is proxied using three different measures commonly found in audit quality literature: absolute value of abnormal accruals, restatements, and going concern opinions. The absolute value of abnormal accruals is a measure of financial reporting quality that is used to detect opportunistic earnings management (DeFond and Zhang 2014). The reasoning behind this measure is that higher earnings quality (lower absolute value of abnormal accruals) signifies higher audit quality since high quality auditors do not tolerate earnings management (Balsam, Krishnan, and Yang 2003). The next measure of audit quality is the occurrence of restatements, which is a more direct measure of audit quality than abnormal accruals because it signifies that auditors issued an unqualified opinion on financial statements that were materially misstated. The last measure of audit quality is going concern opinions. A going concern opinion is a form of auditor communication that indicates the auditors believe that substantial doubt exists about the client's ability to continue as a going concern. Going concern opinions are costly to clients; therefore, client managers may pressure audit firms to issue clean opinions. Lower issuances of going concern opinions when appropriate is a signal of lower audit quality.

It is unclear what the relationship is between audit quality and competitive distance. The relationship between audit quality and competition could be positive: more competition leads to higher audit quality, and less competition leads to lower audit quality. If audit firms are driven to differentiate themselves from others, then increasing technology and innovations may improve audit quality. When less competition exists, auditors may become complacent and lax in their professional skepticism, which leads to lower audit quality. On the other hand, it can also be argued that audit quality and competition are negatively related. More competition is associated with lower audit quality, and less competition is related to higher audit quality. More competition leads to higher auditor turnover as well as increased pressure to decrease audit fees. Auditors may reduce audit hours to maintain firm profits when fees decrease. Additionally, auditors may be more tolerant of client's earnings management to retain the client. When competition is low,

auditors do not face fee pressure, so they have more flexibility in audit hours and audit fees for their budget and contracts. Under this setting, since a lower chance of auditor turnover exists, auditors may perform a "watchdog" role and push back on clients that have unreasonable estimates, which could signal better audit quality. Lastly, market-based institutional incentives encourage auditors to perform their jobs in an independent and professional manner. As such, competition (high or low) would not have an influence on audit quality.

Most of the results indicate that local-industry competitive distance is not related to audit quality measures. Specifically, in the large audit market, local-industry competitive distance between large audit firms and local-industry competitive distance between a large audit firm and its nearest small audit firm competitor do not influence audit quality as proxied by abnormal accruals, restatements, Big R restatements, Little r restatements, and going concern opinions. The only exception is that weak evidence exists of a positive relationship between restatements and competitive distance between a large and a small audit firm when the company is an accelerated filer. For the small audit firm sample, some evidence exists of a relationship between local-industry competitive distance and audit quality. Findings show that competitive distance between two small audit firms is negatively related to restatements (when a company is a non-accelerated filer) and abnormal accruals. Overall, this paper indicates that competition at a local-industry level may not impact audit quality as previously thought.

Additionally, this study tests if local competitive distance (measured between MSA market shares without regard to industry) impacts audit quality. Since auditors tend to specialize in industries, the local competitive distance is a less reliable measure of competition. In these analyses, some evidence exists that local competition impacts audit quality. For the large audit firm sample, evidence suggests that competition between two large audit firms is negatively linked with abnormal accruals, while competition between a large audit firm and its nearest small audit firm competitor is positively associated with abnormal accruals and restatements. For the small audit firm sample, competitive distance between small audit firms and competitive distance between small audit firms and large audit firms are not significantly related to any measures of audit quality.

Overall, this research paper contributes to the audit literature and may be of interest to several different parties. First, this study delivers further insight into the audit competition literature. The competition literature examines the association between competition and audit quality; however, the results are mixed (Kallapur, Sankaraguruswamy, and Zang 2010; Boone, Khurana, and Raman 2012; Newton, Wang, and Wilkins 2013; Numan and Willekens 2014; Ettredge, Sherwood, and Sun 2017). Kallapur et al. (2010) and Newton et al. (2013) provide evidence that higher concentration (lower competition) is associated with higher audit quality (better accrual quality and fewer restatements). On the other hand, Boone et al. (2012) present findings that higher concentration leads to lower audit quality (more just meeting or beating analysts' earnings forecasts). Lastly, Numan and Willekens (2014), a working paper, address the issue of competition and audit quality by proxying competition with competitive distances. They find that smaller competitive distance (higher competition) is related to lower audit quality (higher abnormal accruals, more restatements, and fewer

issuances of going concern opinions). While these audit quality papers examine competition in some form, they do not capture competition strictly among large audit firms, strictly among small audit firms, and strictly between large and small audit firms. Thus, this paper provides evidence on this topic. This paper may be of interest to regulators and policy makers who are concerned about the audit market concentration, competition among audit firms, and audit quality. This research also provides more insight into the small audit market behavior since academic research is often limited in this area (Bills and Stephens 2016). Lastly, this study may be of interest to companies that are in the process of choosing an auditor by providing evidence whether audit fees reflect the audit quality a company receives.

The paper continues as follows. The next section covers the literature that pertains to audit market competition and audit quality as well as the hypotheses development. The third section reviews the sample selection and variables of interest. The fourth section details the results, the fifth section covers additional tests, and the paper concludes with a summary.

CHAPTER 2. BACKGROUND AND HYPOTHESES

Several different areas of research relate to the relationship between competitive distances and audit quality. The background and hypotheses section is organized as follows. The first section covers a general overview of the audit market and its structure. The next section examines competition and the literature pertaining to competitive distances and the intersection of the small and large audit markets. Finally, the section concludes with development of the hypotheses.

2.1 Audit Market

Audit market concentration and the concern over potential lack of competition has been an ongoing issue for the United States as well as other countries (Francis, Michas, and Seavey 2013a). In the U.S., the GAO has expressed concerns over audit market concentration and released reports in 2003 and 2008. In the 2008 report, the GAO addresses audit market concentration; however, they conclude that no immediate action is currently necessary (GAO 2008). Recently, studies have focused on how small audit firms compete and affect the large audit firms (Bills and Stephens 2016; Keune et al. 2016). The research question for this paper builds off the concept of competition at the intersection of small and large audit firms by using competitive distances to study the relationship between competition and audit quality.

Some researchers argue that the audit market can be divided into two separate markets, the "oligopolistic" large audit market (Big 4 firms: KPMG, Ernst and Young, Deloitte, PwC) and the "atomistic" small audit market (Non-Big 4 firms: Grant Thornton, Malone Bailey, BDO, etc.) (Ghosh and Lustgarten 2006). In general, the large audit market is highly concentrated due to the limited number of potential suppliers. Also, the large audit market has access to more resources, which allows these firms to be dominant on a national and international scale. However, Simunic (2014) argues that the large audit market is closer to perfect competition than an oligopoly. In a perfectly competitive environment, all firms offer an identical product, and pricing is not controlled by the firms. On the other hand, the small audit market tends to be less concentrated, has access to fewer resources, and focuses more on a regional footprint. Despite these differences between the large and small audit markets, Hogan and Martin (2009) argue that small audit firms compete with large audit firms at the local level as evidenced by second-tiered auditors (non-Big 4 firms that are inspected annually by the Public Company Accounting Oversight Board, PCAOB) that audit previous Big 4 clients. Overall, evidence suggests that an overlap between the large and small audit markets exists.

2.2 Competition

Audit firms can compete on both price and quality; however, a tradeoff exists between audit effort and profit because unlimited audit hours are unreasonable and audit fees typically have an upper bound (Newton et al. 2013). Auditors may exert more audit effort to provide a higher quality audit, but they must either increase audit fees to compensate for their work or cut into the audit firm's profits by charging less. In the audit literature, competition has been negatively associated with audit fees (Kallapur et al. 2010; Numan and Willekens 2012; Bills and Stephens 2016; Eshleman and Lawson 2017). Kallapur et al. (2010) use the Herfindahl index to

proxy competition, and it is calculated as the sum of squared market shares of all offices in a market. A larger Herfindahl index signals more concentration. They find that lower concentration (higher competition) is associated with lower audit fees. Numan and Willekens (2012) find that higher competition, as proxied by competitive distance, decreases audit fees charged by Big 4 firms.

Despite the consistent negative link between competition and audit fees, the relationship between competition and audit quality is unclear. First, in a highly competitive environment, competition may be negatively related to audit quality. Auditor switching is more likely; thus, auditors strive for client retention. One possible avenue for client retention is auditor leniency to maintain good client relations. Auditor leniency may include tolerating more earnings management, not correcting material misstatements, not issuing a material internal control weakness, or not issuing a going concern opinion. Additionally, when competition is high, auditors face greater audit fee pressure. To overcome these reduced fees, auditors may perform more efficient testing (but not necessarily effective), or auditors may reduce audit hours (audit effort) so that they can increase their profit. Caramanis and Lennox (2008) find evidence that reduced audit effort increases the likelihood of earnings management. The above descriptions would suggest lower audit quality in highly competitive environments. On the other hand, in a highly competitive environment, another argument is that competition is positively connected to audit quality. To differentiate themselves from competition, auditors may seek more efficient and effective methods for audit testing or better technological advancements. These innovations (i.e. computerized work papers and data analytics tests) could improve audit quality (Polimeni, Burke, and Benyaminy 2010).

The audit quality and competition debate can also go both directions when competition is low. When competition is low, the threat of auditor switching is less, and pressure to lower the audit fees is reduced. In this case, because auditors are less likely to be replaced, auditors may perform as a "watchdog" and be less tolerant of their client's earnings management (Boone et al. 2012). Also, since auditors are not facing fee pressure, auditors can raise the audit price to compensate them for additional audit effort and perform a better quality audit. These scenarios suggest that less competition would lead to higher audit quality; however, less competition could also lead to lower audit quality. With fewer competitors, auditors may not be driven to improve and may become complacent in their work and have reduced skepticism toward their client's financial statements (Boone et al. 2012). Lastly, market-based incentives such as litigation risk, reputation loss, and regulatory action from non-compliance may outweigh any competitive influence on audit quality. Thus, with all these potential outcomes, the relationship between audit quality and competition is an empirical question.

Previous literature has studied the connection between competition and audit quality; however, the results are conflicting. Kallapur et al. (2010) and Newton et al. (2013) find a positive relationship between audit market concentration and audit quality. These studies provide evidence that as audit market concentration increases (less competition), companies have higher accrual quality (Kallapur et al. 2010) and are less likely to restate financial statements due to Generally Accepted Accounting Principles (GAAP) failure (Newton et al. 2013). Additionally, Eshleman and Lawson (2017) find that audit market concentration is positively associated with audit quality as proxied through absolute value of performance-adjusted abnormal accruals. Eshleman and Lawson (2017)

examine switching and non-switching audit clients, and they attribute their findings to non-switching clients and first-year engagements when the auditor does not lowball. This research study applies Eshleman's and Lawson's research design choices in the additional tests and sensitivity tests section. On the other hand, Boone et al. (2012) demonstrate that an inverse relationship exists between audit market concentration and earnings quality. In their study, they show that in audit markets with higher concentration, companies are more likely to just beat analysts' earnings forecast, suggesting concentration is associated with poorer audit quality. Lastly, Numan and Willekens (2014) disentangle industry expertise and competition influences on audit quality. They demonstrate that in a single integrated audit market, increased competition decreases audit quality (lower likelihood of going concern issuances, more occurrence of restatements, and higher abnormal accruals). Numan and Willekens (2014) use competitive distance as their proxy for competition, which is derived from spatial economics.

2.3 Competitive Distance

More recent audit papers have utilized spatial economic theory when studying audit market competition. Previously, some audit papers proxied competition using a concentration measure known as the Herfindahl index (Pearson and Trompeter 1994; Bandyopadhyay and Kao 2004; Feldman 2006; Kallapur et al. 2010; Boone et al. 2012; Newton et al. 2013). An underlying assumption of the Herfindahl index is that all firms within an industry experience the same level of competition and compete on quantity and price in homogenous markets. Empirically, Numan and Willekens (2012) and Lennox and Liu (2012) argue that this assumption does not hold in audit markets because firms face differing amounts of competition. Consider a scenario with a large, well-known firm and a small, unknown firm. A larger, well-established firm's strategy may relate to maintaining their client base; whereas, a small, young firm must strive to overcome entry barriers and gain market share. The larger, older firm may have less competition compared to the smaller, younger firm. The Herfindahl index does not necessarily distinguish between these two firms. Instead of using the Herfindahl index, some papers use competitive distance.

Competitive distance is a measure of competition that considers a firm's location in the market relative to another firm. Specifically, competitive distance is defined as the smallest absolute market share difference between company i and its closest competitor. In general, spatial economics proposes that as the distance in market location between two firms decreases, competition increases, and equilibrium prices become closer to marginal costs (Hotelling 1929). These competitive distances can be measured between different competitors and at different levels.

Competitive distance has been applied in the context of audit fees as well as audit quality (Numan and Willekens 2012, 2014; Newton et al. 2015; Bills and Stephens 2016). Numan and Willekens (2012) show that a decrease in competitive distance (increased competition) is associated with a decrease in audit fees. In other words, as the difference between Big 4 market share decreases (as Big 4 firms are closer in market share), audit fees decrease. This finding is also supported by Bills and Stephens (2016). For audit quality, Numan and Willekens (2014) demonstrate that as competitive distance decreases between audit firms in a single integrated market,

audit quality decreases. Also, industry expertise becomes insignificant in their models when competitive distance is added. Unlike Numan and Willekens (2014) who examine the audit market and competition without differentiating between large and small audit firms, this study examines if competitive distance has a different influence in the large audit market versus the small audit market and between these two markets.

2.4 Competitive Distance Between the Large and Small Audit Markets

In the audit literature, a shift from a national level to the local office level has occurred. The local office level is important for several reasons. First, audit firms strive to have uniform quality across all offices through firm-wide best practices; however, the decentralized nature of firms and the difficulties of nation-wide knowledge sharing may cause audit quality to differ from office to office (Krishnan 2005). Second, client engagement, audit fee pricing, and audit opinion decisions are made at the office level (Francis, Stokes, and Anderson 1999; Reynolds and Francis 2000). Lastly, research has provided evidence that factors such as office size, office location, and office environment affect audit quality (Krishnan 2005; Francis, Michas, and Yu 2013b). Therefore, it is important to study competition at a local-industry level instead of at a national level.

At a local-industry level, more consideration is placed on small audit firms. Research on small audit firms has shown that, like Big 4 firms, small audit firms differentiate themselves through quality and pricing (Bills, Cunningham, and Myers 2016; Bills and Stephens 2016; Keune et al. 2016). For example, Bills et al. (2016) show that small audit firms that are part of accounting associations provide higher audit quality (fewer PCAOB inspection deficiencies, fewer misstatements, and less extreme abnormal accruals) and charge a premium compared to non-associated small audit firms. An accounting association offers member firms expertise from other independent member firms, joint conferences and training, personnel for geographic limitations, and the use of the association's logo. Additionally, Bills and Stephens (2016) and Keune et al. (2016) find that small audit firms compete with large audit firms.

Keune et al. (2016) examine small audit firm competition and audit fees in the top 50 largest MSAs. They measure competition as the presence of a non-Big 4 local market leader. This unique measure is based off rankings that consider overall services provided by audit firms such as public and private engagements, tax services, and consulting services. The authors find that the presence of a non-Big 4 leader decreases audit fees; however, a non-Big 4 is not a perfect substitute due to differing premiums between the Big 4 and non-Big 4 firms. Overall, their paper demonstrates that an overlap of knowledge between private and public engagements exists and that a non-Big 4 audit firm with a strong local reputation is a competitor to a Big 4 firm.

Another paper that researches small audit market competition and audit fees is Bills and Stephens (2016). This paper accounts for the two-tiered nature of the audit market: large audit firms (Big 4) and small audit firms (non-Big 4) by applying competitive distances similar to Numan and Willekens (2012). Bills and Stephens (2016) measure competitive distance within and between the large and small audit markets. Their findings suggest that the local-industry market share distance between large and small audit firms has an influence on Big 4 audit fees. Specifically, as a small audit firm decreases the local-industry market share

distance between itself and a large audit firm, the large audit firm deceases its audit fees. Furthermore, Bills and Stephens (2016) show that as the small audit firm increases the competitive distance between themselves and other small audit firms, their audit fee increases. Lastly, as a small audit firm decreases the local-industry market share distance between itself and a large audit firm, the small audit firm increases audit fees. The authors explain that this result stems from the lookalike theory. The lookalike theory states that lookalike products "mimic" national brands and advance their competitive position simply because customers perceive them to be similar since they are in the same product category (Sayman, Hoch, and Raju 2002; Richards, Hamilton, and Patterson 2010; Johnson, Gibson, and Freeman 2013).

In summary, the relationship between competition and audit fees is consistent; however, audit fees only represent one aspect of audit quality. The link between audit fees and audit quality remains blurred in the current accounting literature. In his review of audit literature, Francis (2011) suggests that it is unclear whether abnormal audit fees capture auditor independence issues (economic rents) or abnormally high audit effort (better audit quality) that is unobservable to academic researchers. Exactly what factors comprise audit fees is unknown; however, Hay, Knechel, and Wong (2006) break the audit fee model used by researchers down into client attributes, engagement attributes, and auditor attributes. Under economic rent theory, excessive fees represent a conflict of interest and impair auditor independence (Zeff 2003; Church, Jenkins, McCracken, Roush, and Stanley 2014). On the other hand, under the audit effort story, more effort suggests better audit quality assurance. If a client has poorer reporting quality, then the auditor must exert more effort to provide a quality audit, and the auditors charge higher fees in order to be compensated (Hribar, Kravet, and Wilson 2014). Consequently, it is important to use other output measures of audit quality, and it is not desirable to rely solely on audit fees as representing higher or lower audit quality.

2.5 Hypotheses

The purpose of this study is to examine the relationship between audit quality and competitive distances within and between the large and small audit markets at a local-industry level. The large audit market is defined as all Big 4 accounting firms, and the small audit market is defined as all non-Big 4 accounting firms. As detailed above, the relationship between competition and audit quality is unclear. Auditors must balance audit effort exerted and audit fees. In competitive environments, auditors face fee pressure and a higher risk of auditor turnover. Auditors compete to retain clients by lowering audit fees. A decrease in audit fees may imply a decrease in audit effort, which in turn, suggests lower audit quality (Doogar, Sivadasan, and Solomon 2015). Additionally, the audit firms may be entrenched in their clients and lack independence. If an audit firm loses a client, it would result in lower audit fees and a possible loss of their market position. Thus, an audit firm may be more tolerant of earnings management to keep the client. In contrast, more competition may encourage more innovation among auditors as auditors attempt to distinguish themselves from others. Innovation may lead to more efficient and effective audit techniques, which improves audit quality. Another viewpoint is that low competition stimulates complacency in auditors. As an audit firm pulls further away from their competition, the audit firm may not be

motivated to continue to provide higher audit quality. The audit firm may become lax or less skeptical in their testing, leading to a higher likelihood of not discovering and/or correcting a material misstatement. Conversely, in low competitive environments, auditors are less likely to succumb to audit fee pressures because auditor turnover is lower. If a client's financial statements need extensive audit testing, the audit firm can adjust the contract accordingly without fear of losing the client. Also, an auditor may be less tolerant of earnings management and push back on the client's judgments when necessary. Finally, reputation loss, litigation risk, and regulatory action for non-compliance may be sufficient market-based institutional incentives to encourage auditors to perform their jobs in an independent and professional manner. As such, competition (high or low) would not have an influence on audit quality. Because of these opposing scenarios, this paper does not make directional hypotheses about the relationship between competition and audit quality.

For the research question, competition is proxied by competitive distance. Competitive distance is measured between two large audit firms, between two small audit firms, and between large and small audit firms. Each measure of competitive distance and its relationship with audit quality is addressed as its own hypothesis. The hypotheses are listed below in the null form:

Hypothesis 1: In the large audit market, competitive distance between two large audit firms is not associated with audit quality.

Hypothesis 2: In the large audit market, competitive distance between a large audit firm and its nearest small audit firm competitor is not associated with audit quality.

Hypothesis 3: In the small audit market, competitive distance between two small audit firms is not associated with audit quality.

Hypothesis 4: In the small audit market, competitive distance between a small audit firm and its nearest large firm competitor is not associated with audit quality.

Figure 1: Hypotheses provides a summary of the hypotheses.

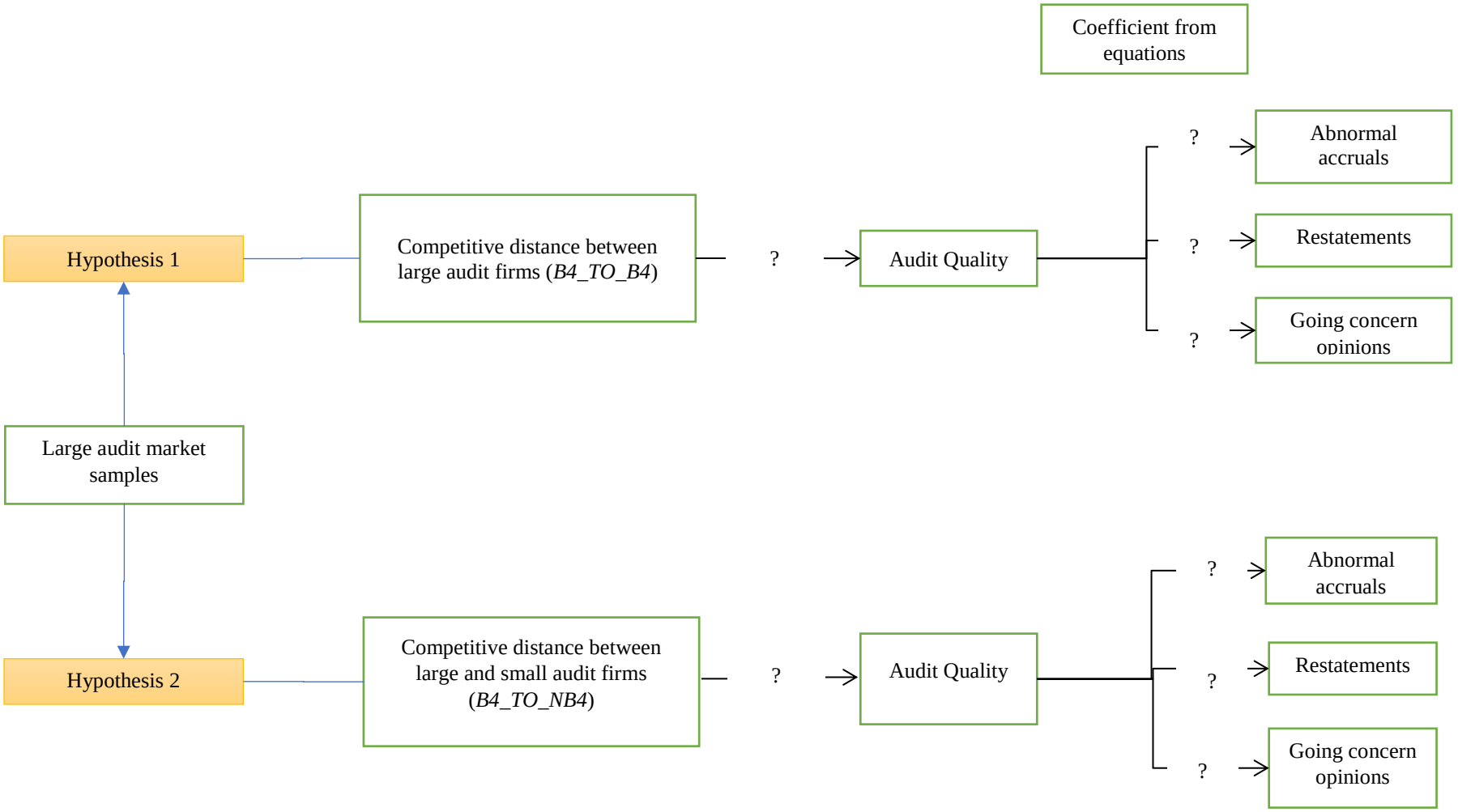
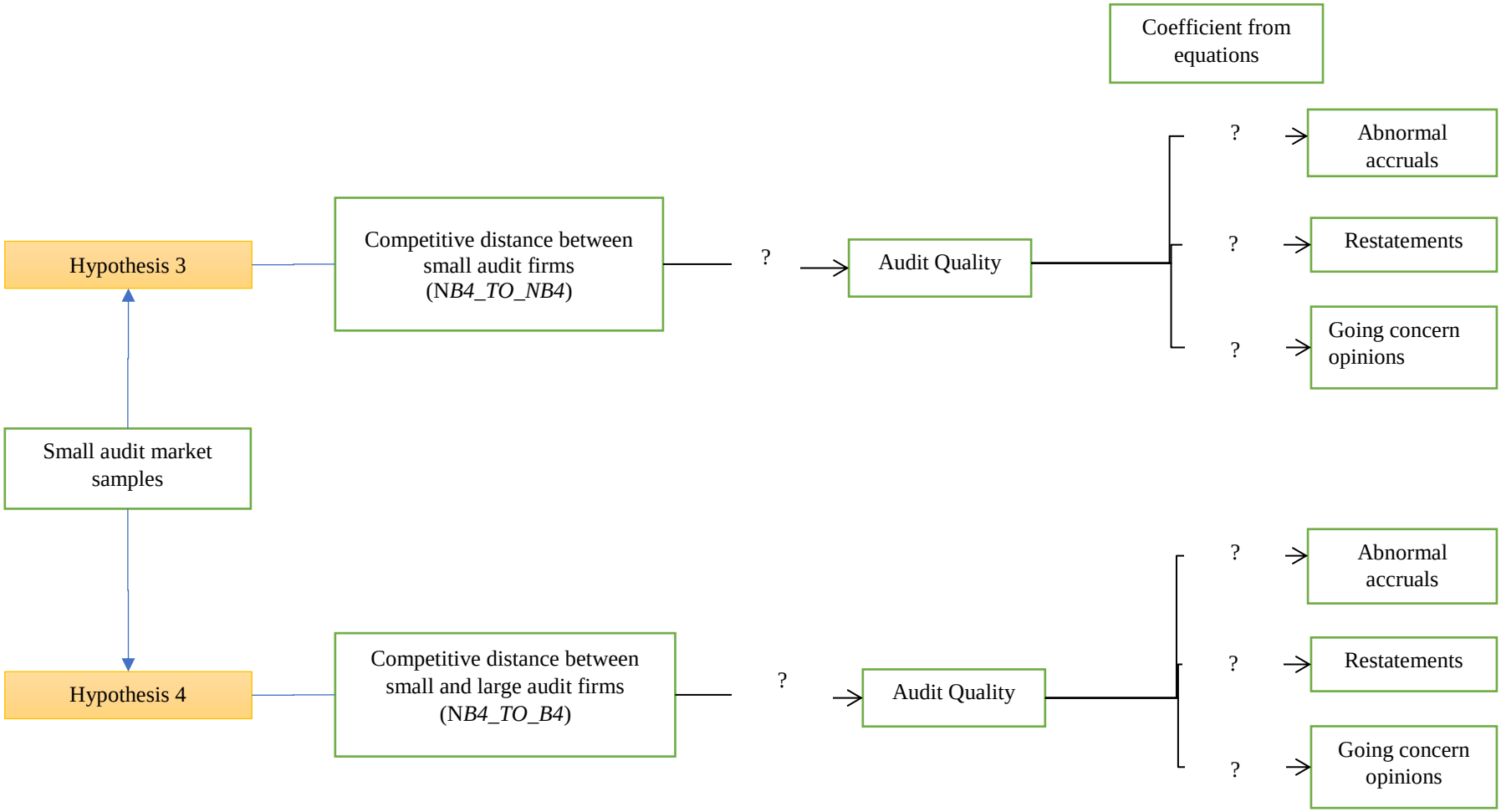


Figure 1: Hypotheses
(figure cont'd.)


Coefficient from equations
Hypothesis 3
Competitive distance between small audit firms (NB4_TO_NB4)
?
Audit Quality
?
Abnormal accruals
?
Restatements
?
Going concern opinions
Small audit market samples
Hypothesis 4
Competitive distance between small and large audit firms (NB4_TO_B4)
?
Audit Quality
?
Abnormal accruals
?
Restatements
?
Going concern opinions

CHAPTER 3. SAMPLE AND COMPETITIVE DISTANCE DEFINITIONS

This next section covers the sample and competitive distance definitions. The first part of the section describes the samples and sample attrition. The second part of the section provides details on the calculation of competitive distance as the proxy for competition and the reasoning behind this measure.

3.1 Sample

For the sample construction, Audit Analytics is used to retrieve audit fees, auditor location information, and data related to restatements, audit opinions, and internal control weaknesses. Compustat data is used to gather a company's financial information needed to construct variables such as firm size, health, growth, leverage, etc. Lastly, CRSP is used for stock return information. Each sample covers the years 2004-2015, except for the restatement samples. Restatement samples cover the years 2004-2013 because previous research provides evidence that on average, two years pass between the misstatement period and the discovery of the restatement (Cheffers, Whalen, and Usvyatsky 2010). The market share data related to audit fees is constructed using the full Audit Analytics database before any observations are removed. Additionally, the calculation for abnormal accruals uses the full sample of Compustat with the necessary variables available before eliminating any firm-year observations.

For the main tests discussed in Section 4, a total of six different samples are used to test the various hypotheses. First, the sample is divided into two groups: large audit firms (only Big 4) and small audit firms (only non-Big 4). This methodology of Big 4 versus non-Big 4 is consistent with the sample construction from Bills and Stephens (2016). From these two groups, the final samples are created for the three audit quality measures: absolute value of abnormal accruals, restatements, and going concern opinions. The large audit market samples test the first two hypotheses related to audit quality and competitive distance between large audit firms and competitive distance between large and small audit firms. The small audit market samples explore Hypotheses 3 and 4. These hypotheses test if a relationship exists between audit quality and the competitive distance between small audit firms and competitive distance between the small and large audit firms. In Section 5, the same sample methodology is used to test audit quality and local competitive distances.

Table 1 displays the sample attrition for the local-industry samples. For both the large and small audit firm samples, markets are defined as SIC, MSA for each year represented in the samples. First, the samples begin with all non-utility (SIC 40-49) and non-financial (SIC 60-69) firm observations in Audit Analytics that also have the corresponding Compustat and CRSP data for their respective measures of audit quality.[2] Next, the samples are partitioned into large audit firms (Big 4) and small audit firms (non-Big 4). From here, any large (small) audit market with only one large (small) audit firm present is removed. In other words, each large (small) audit market has a minimum of two large (small) audit firms. Finally, one of the variables of interest measures the difference

[2] Utilities and financial institutions are excluded due to their different operating features and regulatory requirements (Fields, Fraser, and Wilkins 2004; Boone et al. 2012).

in market shares between a large audit firm and its closest small audit firm competitor and vice-versa. This measure requires each large (small) audit market to have at least one small (large) audit firm present. Any observations are deleted that do not meet these market requirements. By default, each audit market has at least three audit firms present (some combination of large and small audit firms) and at least three clients. Table 1 displays the sample attrition[3].

[3] This sample follows the same guidelines for sample attrition from Bills and Stephens (2016). Additionally, this sample is used to replicate Bills and Stephens (2016) research, and similar results are found (untabulated).

Table 1
Sample Attrition
Local-Industry

	Abnormal Accruals		Restatement		Going Concern Opinion	
	Large Firms	Small Firms	Large Firms	Small Firms	Large Firms	Small Firms
Data from 2004-2015 with sufficient information for control variables (excludes financial and utility industries)*	28,150	28,150	26,296	26,296	23,734	23,734
Delete: Firms that are not financially distressed	-	-	-	-	(15,360)	(15,360)
Delete: Small audit firms/ Large audit firms	(7,950)	(20,200)	(9,132)	(17,164)	(2,799)	(5,575)
Delete: Observations MSA-industries with only one audit firm	(6,732)	(2,295)	(5,468)	(2,312)	(1,452)	(630)
Delete: Observations MSA-industries with no small audit firm	(2,166)	-	(1,883)	-	(691)	-
Delete: Observations MSA-industries with no large audit firm	-	(897)	-	(1,248)	-	(389)
Remaining Sample	11,302	4,758	9,813	5,572	3,432	1,780

*Note: Restatement sample covers the years 2004-2013 to allow for sufficient discovery time for the restatements to be reported.

3.2 Competitive Distance

Throughout the competition literature, competition has been defined in different ways. Some of the proxies for competition include the Herfindahl index, competitive distance, market leadership, and intersection of small and large audit markets. Competitive distance in this paper is used to proxy for competition for several reasons. First, this research paper is interested in studying the impact of both small and large audit firm competition within the markets as well as between the markets. The Herfindahl index does not allow measurement between markets; however, competitive distance does capture competition within a market and between markets.

Second, studies that use concentration measures find mixed results on the relationship between audit market concentration and audit quality (Kallapur et al. 2010; Boone et al. 2012; Francis et al. 2013a; Newton et al. 2013). Numan and Willekens (2014) argue that a lack of theory connecting market concentration and product quality exists. They also suggest that other competition measures besides concentration affect audit quality such as industry specialization, which is typically based on market share. Additionally, several academic studies have debated that high industry concentration does not automatically imply low competition within a market (Dedman and Lennox 2009; Lennox and Liu 2012; Numan and Willekens 2012).

Lastly, competitive distance as a proxy for competition has been used in previous studies (Numan and Willekens 2012, 2014; Newton et al. 2015; Bills and Stephens 2016). Numan and Willekens (2012) and Bills and Stephens (2016) study competitive distance and audit fees. Newton et al. (2015) examine competitive distance and internal control opinion shopping, while Numan and Willekens (2014) observe competitive distance and audit quality. Finally, Bills and Stephens (2016) also study competitive distance within and between the large and small audit markets, so this study expands upon their findings on audit fees and examines the relationship between audit quality and competitive distance within and between the large and small audit markets.

Competitive distance is derived from spatial economics and is computed using a firm's market share location relative to their closest competitor's market share. The smallest absolute difference in market share between two firms is used because firms compete to gain power within a market. A firm's biggest threat to losing their relative market position is going to be those firms that are located closest to it in market share. To construct the competitive distance variable, the methodology of Bills and Stephens (2016) is followed, and it uses local-industry market share. Also, competitive distance is measured at the local market share level, without taking into consideration the industry market share, following Numan and Willekens (2012) and Newton et al. (2015). The results of the local competitive distance are discussed in Section 5.

B4_TO_B4 (NB4_TO_NB4) is the smallest absolute industry market share difference between company i's Big 4 (non-Big 4) auditor and its closest Big 4 (non-Big 4) audit firm competitor in a two-digit SIC industry within an MSA in a year. These two variables capture competition within a market.

B4_TO_NB4 and NB4_TO_B4 are used to proxy for competition between a large audit firm and a small audit firm and vice versa. B4_TO_NB4 (NB4_TO_B4) is defined as the smallest industry market share difference between company i's Big 4 (non-Big 4)

auditor and its closest non-Big 4 (Big 4) audit firm competitor in a two-digit SIC industry within an MSA in a year. These two variables capture competition between markets.

CHAPTER 4. RESULTS

DeAngelo (1981) states that audit quality is "the market-assessed joint probability that a given auditor will both detect a breach in the client's accounting system, and report the breach." Audit research relies on many different proxies to capture audit quality. Some of these measures are outputs of the audit process (e.g. going concern opinions, financial reporting quality measures) and some of these measures of audit quality are audit input oriented (e.g. auditor size, audit fees) (DeFond and Zhang 2014). The problem with audit quality is that audit quality is not the only factor that influences financial reporting quality; rather, financial reporting quality is a function of the innate characteristics of the firm, the financial reporting system, and the audit quality. Three measures of audit quality are tested in this paper to provide in-depth detail about the relationship between audit quality and the competitive distances within and between the small and large audit markets.

4.1 Abnormal Accruals

The first proxy for audit quality is based on abnormal accruals (ABS_DACC_SIZE). This proxy is defined as the absolute value of abnormal accruals as measured using the performance-adjusted abnormal accruals model based on the cross-sectional modified Jones equation (Jones 1991; Kothari, Leone, and Wasley 2005). Previous audit literature has associated lower abnormal accruals with higher audit quality. For example, industry experts, larger offices, and Big N auditors have all been linked with lower abnormal accruals, and accordingly, higher audit quality (Francis, Maydew, and Sparks 1999; Balsam et al. 2003; Krishnan 2003; Francis and Yu 2009; Choi, Kim, Kim, and Zang 2010; Reichelt and Wang 2010). The reasoning behind this measure is that higher quality auditors should not tolerate higher abnormal accruals, and higher quality auditors should be able to detect and restrain any opportunistic reporting actions by management.

Abnormal accruals are a measure of financial reporting quality that proxy for managers' opportunistic reporting calculated as the residual from Equation (1). Equation (1) regresses total accruals on the reciprocal of lagged total assets, change in sales less change in receivables, property, plant, and equipment, and return on assets. The equation is estimated by size-year deciles, following the methodology of Ecker, Francis, Olsson, and Schipper (2013). Size is defined as lagged total assets. Following Ecker et al. (2013), 11 observations per size-year estimate are required, which reduces the sample attrition associated with estimating accruals by two-digit SIC year.[4]

The equation below estimates abnormal accruals as follows:

$$TA_{i,t}=\beta_0+\beta_1(1/A_{i,t-1})+\beta_2(\Delta Sales_{i,t} - \Delta Rec_{i,t})+\beta_3 PPE_{i,t}+ \beta_4 ROA_{i,t}+ \varepsilon_{i,t} \quad (1)$$

where:

[4] Ecker et al. (2013) suggest estimating accrual regressions based on size to reduce sample attrition. They find that estimation samples grouped on similarity in lagged assets detect abnormal accruals at least as well as estimation samples grouped by industry peers. Additionally, research has shown that companies of comparable size are also similar in growth, complexity, and monitoring, which are characteristics that have been linked to accruals. Equation (1) is estimated based on lagged total assets grouped in deciles by year.

$TA_{i,t}$ = total accruals for company i in year t, calculated as income before extraordinary items less net cash flow from operating activities, scaled by company i's total assets in year t-1,

$A_{i, t-1}$ = lagged total assets for company i in year t-1,

$\Delta Sales_{i,t}$ = change in sales for company i between year t-1 and year t, scaled by total assets for company i in year t-1,

$\Delta Rec_{i,t}$ = change in receivables for company i between year t-1 and year t, scaled by total assets for company i in year t-1,

$PPE_{i,t}$ = net property, plant, and equipment for company i in year t, scaled by total assets for company i in year t-1,

$ROA_{i,t}$ = return on assets for company i in year t (net income in year t divided by assets in year t)

The absolute value of the residual in Equation (1) represents abnormal accruals (ABS_DACC_SIZE). Lower abnormal accruals suggest less earnings management and less financial misreporting, which in turn, implies higher audit quality. Advantages of the absolute value of abnormal accruals are that it is linked to the continuous nature of audit quality and may signal more egregious, undetected misstatements. Also, abnormal accruals depict quality variation for many firms (DeFond and Zhang 2014). Limitations of abnormal accruals are that it is subject to measurement error and sensitivity as well as potential bias. Additionally, several different ways exist to measure abnormal accruals (Kothari et al. 2005). To overcome these limitations of abnormal accruals, other measures of audit quality are used to test the hypotheses.

To test if audit quality and competitive distance are related, the absolute value of abnormal accruals (ABS_DACC_SIZE) is regressed on the aforementioned proxies of competitive distance and a set of control variables from prior studies (Reichelt and Wang 2010; Numan and Willekens 2014; and Bills and Stephens 2016). Industry and year fixed effects are also included in the model, and heteroskedasticity is controlled for by using robust standard errors that are clustered by company. Some companies are too large for small audit firms to audit since small audit firms may lack the necessary resources to provide a quality audit. Additionally, some companies are too small and cannot afford a large audit firm. Therefore, Equations (2a) and (2b) are estimated using the full sample, and then, the equations are run separately based on a company's filing status (large accelerated, accelerated, and non-accelerated). Separating the regressions by filing status allows similar observations to be grouped together and allows the coefficients on the variables of interest to differ depending on the filing status of the companies.

$$\begin{aligned} ABS\_DACC\_SIZE_{i,t} = {} & \beta_1 B4\_TO\_B4_{i,t} + \beta_2 B4\_TO\_NB4_{i,t} + \beta_3 JOINT\_SPEC_{i,t} + \beta_4 HERF_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFO_{i,t} \\ & + \beta_8 STD\_CFO_{i,t} + \beta_9 MB_{i,t} + \beta_{10} LOSS_{i,t} + \beta_{11} ABS\_LTA_{i,t} + \beta_{12} Z\_SCORE_{i,t} + \beta_{13} LIT_{i,t} + \beta_{14} TENURE_{i,t} \\ & + \beta_{15} AB\_FEE_{i,t} + \beta_{16} MAT\_WEAK_{i,,t} + \text{Industry and Year fixed effects}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2a)$$

$$\begin{aligned} ABS\_DACC\_SIZE_{i,t} = {} & \beta_1 NB4\_TO\_NB4_{i,t} + \beta_2 NB4\_TO\_B4_{i,t} + \beta_3 SPEC_{i,t} + \beta_4 HERF_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFO_{i,t} \\ & + \beta_8 STD\_CFO_{i,t} + \beta_9 MB_{i,t} + \beta_{10} LOSS_{i,t} + \beta_{11} ABS\_LTA_{i,t} + \beta_{12} Z\_SCORE_{i,t} + \beta_{13} LIT_{i,t} + \beta_{14} TENURE_{i,t} \\ & + \beta_{15} AB\_FEE_{i,t} + \beta_{16} MAT\_WEAK_{i,,t} + \beta_{17} TIER\_2_{i,t} + \text{Industry and Year fixed effects}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2b)$$

Refer to Appendix for variable definitions. Note, when the equation is run to test the association between audit quality and local competitive distance (ignoring industry), B4_TO_B4 is replaced with B4_TO_B4_MSA and B4_TO_NB4 is replaced by B4_TO_NB4_MSA for the large audit firm sample in Equation (2a). For the small audit firm sample at the local level, NB4_TO_B4 is

replaced by NB4_TO_B4_MSA and NB4_TO_NB4 is replaced by NB4_TO_NB4_MSA in Equation (2b). Also, HERF is replaced by HERF_MSA for Equations (2a) and (2b). See Section 5.

The variables of interest in Equation (2a) are B4_TO_B4 (H1) and B4_TO_NB4 (H2). If the coefficient on B4_TO_B4 is negative, it suggests that as competitive distance decreases between large audit firms (proxying an increase in competition), then abnormal accruals are higher, signaling poorer audit quality. This result follows the view that competition influences auditors to be more lenient with their clients to retain them, and competition impairs auditor quality. If the coefficient on B4_TO_B4 is positive, it signals that as competitive distances between large audit firms decrease, abnormal accruals also decrease, supporting the concept that competition is positively related to audit quality. The same outcomes hold true for the coefficient on B4_TO_NB4, except that it is testing Hypothesis 2, which tests the relationship between audit quality and competitive distance of a large audit firm and its nearest small audit firm competitor.

Equation (2b) applies to Hypotheses 3 and 4, and the variables of interest are NB4_TO_NB4 (H3) and NB4_TO_B4 (H4). Hypothesis 3 pertains to the small audit firm samples and the relationship between audit quality and the competitive distance between small audit firms. Similar to above, a negative coefficient on NB4_TO_NB4 demonstrates that decreasing competitive distance between small audit firms leads to higher abnormal accruals (lower audit quality). In contrast, if NB4_TO_NB4 is positive, it signals that decreasing competitive distance between small audit firms is associated with lower abnormal accruals (higher audit quality). Lastly, Hypothesis 4 examines if small audit firm quality is associated with competitive distance between the small and large audit firms. The coefficient's relationships remain the same as those discussed previously; however, competitive distance is capturing the competition between a small audit firm and its nearest large audit firm competitor.

Within Equations (2a) and (2b), other competition measures such as concentration within the audit market (HERF) and competition based on industry specialization (JOINT_SPEC, SPEC, TIER_2) are control variables. Previous studies have found associations between competition, specialization, and abnormal accruals (Kallapur et al. 2010; Reichelt and Wang 2010; Boone et al. 2012; Numan and Willekens 2014). JOINT_SPEC, SPEC, and TIER_2 are predicted to have negative coefficients since previous literature has shown that these types of auditors are associated with lower abnormal accruals and higher audit quality (Reichelt and Wang 2010). Consistent with prior studies, negative coefficients are expected for SIZE, LEV, and CFO. Larger firms (SIZE) are associated with more steady accruals (Dechow and Dichev 2002). More highly leveraged firms have been linked to lower abnormal accruals (DeFond and Jiambalvo 1994; Becker, DeFond, Jiambalvo, and Subramanyam 1998), and firms with higher operating cash flows perform better and have lower accruals (Frankel, Johnson, and Nelson 2002). Firms that have higher bankruptcy risk (Z_SCORE, LOSS) as well as firms in high litigation industries (LIT) are projected to have higher abnormal accruals since these are riskier firms, and these firms face financial pressure to manipulate earnings. Additionally, firms with more growth (MB), higher prior year accruals (ABS_LTA), and higher volatility of cash flow from operations (STD_CFO) are expected to have higher abnormal

accruals as these characteristics are associated with unstable and volatile financial environments. Audit tenure (TENURE) is a control variable because regulators debate if longer tenure impairs auditor independence and audit quality. Material weakness (MAT_WEAK) is a control variable since material weaknesses have been linked to higher abnormal accruals (Doyle, Ge, and McVay 2007b). AB_FEE is included to control for additional audit effort (Newton et al. 2013). In conclusion, industry and year fixed effects are included to control for time and industry effects on the absolute value of abnormal accruals.

Table 2: Panel A provides the descriptive statistics for Equations (2a) and (2b) for the large and small audit firm samples associated with the local-industry competitive distance measure. To reduce the influence of outliers, all continuous variables are winsorized at the 1st and 99th percentile. These abnormal accrual samples have a total of 11,302 observations and 4,758 observations for the large audit firm sample and the small audit firm sample, respectively. The mean for B4_TO_B4 is 0.223, and B4_TO_NB4 has a mean of 0.322. These means are similar to Bills and Stephens (2016) that report means of 0.227 and 0.321 for B4_TO_B4 and B4_TO_NB4, respectively. In the small audit firm sample, NB4_TO_NB4 has a mean of 0.050, and NB4_TO_B4 has a mean of 0.187. Bills and Stephens (2016) report means of 0.031 for NB4_TO_NB4 and 0.162 for NB4_TO_B4. ABS_DACC_SIZE has a mean of 0.063 for the large audit firm sample and a mean of 0.088 for the small audit firm sample. The large audit firm sample mean for ABS_DACC_SIZE is lower than other studies (Reichelt and Wang 2010; Numan and Willekens 2014); however, this sample is limited to only companies audited by Big 4 firms. Big 4 firms have been associated with lower abnormal accruals (Francis et al. 1999a). The following control variables are comparable in means to prior literature for the large audit firm sample: HERF, SIZE, LEV, MB, LOSS, ABS_LTA, LIT, and JOINT_SPEC (Reichelt and Wang 2010, Numan and Willekens 2014, and Bills and Stephens 2016). The means for STD_CFO and TENURE are slightly lower than previous studies; while the means for CFO and Z_SCORE are higher. These differences may be due to sample restriction (Big 4 only) as well as differences in time periods. For the small audit firm sample, LEV, MB, and SPEC are similar to the means stated in Bills and Stephens (2016) and Bills et al. (2016), two prior studies with small audit firm samples covering similar time periods. The remaining control variables vary somewhat from other studies. This variation could be caused by sample selection, time period issues, or different measurement definitions.

Table 2
Descriptive Statistics
Panel A: Local-Industry Abnormal Accruals Samples

	Large Audit Firm Sample (N=11,302)					Small Audit Firm Sample (N=4,758)				
Variable	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
ABS_DACC_SIZE	0.063	0.065	0.019	0.042	0.084	0.088	0.089	0.026	0.060	0.118
B4_TO_B4	0.223	0.223	0.053	0.133	0.343	-	-	-	-	-
B4_TO_NB4	0.322	0.231	0.134	0.271	0.486	-	-	-	-	-
NB4_TO_NB4	-	-	-	-	-	0.050	0.088	0.002	0.012	0.052
NB4_TO_B4	-	-	-	-	-	0.187	0.242	0.031	0.084	0.224
JOINT_SPEC	0.167	0.373	0.000	0.000	0.000	-	-	-	-	-
SPEC	-	-	-	-	-	0.056	0.229	0.000	0.000	0.000
HERF	0.409	0.149	0.288	0.378	0.491	0.423	0.173	0.286	0.383	0.519
SIZE	6.950	1.811	5.686	6.860	8.118	4.161	1.756	2.934	4.147	5.397
LEV	0.162	0.194	0.000	0.100	0.260	0.119	0.204	0.000	0.013	0.161
CFO	0.071	0.171	0.032	0.096	0.156	0.013	0.225	-0.053	0.049	0.130
STD_CFO	0.074	0.103	0.022	0.042	0.081	0.144	0.268	0.037	0.072	0.136
MB	3.310	4.747	1.415	2.360	3.979	2.636	5.401	0.870	1.638	3.233
LOSS	0.333	0.471	0.000	0.000	1.000	0.505	0.500	0.000	1.000	1.000
ABS_LTA	0.103	0.116	0.035	0.070	0.126	0.173	0.301	0.042	0.091	0.177
Z_SCORE	1.868	2.584	1.026	2.063	3.170	1.028	5.038	-0.222	1.786	3.382
LIT	0.354	0.478	0.000	0.000	1.000	0.338	0.473	0.000	0.000	1.000
TENURE	1.618	0.613	1.099	1.609	2.079	1.174	0.715	0.693	1.386	1.792
AB_FEE	0.182	0.504	-0.144	0.187	0.513	-0.154	0.555	-0.488	-0.123	0.213
MAT_WEAK	0.101	0.302	0.000	0.000	0.000	0.191	0.393	0.000	0.000	0.000
TIER_2	-	-	-	-	-	0.315	0.464	0.000	0.000	1.000
LARGE_ACC_FILER	0.563	0.496	0.000	1.000	1.000	0.102	0.302	0.000	0.000	0.000
ACC_FILER	0.337	0.473	0.000	0.000	1.000	0.316	0.465	0.000	0.000	1.000
NON_ACC_FILER	0.100	0.301	0.000	0.000	0.000	0.583	0.493	0.000	1.000	1.000

(Table 2: cont'd.)

Panel B: Local-Industry Restatement Samples

	Large Audit Firm Sample (N=9,813)					Small Audit Firm Sample (N=5,572)				
Variable	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
RESTATE	0.112	0.315	0.000	0.000	0.000	0.089	0.285	0.000	0.000	0.000
BIG_R	0.057	0.231	0.000	0.000	0.000	0.061	0.239	0.000	0.000	0.000
LITTLE_R	0.055	0.228	0.000	0.000	0.000	0.028	0.166	0.000	0.000	0.000
B4_TO_B4	0.223	0.225	0.052	0.132	0.340	-	-	-	-	-
B4_TO_NB4	0.318	0.234	0.126	0.266	0.480	-	-	-	-	-
NB4_TO_NB4	-	-	-	-	-	0.039	0.086	0.001	0.007	0.034
NB4_TO_B4	-	-	-	-	-	0.191	0.246	0.030	0.087	0.229
JOINT_SPEC	0.159	0.366	0.000	0.000	0.000	-	-	-	-	-
SPEC	-	-	-	-	-	0.041	0.199	0.000	0.000	0.000
HERF	0.409	0.150	0.287	0.378	0.493	0.425	0.179	0.280	0.383	0.528
SIZE	6.724	1.851	5.475	6.644	7.908	3.639	1.930	2.426	3.705	5.012
LEV	0.156	0.200	0.000	0.081	0.252	0.188	0.549	0.000	0.002	0.147
LOSS	0.359	0.480	0.000	0.000	1.000	0.630	0.483	0.000	1.000	1.000
MB	3.123	4.499	1.387	2.297	3.862	1.617	16.853	0.406	1.401	3.395
ROA	-0.054	0.277	-0.065	0.035	0.081	-2.160	8.895	-0.661	-0.087	0.043
LOG_SEG	0.830	0.301	0.693	0.693	1.099	0.691	0.302	0.693	0.693	0.693
FOREIGN	0.605	0.489	0.000	1.000	1.000	0.223	0.416	0.000	0.000	0.000
MERGER	0.449	0.497	0.000	0.000	1.000	0.188	0.391	0.000	0.000	0.000
ARINV	0.203	0.151	0.083	0.177	0.293	0.242	0.221	0.049	0.187	0.388
FIN	0.154	0.244	0.008	0.038	0.198	0.445	1.140	0.001	0.044	0.397
EPR	-0.006	0.242	-0.023	0.048	0.093	-0.245	0.806	-0.218	-0.043	0.058
FREEC	-0.014	0.233	-0.047	0.043	0.104	-0.869	3.247	-0.455	-0.069	0.048
MAT_WEAK	0.109	0.312	0.000	0.000	0.000	0.282	0.450	0.000	0.000	1.000
FIRM_SIZE	3.606	1.038	2.996	3.738	4.143	1.244	1.002	0.000	1.099	2.079
CLIENT_IMPORTANCE	0.061	0.115	0.009	0.022	0.056	0.468	0.384	0.115	0.323	1.000

(Table 2: cont'd.)

Variable	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
GC	0.032	0.175	0.000	0.000	0.000	0.274	0.446	0.000	0.000	1.000
TENURE	1.535	0.581	1.099	1.609	1.946	1.075	0.695	0.693	1.099	1.609
AB_FEE	0.184	0.520	-0.150	0.184	0.526	-0.074	0.680	-0.475	-0.073	0.316
LRESTATE	0.118	0.323	0.000	0.000	0.000	0.086	0.281	0.000	0.000	0.000
TIER_2	-	-	-	-	-	0.260	0.439	0.000	0.000	1.000
LARGE_ACC_FILER	0.526	0.499	0.000	1.000	1.000	0.077	0.267	0.000	0.000	0.000
ACC_FILER	0.343	0.475	0.000	0.000	1.000	0.257	0.437	0.000	0.000	1.000
NON_ACC_FILER	0.131	0.337	0.000	0.000	0.000	0.666	0.472	0.000	1.000	1.000

Panel C: Local-Industry Going Concern Opinion Samples

	Large Audit Firm Sample (N=3,432)					Small Audit Firm Sample (N=1,780)				
Variable	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
GC	0.059	0.236	0.000	0.000	0.000	0.113	0.317	0.000	0.000	0.000
B4_TO_B4	0.225	0.226	0.052	0.133	0.359	-	-	-	-	-
B4_TO_NB4	0.308	0.238	0.110	0.254	0.477	-	-	-	-	-
NB4_TO_NB4	-	-	-	-	-	0.044	0.078	0.002	0.011	0.044
NB4_TO_B4	-	-	-	-	-	0.158	0.221	0.024	0.071	0.157
JOINT_SPEC	0.134	0.341	0.000	0.000	0.000	-	-	-	-	-
SPEC	-	-	-	-	-	0.048	0.213	0.000	0.000	0.000
HERF	0.408	0.148	0.292	0.375	0.488	0.412	0.169	0.272	0.373	0.512
SIZE	5.841	1.545	4.844	5.752	6.820	4.088	1.480	3.000	4.061	5.141
MB	3.270	7.462	1.068	1.996	4.083	2.898	6.308	0.825	1.600	3.565
DEBT	0.501	0.334	0.248	0.446	0.663	0.471	0.344	0.231	0.401	0.618
LOSS_GC	0.738	0.440	0.000	1.000	1.000	0.794	0.404	1.000	1.000	1.000

(Table 2 cont'd.)

Variable	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
L_LOSS_GC	0.640	0.480	0.000	1.000	1.000	0.683	0.465	0.000	1.000	1.000
STD_SALE	0.121	0.119	0.041	0.086	0.161	0.151	0.153	0.047	0.103	0.202
Z_SCORE	-0.352	4.181	-1.458	0.566	1.716	-0.824	5.752	-2.013	0.605	2.064
CASH	0.406	0.288	0.150	0.362	0.646	0.313	0.282	0.085	0.222	0.470
MAT_WEAK	0.127	0.333	0.000	0.000	0.000	0.179	0.384	0.000	0.000	0.000
LOG_SEG	0.739	0.255	0.693	0.693	0.693	0.723	0.264	0.693	0.693	0.693
LOG_GEO	0.979	0.692	0.693	1.099	1.609	0.833	0.675	0.000	0.693	1.386
CLIENT_IMPORTANCE	0.045	0.093	0.007	0.016	0.039	0.389	0.363	0.088	0.225	0.666
L_GC	0.035	0.184	0.000	0.000	0.000	0.076	0.266	0.000	0.000	0.000
REPORT_LAG	54.216	19.219	39.000	54.000	67.000	69.763	20.461	56.000	71.000	85.000
L_RETURN	0.023	0.828	-0.418	-0.123	0.232	-0.018	0.842	-0.484	-0.188	0.169
STD_RET	0.165	0.084	0.109	0.147	0.197	0.185	0.104	0.116	0.162	0.220
TENURE	1.619	0.601	1.386	1.609	2.079	1.164	0.721	0.693	1.386	1.792
AB_FEE	0.211	0.514	-0.107	0.209	0.546	-0.103	0.552	-0.451	-0.078	0.269
TIER_2	-	-	-	-	-	0.311	0.463	0.000	0.000	1.000
LARGE_ACC_FILER	0.325	0.468	0.000	0.000	1.000	0.082	0.274	0.000	0.000	0.000
ACC_FILER	0.499	0.500	0.000	0.000	1.000	0.355	0.479	0.000	0.000	1.000
NON_ACC_FILER	0.177	0.382	0.000	0.000	0.000	0.563	0.496	0.000	1.000	1.000

Refer to Appendix for variable definitions.

Pearson (Spearman) correlations among the variables for the abnormal accruals samples are shown below (above) the diagonal in the correlation table, Table 3: Panels A and B. Note, a high correlation of 0.67 (Pearson) and 0.57 (Spearman) exists between B4_TO_NB4 and B4_TO_B4, thus multicollinearity is a possible concern in the large audit firm sample. In the estimation of the models in Table 4, all variance inflation factors (VIFs) for the control variables are less than 10. VIFs of less than 10 do not indicate a concern for possible multicollinearity, when interpreting results (Kennedy 2008). In the large audit firm correlation table, a negative, significant correlation exists between abnormal accruals (ABS_DACC_SIZE) and both variables of interest (B4_TO_B4 and B4_TO_NB4). This correlation suggests that as competitive distances decrease, abnormal accruals increase. For the small audit firm correlation table, ABS_DACC_SIZE is negatively and significantly correlated with NB4_TO_NB4 and positively (but not significantly) correlated with NB4_TO_B4.

The results of estimating Equations (2a) and (2b) are shown in Table 4. Panel A shows the regression results using all observations for both the large audit firm and small audit firm samples. In Panel A of Table 4, the first three columns display the coefficients, p-values, and significance levels for the large audit firm sample, which addresses the first two hypotheses concerning the relationship between audit quality (proxied by abnormal accruals) and competitive distances in the large audit firm market. The majority of the control variables are either significantly associated with abnormal accruals in the directions suggested from prior literature or are in the predicted direction but insignificant. The coefficients on B4_TO_B4 and B4_TO_NB4 are negative; however, neither coefficient loads significantly. These insignificant coefficients suggest that the competitive distances in the large audit market do not affect audit quality as proxied by abnormal accruals.

The fourth, fifth, and sixth columns in Panel A of Table 4 represent the coefficients, p-values, and significance levels for Equation (2b), using the small audit firm sample. This panel tests if an association exists between audit quality (proxied by abnormal accruals) and competitive distances in the small audit market. Similar to the large audit firm results, the majority of the control variables are in their predicted directions as suggested by prior literature. Hypothesis 3 specifically focuses on audit quality and the competitive distance between two small audit firms (NB4_TO_NB4). NB4_TO_NB4 is negative and significant at $p < 0.05$. This relationship suggests that as the competitive distance decreases between two small audit firms, abnormal accruals increase. In other words, more competition leads to poorer audit quality in terms of abnormal accruals. The coefficient on NB4_TO_B4 is not significant, signifying that competitive distance between a small audit firm and its nearest large audit firm competitor does not affect audit quality, as measured by abnormal accruals.

Next, in Table 4: Panel B, Equations (2a) and (2b) are estimated for each filing type: large accelerated filers (LARGE_ACC_FILER), accelerated filers (ACC_FILER), and non-accelerated filers (NON_ACC_FILER) for both the large audit firm and small audit firm samples. For the large audit firm sample, the coefficients for B4_TO_B4 and B4_TO_NB4 are not significant. This evidence suggests that regardless of a client's filing type, competitive distance is not associated with abnormal

accruals in the large audit firm market. On the other hand, in the small audit firm sample, variations exist among the filing types. Evidence ($p < 0.01$) suggests that the competitive distance between small audit firms (NB4_TO_NB4) is negatively associated with abnormal accruals when a company is an accelerated filer. Additionally, when a company is a large accelerated filer, the competitive distance between a small audit firm and its nearest large audit firm competitor (NB4_TO_B4) is negatively associated with abnormal accruals. A limitation of this analysis by filing type is that statistical power is reduced (ex. NB4_TO_NB4 is no longer significant in all filing types). In summary, the results from Table 4 demonstrate that in the large audit firm market, competitive distance is not associated with abnormal accruals; however, in the small audit firm market for firms with accelerated filer clients, evidence exists that competitive distance between small audit firms (NB4_TO_NB4) is negatively associated with abnormal accruals. Also, when an audit firm has large accelerated filer clients in a small audit market, a weak negative relationship exists between the competitive distance between a small and large audit firm and abnormal accruals.

Table 3
Correlations
Panel A: Local-Industry Large Audit Firm Abnormal Accruals Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	ABS_DACC_SIZE	1.00	**-0.06**	**-0.10**	**-0.09**	**-0.07**	**-0.18**	**-0.13**	**0.03**	**0.37**	**0.13**	**0.21**	**0.26**	**-0.10**	**0.18**	**-0.07**	-0.01	**0.04**
2	B4_TO_B4	**-0.03**	1.00	**0.57**	**0.27**	**0.60**	**0.05**	**0.06**	**-0.07**	**-0.04**	**0.02**	0.00	**-0.07**	-0.01	-0.01	**0.05**	**0.03**	-0.01
3	B4_TO_NB4	**-0.06**	**0.67**	1.00	**0.42**	**0.38**	**0.23**	**0.13**	-0.02	**-0.12**	**0.03**	**-0.06**	**-0.10**	0.00	**-0.02**	**0.06**	**0.10**	**-0.04**
4	JOINT_SPEC	**-0.07**	**0.26**	**0.42**	1.00	**0.20**	**0.12**	**0.07**	-0.02	**-0.09**	0.00	**-0.04**	**-0.08**	**0.03**	**-0.12**	0.01	**0.06**	-0.01
5	HERF	**-0.03**	**0.73**	**0.47**	**0.19**	1.00	0.01	**0.07**	**-0.12**	**-0.06**	0.01	0.00	**-0.12**	**0.02**	-0.01	**0.03**	**-0.02**	-0.01
6	SIZE	**-0.20**	**0.07**	**0.22**	**0.13**	**0.02**	1.00	**0.27**	**0.43**	**-0.34**	**0.36**	**-0.43**	**-0.14**	**0.19**	**-0.13**	**0.15**	**-0.15**	**-0.14**
7	LEV	**-0.04**	**0.06**	**0.09**	**0.05**	**0.06**	**0.13**	1.00	0.00	**-0.22**	**-0.07**	-0.01	**-0.03**	**-0.32**	**-0.18**	**0.08**	**0.02**	**-0.05**
8	CFO	**-0.19**	**-0.08**	**-0.02**	0.00	**-0.11**	**0.39**	**-0.04**	1.00	**-0.15**	**0.25**	**-0.59**	0.01	**0.51**	**-0.14**	**0.04**	**-0.14**	**-0.10**
9	STDCFO	**0.39**	0.00	**-0.04**	**-0.06**	-0.01	**-0.24**	**-0.08**	**-0.29**	1.00	**0.08**	**0.26**	**0.28**	**-0.10**	**0.23**	**-0.15**	0.02	**0.07**
10	MB	**0.14**	**0.03**	**0.02**	-0.01	0.01	**0.19**	**-0.04**	**0.02**	**0.11**	1.00	**-0.13**	**0.06**	**0.06**	**0.09**	**-0.05**	**-0.06**	**-0.06**
11	LOSS	**0.23**	0.01	**-0.05**	-0.04	0.00	**-0.42**	**0.06**	**-0.56**	**0.24**	-0.01	1.00	**0.22**	**-0.52**	**0.21**	**-0.05**	**0.05**	**0.08**
12	ABSLTA	**0.29**	**-0.04**	**-0.06**	**-0.06**	**-0.07**	**-0.17**	0.01	**-0.16**	**0.42**	**0.08**	**0.24**	1.00	**-0.21**	**0.12**	**-0.07**	0.00	**0.02**
13	ZSCORE	**-0.23**	**-0.02**	-0.01	**0.03**	0.00	**0.24**	**-0.26**	**0.60**	**-0.20**	**-0.04**	**-0.48**	**-0.22**	1.00	**-0.10**	**-0.03**	**-0.13**	**-0.04**
14	LIT	**0.19**	0.00	-0.02	**-0.12**	-0.01	**-0.11**	**-0.13**	**-0.21**	**0.24**	**0.07**	**0.21**	**0.14**	**-0.15**	1.00	0.00	**-0.08**	**-0.02**
15	TENURE	**-0.06**	**0.04**	**0.05**	0.01	**0.02**	**0.14**	**0.05**	**0.04**	**-0.12**	0.00	**-0.05**	**-0.10**	**-0.04**	0.00	1.00	**-0.08**	**-0.16**
16	AB_FEE	0.01	**0.03**	**0.10**	**0.06**	**-0.03**	**-0.13**	0.00	**-0.12**	0.01	**-0.04**	**0.05**	**0.02**	**-0.15**	**-0.07**	**-0.06**	1.00	**0.17**
17	MATWEAK	**0.04**	0.00	**-0.03**	-0.01	-0.01	**-0.14**	**-0.03**	**-0.05**	**0.05**	**-0.03**	**0.08**	**0.05**	**-0.03**	**-0.02**	**-0.17**	**0.18**	1.00

(Table 3: cont'd.)

Panel B: Local-Industry Small Audit Firm Abnormal Accruals Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	ABS_DACC_SIZE	1.00	**-0.12**	0.03	**-0.05**	**0.03**	**-0.13**	**-0.04**	**-0.13**	**0.35**	**0.07**	**0.12**	**0.26**	**-0.19**	**0.05**	**-0.04**	-0.01	**0.08**	**-0.10**
2	NB4_TO_NB4	**-0.09**	1.00	**0.20**	**0.38**	**0.11**	**0.33**	**0.11**	**0.13**	**-0.16**	**0.04**	**-0.08**	**-0.11**	**0.12**	**-0.07**	**0.03**	**0.23**	**-0.03**	**0.29**
3	NB4_TO_B4	0.03	**0.11**	1.00	**0.11**	**0.28**	**-0.13**	0.02	0.02	0.04	-0.02	-0.02	0.02	0.02	**-0.08**	**0.04**	**-0.06**	0.03	**-0.14**
4	SPEC_MSA	**-0.04**	**0.74**	0.02	1.00	0.01	**0.12**	**0.08**	**0.03**	**-0.06**	0.00	**-0.04**	**-0.05**	**0.03**	**-0.06**	-0.01	**0.13**	-0.01	**0.13**
5	HERF	0.01	0.03	**0.61**	-0.02	1.00	**-0.10**	-0.02	**-0.05**	0.03	**0.03**	**-0.04**	**-0.06**	**0.08**	0.02	0.01	**-0.13**	0.02	**-0.08**
6	SIZE	**-0.12**	**0.24**	**-0.10**	**0.13**	**-0.11**	1.00	**0.03**	**0.28**	**-0.16**	**0.45**	**-0.26**	**-0.13**	**0.30**	0.00	0.01	0.02	**-0.09**	**0.33**
7	LEV	**0.04**	**0.06**	**-0.03**	**0.04**	**-0.05**	**-0.04**	1.00	**-0.03**	**-0.11**	**-0.12**	**0.11**	**0.06**	**-0.27**	**-0.09**	**0.04**	**0.05**	**0.06**	0.01
8	CFO	**-0.26**	**0.08**	-0.02	**0.04**	**-0.05**	**0.19**	**-0.10**	1.00	**-0.22**	**0.07**	**-0.58**	**-0.12**	**0.47**	**-0.15**	**0.09**	**-0.05**	**-0.12**	**0.13**
9	STDCFO	**0.31**	**-0.07**	**0.06**	-0.02	**0.05**	**-0.09**	0.03	**-0.28**	1.00	**0.11**	**0.15**	**0.37**	**-0.21**	**0.08**	**-0.10**	-0.01	**0.10**	**-0.14**
10	MB	**0.05**	-0.01	0.03	-0.01	**0.04**	**0.20**	**-0.07**	**-0.07**	**0.09**	1.00	**-0.10**	**0.04**	**0.04**	**0.05**	0.00	0.01	**-0.05**	**0.07**
11	LOSS	**0.11**	**-0.06**	-0.02	**-0.04**	**-0.03**	**-0.27**	**0.16**	**-0.49**	**0.13**	0.02	1.00	**0.19**	**-0.54**	**0.12**	**-0.06**	**0.08**	**0.09**	**-0.08**
12	ABSLTA	**0.27**	**-0.08**	0.02	**-0.04**	0.01	**-0.09**	**0.06**	**-0.21**	**0.50**	**0.06**	**0.14**	1.00	**-0.31**	0.03	-0.03	**0.06**	**0.10**	**-0.08**
13	ZSCORE	**-0.23**	**0.07**	0.02	0.03	0.02	**0.27**	**-0.27**	**0.47**	**-0.21**	**-0.05**	**-0.40**	**-0.23**	1.00	**-0.09**	**0.03**	**-0.20**	**-0.08**	**0.11**
14	LIT	**0.07**	**-0.08**	**-0.06**	**-0.06**	0.01	0.00	**-0.06**	**-0.15**	**0.11**	**0.06**	**0.12**	**0.06**	**-0.09**	1.00	**-0.04**	0.00	**0.03**	-0.01
15	TENURE	**-0.06**	0.00	**0.03**	0.00	0.01	**0.03**	**0.03**	**0.07**	**-0.08**	0.01	**-0.06**	**-0.05**	0.03	**-0.04**	1.00	**-0.03**	**-0.13**	**0.11**
16	AB_FEE	**-0.03**	**0.20**	**-0.10**	**0.13**	**-0.13**	0.01	**0.06**	**-0.04**	**-0.07**	-0.01	**0.08**	-0.02	**-0.18**	0.00	-0.01	1.00	**0.04**	**0.26**
17	MATWEAK	**0.09**	-0.01	**0.04**	-0.01	0.02	**-0.11**	0.02	**-0.08**	**0.08**	0.00	**0.09**	**0.11**	**-0.05**	**0.03**	**-0.13**	**0.04**	1.00	**-0.05**
18	TIER2	**-0.11**	**0.18**	**-0.12**	**0.13**	**-0.10**	**0.33**	-0.01	**0.12**	**-0.12**	0.01	**-0.08**	**-0.08**	**0.11**	-0.01	**0.11**	**0.25**	**-0.05**	1.00

(Table 3: cont'd.)

Panel C: Local-Industry Large Audit Firm Restatement Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	RESTATE	1.00	**0.69**	**0.68**	0.00	0.01	**0.04**	0.00	0.01	**0.02**	-0.01	-0.02	-0.01	0.02	**0.04**
2	BIGR	**0.69**	1.00	**-0.06**	0.00	0.01	**0.03**	0.00	-0.01	0.00	0.02	0.02	**-0.03**	-0.01	**0.02**
3	LITTLER	**0.68**	**-0.06**	1.00	0.00	0.01	**0.03**	0.00	**0.03**	**0.03**	**-0.02**	**-0.04**	0.02	**0.03**	**0.02**
4	B4_TO_B4	0.00	0.00	-0.01	1.00	**0.57**	**0.25**	**0.60**	**0.04**	**0.05**	0.01	0.01	**-0.03**	**0.06**	-0.01
5	B4_TO_NB4	0.01	0.02	0.00	**0.68**	1.00	**0.40**	**0.37**	**0.22**	**0.12**	**-0.06**	**0.03**	**0.05**	**0.15**	**0.11**
6	JOINT_SPEC	**0.04**	**0.03**	**0.03**	**0.24**	**0.40**	1.00	**0.18**	**0.14**	**0.08**	**-0.05**	0.00	**0.05**	**0.11**	**0.05**
7	HERF	-0.01	-0.01	0.00	**0.73**	**0.47**	**0.16**	1.00	-0.01	**0.06**	**0.02**	0.01	**-0.04**	**0.08**	**-0.05**
8	SIZE	0.00	-0.02	**0.02**	**0.04**	**0.20**	**0.14**	0.00	1.00	**0.28**	**-0.48**	**0.33**	**0.52**	**0.31**	**0.37**
9	LEV	**0.02**	0.01	0.02	**0.05**	**0.09**	**0.04**	**0.05**	**0.13**	1.00	**-0.05**	**-0.08**	**-0.02**	**0.19**	**0.04**
10	LOSS	-0.01	0.02	**-0.02**	**0.03**	**-0.04**	**-0.05**	**0.03**	**-0.47**	**0.04**	1.00	**-0.14**	**-0.83**	**-0.24**	**-0.28**
11	MB	-0.02	0.01	**-0.03**	**0.02**	0.01	-0.01	0.01	**0.16**	**-0.10**	**-0.03**	1.00	**0.24**	**-0.08**	0.00
12	ROA	**0.03**	-0.01	**0.05**	**-0.05**	**0.03**	**0.07**	**-0.05**	**0.48**	**-0.05**	**-0.65**	0.00	1.00	**0.22**	**0.30**
13	LOG_SEG	**0.02**	-0.01	**0.04**	**0.05**	**0.14**	**0.12**	**0.06**	**0.34**	**0.08**	**-0.26**	**-0.06**	**0.27**	1.00	**0.24**
14	FOREIGN	**0.04**	**0.02**	**0.02**	-0.02	**0.08**	**0.05**	**-0.05**	**0.37**	**-0.04**	**-0.28**	**-0.03**	**0.34**	**0.24**	1.00
15	MERGER	**0.05**	**0.03**	**0.04**	0.00	**0.07**	**0.04**	-0.01	**0.28**	**0.02**	**-0.23**	**-0.03**	**0.23**	**0.18**	**0.26**
16	ARINV	**0.03**	0.01	**0.03**	0.01	**0.03**	**0.07**	**0.05**	**-0.03**	**-0.09**	**-0.17**	**-0.07**	**0.22**	**0.25**	**0.26**
17	FIN	-0.01	0.00	-0.01	**0.04**	**0.02**	-0.01	**0.06**	**-0.11**	**0.30**	**0.21**	**0.06**	**-0.36**	**-0.15**	**-0.24**
18	EPR	**0.04**	0.01	**0.05**	-0.01	**0.05**	**0.07**	-0.01	**0.45**	**0.04**	**-0.49**	**0.05**	**0.66**	**0.24**	**0.27**
19	FREEC	**0.04**	0.01	**0.04**	**-0.04**	**0.02**	**0.04**	**-0.06**	**0.39**	**-0.09**	**-0.53**	0.01	**0.73**	**0.26**	**0.38**
20	MATWEAK	**0.29**	**0.33**	**0.06**	-0.01	**-0.03**	-0.02	-0.01	**-0.14**	**-0.03**	**0.09**	**-0.03**	**-0.06**	**-0.04**	-0.01
21	FIRMSIZE_F	0.02	**0.04**	-0.01	**-0.14**	**-0.05**	**0.05**	**-0.19**	**0.04**	**-0.04**	0.01	**0.03**	0.01	**0.07**	**-0.03**
22	CLIENT_IMP.	0.01	0.00	0.02	**0.17**	**0.18**	**0.05**	**0.18**	**0.27**	**0.08**	**-0.12**	**-0.02**	**0.12**	**0.14**	**0.17**
23	GC	-0.02	0.00	**-0.03**	0.02	-0.01	**-0.03**	**0.02**	**-0.28**	0.01	**0.22**	**-0.04**	**-0.44**	**-0.13**	**-0.16**
24	TENURE	**-0.07**	**-0.13**	**0.03**	**0.04**	**0.06**	0.01	0.01	**0.10**	0.02	**-0.05**	**-0.03**	**0.05**	**0.08**	**0.10**
25	AB_FEE	**0.06**	**0.08**	0.01	**0.03**	**0.09**	**0.05**	**-0.03**	**-0.15**	0.00	**0.07**	**-0.05**	**-0.15**	**0.05**	**-0.13**
26	LRESTATE	**0.61**	**0.54**	**0.29**	-0.01	0.00	**0.04**	-0.02	0.01	0.01	0.00	**-0.02**	**0.03**	**0.02**	**0.05**

(Table 3: cont'd.)

		15	16	17	18	19	20	21	22	23	24	25	26
1	RESTATE	**0.05**	**0.03**	0.01	0.01	0.01	**0.29**	**0.02**	**0.05**	-0.02	**-0.07**	**0.06**	**0.61**
2	BIGR	**0.03**	0.01	0.02	**-0.03**	-0.02	**0.33**	**0.04**	**0.03**	0.00	**-0.14**	**0.07**	**0.54**
3	LITTLER	**0.04**	**0.03**	0.00	**0.04**	**0.03**	**0.06**	-0.01	**0.04**	**-0.03**	**0.04**	0.01	**0.29**
4	B4_TO_B4	0.01	**0.04**	**0.04**	**0.03**	-0.02	-0.01	**-0.13**	**0.14**	0.01	**0.05**	**0.02**	-0.01
5	B4_TO_NB4	**0.08**	**0.06**	**0.05**	**0.12**	**0.04**	**-0.04**	-0.02	**0.18**	**-0.02**	**0.06**	**0.08**	0.00
6	JOINT_SPEC	**0.04**	**0.08**	**0.02**	**0.10**	0.02	-0.02	**0.05**	**0.08**	**-0.03**	0.01	**0.05**	**0.04**
7	HERF	-0.01	**0.08**	**0.03**	**0.03**	**-0.03**	-0.01	**-0.19**	**0.18**	**0.02**	**0.03**	**-0.03**	-0.02
8	SIZE	**0.29**	**0.02**	**0.09**	**0.44**	**0.42**	**-0.14**	**0.04**	**0.45**	**-0.25**	**0.11**	**-0.17**	0.02
9	LEV	**0.09**	-0.01	**0.36**	**0.31**	**-0.08**	**-0.05**	**-0.04**	**0.26**	**-0.03**	**0.04**	0.02	0.01
10	LOSS	**-0.23**	**-0.21**	**0.09**	**-0.64**	**-0.59**	**0.09**	0.00	**-0.20**	**0.22**	**-0.06**	**0.07**	0.00
11	MB	-0.01	**-0.09**	**0.17**	**-0.08**	**0.22**	**-0.06**	**0.03**	-0.02	**-0.09**	**-0.08**	**-0.07**	-0.01
12	ROA	**0.18**	**0.23**	**-0.13**	**0.63**	**0.70**	**-0.10**	0.00	**0.17**	**-0.25**	**0.05**	**-0.12**	-0.01
13	LOG_SEG	**0.17**	**0.28**	**-0.05**	**0.34**	**0.17**	**-0.04**	**0.05**	**0.25**	**-0.11**	**0.08**	**0.05**	**0.02**
14	FOREIGN	**0.26**	**0.32**	**-0.13**	**0.30**	**0.34**	-0.01	**-0.03**	**0.34**	**-0.16**	**0.11**	**-0.14**	**0.05**
15	MERGER	1.00	**0.14**	0.00	**0.25**	**0.26**	-0.01	0.01	**0.23**	**-0.12**	**0.02**	**-0.07**	**0.04**
16	ARINV	**0.09**	1.00	**-0.17**	**0.32**	**0.20**	**0.04**	**-0.03**	**0.20**	**-0.09**	**0.04**	**0.18**	**0.03**
17	FIN	**-0.10**	**-0.16**	1.00	**-0.04**	**-0.20**	0.00	**-0.04**	**0.05**	**0.07**	**-0.07**	0.01	0.01
18	EPR	**0.22**	**0.19**	**-0.14**	1.00	**0.49**	**-0.12**	-0.02	**0.29**	**-0.23**	**0.11**	**-0.06**	0.00
19	FREEC	**0.26**	**0.24**	**-0.53**	**0.48**	1.00	**-0.09**	0.01	**0.16**	**-0.23**	**0.07**	**-0.12**	0.01
20	MATWEAK	-0.01	**0.05**	**0.02**	**-0.07**	**-0.06**	1.00	**0.02**	0.01	**0.08**	**-0.16**	**0.17**	**0.29**
21	FIRMSIZE_F	0.01	**-0.03**	**-0.04**	0.00	**0.03**	**0.02**	1.00	**-0.58**	**-0.03**	**-0.09**	**0.08**	0.02
22	CLIENT_IMP.	**0.13**	**0.07**	**-0.04**	**0.12**	**0.09**	-0.01	**-0.56**	1.00	**-0.09**	**0.08**	**0.20**	**0.06**
23	GC	**-0.12**	**-0.07**	**0.16**	**-0.42**	**-0.32**	**0.08**	**-0.02**	**-0.04**	1.00	**-0.03**	**0.08**	**-0.02**
24	TENURE	0.02	**0.03**	**-0.06**	**0.04**	**0.08**	**-0.17**	**-0.07**	**0.05**	**-0.03**	1.00	**-0.09**	**-0.06**
25	AB_FEE	**-0.07**	**0.16**	**0.04**	**-0.10**	**-0.11**	**0.18**	**0.08**	**0.12**	**0.09**	**-0.06**	1.00	**0.08**
26	LRESTATE	**0.04**	**0.03**	-0.02	**0.02**	**0.04**	**0.29**	0.02	0.02	**-0.02**	**-0.06**	**0.09**	1.00

(Table 3: cont'd.)

Panel D: Local-Industry Small Audit Firm Restatement Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	RESTATE	1.00	**0.81**	**0.55**	0.01	0.02	0.02	0.00	**0.04**	**0.06**	**0.04**	**-0.03**	**-0.04**	**0.04**	-0.01
2	BIGR	**0.81**	1.00	**-0.04**	0.00	0.02	0.01	0.00	**0.04**	**0.05**	**0.03**	-0.02	**-0.03**	**0.04**	**-0.03**
3	LITTLER	**0.55**	**-0.04**	1.00	0.02	0.01	0.02	0.00	0.02	**0.03**	0.02	-0.03	-0.02	0.02	0.02
4	NB4_TO_NB4	0.02	0.00	0.03	1.00	**0.16**	**0.33**	**0.10**	**0.35**	**0.14**	**-0.19**	**0.12**	**0.27**	**0.23**	**0.24**
5	NB4_TO_B4	**0.03**	0.02	0.02	**0.09**	1.00	**0.08**	**0.26**	**-0.15**	0.02	0.02	**-0.07**	**-0.05**	0.01	**-0.09**
6	SPEC_MSA	0.02	0.01	0.02	**0.75**	0.01	1.00	0.01	**0.14**	**0.08**	**-0.08**	**0.03**	**0.09**	**0.11**	**0.10**
7	HERF	0.01	0.01	0.00	0.02	**0.58**	-0.03	1.00	**-0.12**	-0.02	0.01	**-0.04**	**-0.04**	**0.03**	**-0.04**
8	SIZE	**0.04**	**0.03**	0.01	**0.25**	**-0.13**	**0.13**	**-0.13**	1.00	**0.05**	**-0.32**	**0.46**	**0.40**	**0.19**	**0.34**
9	LEV	0.02	0.00	0.02	-0.02	0.03	-0.01	0.00	**-0.12**	1.00	**0.03**	**-0.10**	-0.01	**0.21**	**0.04**
10	LOSS	**0.04**	**0.03**	0.02	**-0.13**	0.03	**-0.08**	0.02	**-0.33**	**0.14**	1.00	**-0.16**	**-0.84**	**-0.22**	**-0.23**
11	MB	-0.02	-0.02	-0.01	0.01	**-0.03**	0.00	**-0.04**	**0.10**	**-0.08**	**-0.04**	1.00	**0.27**	**0.06**	**0.07**
12	ROA	-0.02	0.00	**-0.03**	**0.08**	**-0.07**	**0.05**	**-0.03**	**0.23**	**-0.22**	**-0.20**	**0.20**	1.00	**0.33**	**0.29**
13	LOG_SEG	**0.04**	**0.04**	0.01	**0.17**	-0.01	**0.11**	-0.01	**0.23**	**-0.03**	**-0.23**	**0.05**	**0.25**	1.00	**0.22**
14	FOREIGN	-0.01	**-0.03**	0.02	**0.18**	**-0.09**	**0.10**	**-0.06**	**0.34**	**-0.08**	**-0.23**	0.02	**0.13**	**0.23**	1.00
15	MERGER	**0.03**	0.01	**0.04**	**0.12**	**-0.08**	**0.07**	**-0.06**	**0.27**	**-0.05**	**-0.16**	0.03	**0.09**	**0.19**	**0.22**
16	ARINV	0.00	-0.01	0.01	**0.05**	**0.04**	**0.04**	**0.08**	**-0.09**	-0.01	**-0.18**	0.01	**0.13**	**0.31**	**0.18**
17	FIN	**0.04**	**0.03**	0.02	**-0.08**	**0.06**	**-0.05**	**0.05**	**-0.13**	**0.41**	**0.22**	**-0.18**	**-0.47**	**-0.21**	**-0.16**
18	EPR	-0.02	-0.01	-0.02	**0.09**	**-0.04**	**0.04**	**-0.03**	**0.45**	**-0.11**	**-0.30**	**0.04**	**0.22**	**0.15**	**0.15**
19	FREEC	**-0.04**	-0.03	-0.02	**0.09**	**-0.07**	**0.05**	**-0.04**	**0.13**	**-0.16**	**-0.20**	**0.20**	**0.46**	**0.26**	**0.14**
20	MATWEAK	**0.20**	**0.21**	**0.05**	**-0.06**	**0.08**	**-0.03**	**0.05**	**-0.21**	**0.10**	**0.17**	**-0.08**	**-0.21**	**-0.11**	**-0.11**
21	FIRMSIZE_F	**-0.04**	**-0.05**	0.00	**0.11**	**-0.19**	**0.04**	**-0.17**	**0.28**	**-0.03**	**-0.12**	0.03	**0.11**	**0.14**	**0.19**
22	CLIENT_IMP	**0.06**	**0.07**	0.00	**-0.04**	**0.15**	0.00	**0.14**	**-0.15**	0.02	**0.07**	-0.02	**-0.09**	**-0.05**	**-0.09**
23	GC	0.03	0.01	0.02	**-0.16**	**0.12**	**-0.09**	**0.11**	**-0.46**	**0.21**	**0.38**	**-0.15**	**-0.35**	**-0.33**	**-0.27**
24	TENURE	**-0.04**	**-0.04**	-0.02	0.01	0.01	0.00	-0.01	**0.03**	0.00	**-0.08**	**0.03**	**0.04**	**0.05**	0.01
25	AB_FEE	**-0.03**	-0.02	-0.01	**0.11**	**-0.06**	**0.09**	**-0.07**	**-0.15**	**0.18**	**0.14**	**-0.10**	**-0.34**	**-0.07**	**-0.13**
26	LRESTATE	**0.48**	**0.44**	**0.19**	0.02	0.02	0.02	0.02	0.02	0.01	**0.04**	0.00	**-0.03**	**0.04**	0.00
27	TIER2	-0.01	**-0.03**	**0.03**	**0.22**	**-0.12**	**0.15**	**-0.10**	**0.36**	**-0.05**	**-0.17**	**0.04**	**0.12**	**0.14**	**0.23**

(Table 3: cont'd.)

		15	16	17	18	19	20	21	22	23	24	25	26	27
1	RESTATE	**0.03**	-0.01	**0.10**	-0.01	**-0.04**	**0.20**	**-0.04**	**0.07**	0.03	**-0.04**	-0.02	**0.48**	-0.01
2	BIGR	0.01	-0.02	**0.11**	-0.02	**-0.04**	**0.21**	**-0.05**	**0.07**	0.01	**-0.03**	-0.02	**0.44**	**-0.03**
3	LITTLER	**0.04**	0.00	0.02	0.00	0.00	**0.05**	0.00	0.01	0.02	-0.02	-0.01	**0.19**	**0.03**
4	NB4_TO_NB4	**0.14**	**0.16**	**-0.05**	**0.25**	**0.28**	**-0.12**	**0.25**	**-0.16**	**-0.27**	**0.06**	**0.14**	0.01	**0.34**
5	NB4_TO_B4	**-0.07**	**0.04**	-0.01	**-0.03**	**-0.04**	**0.08**	**-0.21**	**0.17**	**0.11**	0.02	**-0.05**	0.01	**-0.14**
6	SPEC_MSA	**0.07**	**0.06**	0.00	**0.11**	**0.10**	**-0.03**	**0.04**	0.01	**-0.09**	0.00	**0.10**	0.02	**0.15**
7	HERF	**-0.05**	**0.10**	-0.01	-0.02	-0.01	**0.04**	**-0.15**	**0.11**	**0.09**	0.00	**-0.07**	0.02	**-0.09**
8	SIZE	**0.28**	**-0.03**	**0.13**	**0.47**	**0.27**	**-0.20**	**0.28**	**-0.13**	**-0.45**	0.01	**-0.11**	**0.03**	**0.37**
9	LEV	**0.11**	**0.10**	**0.28**	**0.05**	0.01	**0.03**	**0.06**	0.01	**-0.04**	**0.05**	**0.05**	**0.05**	**0.04**
10	LOSS	**-0.16**	**-0.24**	**0.24**	**-0.71**	**-0.58**	**0.17**	**-0.12**	**0.06**	**0.38**	**-0.07**	**0.13**	**0.04**	**-0.17**
11	MB	**0.08**	-0.02	**0.06**	**0.22**	**0.16**	**-0.17**	**0.09**	**-0.06**	**-0.35**	0.02	**-0.16**	**-0.03**	**0.12**
12	ROA	**0.20**	**0.31**	**-0.34**	**0.75**	**0.73**	**-0.24**	**0.18**	**-0.11**	**-0.57**	**0.08**	**-0.24**	**-0.04**	**0.23**
13	LOG_SEG	**0.19**	**0.40**	**-0.10**	**0.28**	**0.34**	**-0.10**	**0.13**	-0.02	**-0.31**	**0.04**	**-0.05**	**0.04**	**0.13**
14	FOREIGN	**0.22**	**0.23**	**-0.10**	**0.29**	**0.32**	**-0.11**	**0.19**	**-0.07**	**-0.27**	0.01	**-0.13**	0.00	**0.23**
15	MERGER	1.00	**0.09**	0.00	**0.22**	**0.23**	**-0.05**	**0.14**	**-0.05**	**-0.19**	0.00	**-0.07**	-0.01	**0.18**
16	ARINV	**0.04**	1.00	**-0.20**	**0.27**	**0.34**	**-0.06**	**0.09**	**-0.05**	**-0.22**	**0.04**	-0.02	-0.02	**0.06**
17	FIN	**-0.11**	**-0.13**	1.00	**-0.20**	**-0.46**	**0.11**	-0.03	**0.05**	**0.21**	**-0.07**	**0.09**	**0.08**	**-0.05**
18	EPR	**0.11**	**0.07**	**-0.11**	1.00	**0.62**	**-0.19**	**0.15**	**-0.07**	**-0.49**	**0.07**	**-0.21**	**-0.03**	**0.21**
19	FREEC	**0.08**	**0.17**	**-0.47**	**0.09**	1.00	**-0.23**	**0.18**	**-0.10**	**-0.50**	**0.10**	**-0.16**	-0.02	**0.23**
20	MATWEAK	**-0.05**	**-0.03**	**0.18**	**-0.13**	**-0.20**	1.00	**-0.13**	**0.14**	**0.34**	**-0.15**	**0.10**	**0.20**	**-0.14**
21	FIRMSIZE_F	**0.14**	**0.05**	**-0.11**	**0.08**	**0.12**	**-0.13**	1.00	**-0.90**	**-0.24**	**0.04**	**0.08**	-0.02	**0.46**
22	CLIENT_IMP	**-0.07**	**-0.03**	**0.09**	**-0.05**	**-0.10**	**0.13**	**-0.89**	1.00	**0.17**	**-0.05**	**-0.04**	**0.05**	**-0.40**
23	GC	**-0.19**	**-0.14**	**0.36**	**-0.34**	**-0.34**	**0.34**	**-0.24**	**0.18**	1.00	**-0.10**	**0.17**	**0.05**	**-0.25**
24	TENURE	0.01	0.02	**-0.05**	**0.06**	**0.05**	**-0.15**	**0.04**	**-0.05**	**-0.10**	1.00	-0.01	**-0.05**	**0.13**
25	AB_FEE	**-0.07**	**-0.04**	**0.25**	**-0.14**	**-0.16**	**0.12**	**0.07**	**-0.04**	**0.19**	0.01	1.00	0.01	**0.15**
26	LRESTATE	-0.01	-0.01	**0.04**	-0.02	0.00	**0.20**	-0.02	**0.05**	**0.05**	**-0.05**	0.01	1.00	0.01
27	TIER2	**0.18**	0.00	**-0.13**	**0.12**	**0.12**	**-0.14**	**0.46**	**-0.38**	**-0.25**	**0.13**	**0.12**	0.01	1.00

(Table 3: cont'd.)

Panel E: Local-Industry Large Audit Firm Going Concern Opinion Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	GC	1.00	0.01	-0.01	-0.03	0.02	**-0.26**	**-0.08**	**0.15**	**0.13**	**0.15**	-0.02	**-0.27**	0.02
2	B4_TO_B4	0.01	1.00	**0.60**	**0.26**	**0.56**	0.02	0.03	0.00	-0.01	0.02	**-0.06**	-0.01	**0.06**
3	B4_TO_NB4	0.00	**0.72**	1.00	**0.38**	**0.34**	**0.18**	**0.05**	**0.07**	**-0.08**	**-0.05**	**-0.04**	0.02	-0.02
4	JOINT_SPEC	-0.03	**0.23**	**0.37**	1.00	**0.16**	**0.09**	-0.01	0.02	**-0.08**	**-0.07**	-0.01	**0.06**	**-0.08**
5	HERF	0.02	**0.69**	**0.45**	**0.14**	1.00	**-0.04**	0.02	0.00	**-0.04**	0.03	-0.03	0.00	**0.06**
6	SIZE	**-0.27**	0.01	**0.14**	**0.09**	**-0.05**	1.00	**0.29**	**0.14**	**-0.28**	**-0.28**	**-0.10**	**0.22**	**-0.19**
7	MB	**-0.05**	**0.05**	**0.07**	-0.02	0.01	**0.17**	1.00	**-0.04**	**0.13**	**0.21**	-0.01	**-0.19**	**0.34**
8	DEBT	**0.21**	0.00	**0.05**	0.01	0.00	**0.07**	**-0.10**	1.00	**-0.23**	**-0.15**	**0.07**	**-0.32**	**-0.36**
9	LOSS_GC	**0.13**	-0.01	**-0.07**	**-0.08**	-0.03	**-0.27**	**0.08**	**-0.16**	1.00	**0.61**	-0.02	**-0.37**	**0.47**
10	LLOSS_GC	**0.15**	0.02	**-0.04**	**-0.07**	0.02	**-0.28**	**0.12**	**-0.08**	**0.61**	1.00	**-0.05**	**-0.42**	**0.51**
11	STDSALE	0.00	**-0.05**	**-0.04**	0.01	-0.01	**-0.11**	-0.02	**0.04**	-0.02	**-0.05**	1.00	**0.07**	**-0.06**
12	ZSCORE	**-0.32**	-0.01	0.00	0.03	0.00	**0.24**	-0.03	**-0.29**	**-0.27**	**-0.33**	0.01	1.00	**-0.32**
13	CASH	0.03	**0.07**	0.02	**-0.08**	**0.07**	**-0.20**	**0.18**	**-0.24**	**0.46**	**0.50**	**-0.05**	**-0.29**	1.00
14	MATWEAK	**0.07**	0.00	-0.02	-0.01	-0.01	**-0.04**	**-0.06**	**0.04**	0.00	-0.02	**0.08**	0.03	**-0.10**
15	LOG_SEG	**-0.11**	-0.02	0.03	**0.07**	-0.01	**0.19**	**-0.04**	**0.14**	**-0.26**	**-0.26**	**0.10**	**0.12**	**-0.34**
16	LOG_GEO	**-0.12**	**-0.08**	-0.02	0.02	**-0.09**	**0.15**	**-0.08**	**-0.04**	**-0.19**	**-0.24**	**0.06**	**0.23**	**-0.34**
17	CLIENT_IMPORTANCE	**-0.04**	**0.05**	**0.04**	0.02	**0.12**	**0.19**	-0.03	**0.10**	**-0.20**	**-0.19**	-0.03	**0.07**	**-0.17**
18	LGC	**0.42**	0.01	0.01	-0.01	0.03	**-0.17**	**-0.05**	**0.10**	**0.09**	**0.13**	0.01	**-0.31**	**0.05**
19	REPORT_LAG	**0.25**	**0.07**	**-0.03**	**-0.04**	**0.10**	**-0.40**	-0.03	**0.06**	**0.12**	**0.13**	0.02	**-0.19**	**0.05**
20	CUMRET	**-0.09**	0.01	0.02	0.03	-0.01	**0.23**	**0.16**	-0.01	-0.02	**0.08**	-0.01	-0.03	**0.08**
21	STD_RET	**0.20**	**0.05**	0.01	-0.01	0.03	**-0.27**	-0.01	**0.11**	**0.17**	**0.20**	**0.05**	**-0.27**	**0.15**
22	TENURE	-0.03	**0.04**	**0.06**	**0.03**	0.02	**0.12**	0.02	**0.06**	**-0.10**	**-0.10**	0.00	**-0.08**	**-0.04**
23	AB_FEE	**0.14**	0.02	**0.06**	0.03	-0.02	**-0.20**	**-0.04**	**0.12**	0.00	0.02	**0.12**	**-0.18**	**-0.08**

(Table 3: cont'd.)

		14	15	16	17	18	19	20	21	22	23
1	GC	**0.07**	**-0.09**	**-0.12**	**-0.05**	**0.42**	**0.24**	**-0.16**	**0.19**	-0.03	**0.13**
2	B4_TO_B4	-0.01	-0.02	**-0.09**	**0.06**	0.01	**0.07**	0.00	**0.05**	**0.07**	0.00
3	B4_TO_NB4	-0.03	**0.05**	0.01	**0.05**	0.01	**-0.06**	0.02	0.00	**0.06**	**0.05**
4	JOINT_SPEC	-0.01	**0.08**	0.02	0.02	-0.01	**-0.04**	**0.04**	-0.02	**0.04**	0.03
5	HERF	-0.01	0.00	**-0.08**	**0.14**	0.03	**0.11**	-0.01	0.02	0.03	-0.03
6	SIZE	**-0.04**	**0.19**	**0.14**	**0.32**	**-0.16**	**-0.40**	**0.37**	**-0.27**	**0.12**	**-0.23**
7	MB	**-0.07**	**-0.14**	**-0.15**	**-0.09**	-0.03	**-0.07**	**0.39**	-0.01	**-0.04**	**-0.06**
8	DEBT	0.03	**0.20**	0.01	**0.22**	**0.04**	0.03	-0.02	**0.05**	**0.08**	**0.08**
9	LOSS_GC	0.00	**-0.27**	**-0.18**	**-0.30**	**0.09**	**0.14**	**-0.08**	**0.21**	**-0.10**	0.01
10	LLOSS_GC	-0.02	**-0.27**	**-0.24**	**-0.29**	**0.13**	**0.16**	**0.04**	**0.22**	**-0.11**	0.03
11	STDSALE	**0.08**	**0.13**	**0.14**	**0.04**	-0.03	**-0.05**	0.01	**0.07**	0.01	**0.12**
12	ZSCORE	**0.04**	**0.17**	**0.28**	**0.14**	**-0.21**	**-0.22**	**0.07**	**-0.29**	**-0.05**	**-0.14**
13	CASH	**-0.09**	**-0.35**	**-0.29**	**-0.36**	**0.05**	**0.05**	**0.06**	**0.15**	**-0.07**	**-0.07**
14	MATWEAK	1.00	**0.08**	**0.07**	**0.07**	**0.04**	**0.20**	**-0.05**	0.00	**-0.17**	**0.21**
15	LOG_SEG	**0.07**	1.00	**0.27**	**0.20**	**-0.10**	**-0.08**	0.02	**-0.14**	**0.07**	**0.08**
16	LOG_GEO	**0.07**	**0.30**	1.00	**0.27**	**-0.11**	**-0.33**	0.00	**-0.16**	**0.05**	**0.10**
17	CLIENT_IMPORTANCE	0.02	**0.07**	**0.11**	1.00	-0.02	**-0.19**	0.01	**-0.12**	**0.05**	**0.18**
18	LGC	**0.04**	**-0.11**	**-0.11**	-0.03	1.00	**0.17**	-0.03	**0.16**	0.00	**0.10**
19	REPORT_LAG	**0.25**	**-0.08**	**-0.27**	**-0.08**	**0.15**	1.00	**-0.10**	**0.21**	**-0.06**	**0.17**
20	CUMRET	**-0.04**	-0.01	**-0.05**	-0.02	0.01	**-0.04**	1.00	-0.03	**0.06**	**-0.09**
21	STD_RET	-0.01	**-0.12**	**-0.16**	**-0.06**	**0.20**	**0.20**	**0.23**	1.00	**-0.07**	**0.08**
22	TENURE	**-0.17**	**0.05**	**0.04**	**0.04**	-0.01	**-0.08**	0.03	**-0.06**	1.00	**-0.06**
23	AB_FEE	**0.22**	**0.07**	**0.10**	**0.08**	**0.11**	**0.18**	**-0.08**	**0.07**	-0.03	1.00

(Table 3: cont'd.)

Panel F: Local-Industry Small Audit Firm Going Concern Opinion Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	GC	1.00	**-0.06**	0.00	0.01	0.00	**-0.22**	**-0.06**	**0.24**	**0.15**	**0.16**	-0.04	**-0.32**	**-0.05**
2	NB4_TO_NB4	-0.02	1.00	**0.20**	**0.36**	**0.10**	**0.20**	-0.04	**0.06**	**-0.13**	**-0.14**	0.03	**0.16**	**-0.09**
3	NB4_TO_B4	0.00	**0.12**	1.00	**0.14**	**0.18**	**-0.12**	**-0.06**	0.00	0.00	-0.01	0.04	**0.08**	**-0.10**
4	SPEC_MSA	0.01	**0.71**	0.03	1.00	0.01	0.05	**-0.05**	0.04	**-0.06**	**-0.07**	**-0.06**	0.05	**-0.06**
5	HERF	0.01	0.03	**0.54**	-0.02	1.00	**-0.10**	-0.01	0.01	-0.01	-0.02	**0.12**	**0.06**	**0.05**
6	SIZE	**-0.23**	**0.14**	**-0.12**	0.04	**-0.11**	1.00	**0.39**	**-0.05**	**-0.20**	**-0.13**	**-0.15**	**0.07**	**0.17**
7	MB	-0.04	**-0.05**	0.00	-0.03	-0.01	**0.19**	1.00	**-0.05**	**0.08**	**0.20**	**-0.07**	**-0.25**	**0.31**
8	DEBT	**0.32**	**0.06**	0.01	0.04	0.01	-0.05	**-0.13**	1.00	**-0.12**	**-0.06**	**0.16**	**-0.31**	**-0.34**
9	LOSS_GC	**0.15**	**-0.12**	0.02	**-0.06**	0.01	**-0.21**	**0.07**	**-0.05**	1.00	**0.48**	**-0.06**	**-0.33**	**0.27**
10	LLOSS_GC	**0.16**	**-0.14**	0.00	**-0.07**	-0.01	**-0.14**	**0.13**	0.01	**0.48**	1.00	**-0.09**	**-0.40**	**0.33**
11	STDSALE	0.02	**-0.05**	0.02	**-0.05**	**0.07**	**-0.18**	-0.04	**0.13**	-0.01	**-0.06**	1.00	**0.12**	**-0.14**
12	ZSCORE	**-0.32**	**0.09**	0.02	0.04	-0.01	**0.06**	**-0.13**	**-0.30**	**-0.24**	**-0.29**	**0.08**	1.00	**-0.27**
13	CASH	-0.03	**-0.08**	**-0.06**	-0.04	0.03	**0.17**	**0.19**	**-0.21**	**0.26**	**0.32**	**-0.14**	**-0.34**	1.00
14	MATWEAK	**0.11**	0.00	0.03	-0.02	0.01	**-0.05**	-0.03	**0.11**	-0.01	-0.03	**0.09**	-0.01	**-0.10**
15	LOG_SEG	**-0.11**	**0.11**	**0.06**	0.03	0.04	0.01	**-0.09**	**0.07**	**-0.19**	**-0.19**	**0.12**	**0.20**	**-0.34**
16	LOG_GEO	**-0.12**	**0.06**	-0.03	0.03	-0.04	**0.15**	**-0.07**	-0.03	**-0.15**	**-0.16**	0.02	**0.23**	**-0.18**
17	CLIENT_IMPORTANCE	**0.09**	0.02	**0.21**	0.02	**0.19**	**-0.08**	0.01	0.01	0.02	0.04	0.01	-0.03	0.03
18	LGC	**0.44**	-0.01	-0.01	0.03	0.00	**-0.09**	0.03	**0.21**	**0.12**	**0.17**	0.02	**-0.34**	**0.07**
19	REPORT_LAG	**0.24**	-0.04	**0.11**	0.02	**0.05**	**-0.41**	-0.04	**0.15**	**0.11**	**0.09**	**0.08**	**-0.10**	**-0.14**
20	CUMRET	**-0.12**	-0.04	0.01	-0.04	-0.01	**0.27**	**0.12**	-0.02	**-0.09**	**0.06**	0.00	0.02	**0.11**
21	STD_RET	**0.20**	**-0.07**	-0.01	0.00	-0.04	**-0.12**	**0.05**	**0.14**	**0.12**	**0.21**	0.02	**-0.25**	**0.10**
22	TENURE	**-0.08**	0.00	**0.05**	0.00	-0.02	0.00	0.03	-0.03	0.00	**-0.07**	-0.04	**0.07**	**-0.10**
23	AB_FEE	**0.06**	**0.14**	**-0.08**	**0.09**	**-0.14**	-0.03	-0.02	**0.11**	**0.09**	**0.08**	0.01	**-0.12**	**-0.06**
24	TIER2	**-0.13**	**0.13**	**-0.13**	**0.10**	**-0.12**	**0.22**	-0.01	-0.03	**-0.10**	**-0.13**	**-0.07**	**0.14**	**-0.08**

(Table 3: cont'd.)

		14	15	16	17	18	19	20	21	22	23	24
1	GC	**0.11**	**-0.10**	**-0.12**	**0.08**	**0.44**	**0.26**	**-0.18**	**0.21**	**-0.07**	**0.06**	**-0.13**
2	NB4_TO_NB4	0.02	**0.11**	**0.11**	**-0.07**	-0.04	**-0.11**	0.00	**-0.11**	**0.05**	**0.18**	**0.25**
3	NB4_TO_B4	0.02	**0.05**	-0.04	**0.19**	0.00	**0.13**	0.00	-0.01	**0.07**	**-0.07**	**-0.12**
4	SPEC_MSA	-0.02	0.03	0.02	0.03	0.03	0.02	-0.03	0.00	0.01	**0.09**	**0.10**
5	HERF	0.02	**0.06**	-0.02	**0.16**	0.00	0.04	0.01	**-0.08**	-0.02	**-0.15**	**-0.11**
6	SIZE	-0.04	0.01	**0.16**	-0.03	**-0.08**	**-0.45**	**0.35**	**-0.13**	-0.02	-0.03	**0.22**
7	MB	**-0.07**	**-0.17**	**-0.06**	-0.01	0.04	**-0.15**	**0.31**	0.04	-0.02	0.01	0.00
8	DEBT	**0.11**	**0.15**	0.02	0.02	**0.14**	**0.13**	**-0.08**	**0.12**	-0.01	**0.07**	0.01
9	LOSS_GC	-0.01	**-0.19**	**-0.15**	-0.01	**0.12**	**0.11**	**-0.13**	**0.12**	0.00	**0.09**	**-0.10**
10	LLOSS_GC	-0.03	**-0.19**	**-0.16**	0.01	**0.17**	**0.10**	0.02	**0.21**	**-0.07**	**0.07**	**-0.13**
11	STDSALE	**0.08**	**0.19**	**0.10**	0.03	-0.03	0.01	0.01	0.02	-0.02	**0.05**	-0.01
12	ZSCORE	0.02	**0.22**	**0.25**	-0.04	**-0.29**	**-0.12**	**0.09**	**-0.32**	**0.06**	**-0.15**	**0.13**
13	CASH	**-0.10**	**-0.30**	**-0.08**	0.00	**0.05**	**-0.20**	**0.12**	**0.05**	**-0.09**	-0.02	-0.04
14	MATWEAK	1.00	**0.06**	0.01	**0.13**	**0.09**	**0.22**	**-0.08**	**0.06**	**-0.11**	**0.05**	0.02
15	LOG_SEG	**0.06**	1.00	**0.21**	**0.08**	**-0.08**	**0.05**	0.01	**-0.08**	0.00	0.03	**0.07**
16	LOG_GEO	0.00	**0.24**	1.00	-0.01	**-0.08**	**-0.25**	0.04	**-0.16**	**-0.05**	**0.11**	**0.20**
17	CLIENT_IMPORTANCE	**0.11**	**0.08**	-0.02	1.00	**0.08**	**0.17**	-0.04	**0.06**	-0.02	**-0.06**	**-0.34**
18	LGC	**0.09**	**-0.09**	**-0.08**	**0.09**	1.00	**0.15**	-0.01	**0.20**	**-0.10**	0.04	**-0.11**
19	REPORT_LAG	**0.24**	0.04	**-0.24**	**0.20**	**0.14**	1.00	**-0.15**	**0.20**	**-0.05**	-0.01	**-0.23**
20	CUMRET	**-0.06**	0.01	0.00	-0.02	0.04	**-0.07**	1.00	0.01	0.01	**-0.05**	0.02
21	STD_RET	0.04	**-0.10**	**-0.16**	**0.06**	**0.24**	**0.19**	**0.23**	1.00	**-0.06**	0.03	**-0.09**
22	TENURE	**-0.11**	0.02	-0.04	0.00	**-0.10**	**-0.07**	0.00	**-0.05**	1.00	**-0.05**	**0.16**
23	AB_FEE	**0.06**	0.03	**0.11**	**-0.12**	**0.05**	-0.02	-0.04	0.03	-0.04	1.00	**0.24**
24	TIER2	0.02	**0.08**	**0.20**	**-0.33**	**-0.11**	**-0.22**	0.01	**-0.08**	**0.15**	**0.24**	1.00

Refer to Appendix for variable definitions. Pearson correlations are below the diagonal; Spearman correlations are above the diagonal. Bold coefficients are significant at $p < 0.05$.

Table 4
Panel A: Local-Industry Abnormal Accruals Samples
Dependent Variable: *ABS_DACC_SIZE*

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		0.046	(0.000)	***	0.152	(0.000)	***
B4_TO_B4	+/-	**-0.004**	**(0.437)**		-	-	
B4_TO_NB4	+/-	**-0.004**	**(0.433)**		-	-	
NB4_TO_NB4	+/-	-	-		**-0.062**	**(0.010)**	**
NB4_TO_B4	+/-	-	-		**0.008**	**(0.255)**	
JOINT_SPEC	-	-0.001	(0.745)		-	-	
SPEC	-	-	-		0.011	(0.232)	
HERF	+/-	0.005	(0.511)		-0.012	(0.240)	
SIZE	-	-0.003	(0.000)	***	-0.002	(0.094)	*
LEV	-	-0.009	(0.064)	*	-0.003	(0.761)	
CFO	-	0.026	(0.013)	**	-0.064	(0.000)	***
STD_CFO	+	0.159	(0.000)	***	0.054	(0.000)	***
MB	+	0.001	(0.000)	***	0.000	(0.602)	
LOSS	+	0.010	(0.000)	***	-0.012	(0.001)	***
ABS_LTA	+	0.057	(0.000)	***	0.035	(0.000)	***
Z_SCORE	-	-0.003	(0.000)	***	-0.002	(0.001)	***
LIT	+	0.012	(0.000)	***	0.003	(0.505)	
TENURE	+/-	0.001	(0.620)		-0.002	(0.349)	
AB_FEE	+/-	-0.001	(0.655)		-0.005	(0.070)	*
MAT_WEAK	+	0.003	(0.098)	*	0.008	(0.028)	**
TIER_2	-	-	-		-0.006	(0.102)	
Industry and Year Fixed Effects		Yes			Yes		
R-squared		0.2335			0.1767		
N		11,302			4,758		

(Table 4: cont'd.)

Panel B: Local-Industry Abnormal Accruals Samples
Dependent Variable: ABS_DACC_SIZE

	Large Sample									Small Sample								
	Large Acc.			Acc.			Non-Acc.			Large Acc.			Acc.			Non-Acc.		
	Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT	0.023	(0.009)	***	0.037	(0.007)	***	0.142	(0.003)	***	0.172	(0.000)	***	0.115	(0.000)	***	0.147	(0.000)	***
B4_TO_B4	**0.005**	**(0.414)**		**-0.009**	**(0.268)**		**-0.014**	**(0.415)**		-	-		-	-		-	-	
B4_TO_NB4	**0.001**	**(0.842)**		**-0.010**	**(0.186)**		**0.006**	**(0.677)**		-	-		-	-		-	-	
NB4_TO_NB4	-	-		-	-		-	-		**-0.011**	**(0.834)**		**-0.092**	**(0.006)**	***	**-0.041**	**(0.282)**	
NB4_TO_B4	-	-		-	-		-	-		**-0.040**	**(0.064)**	**	**-0.012**	**(0.283)**		**0.011**	**(0.241)**	
JOINT_SPEC	-0.003	(0.179)		0.003	(0.518)		0.001	(0.887)		-	-		-	-		-	-	
SPEC	-	-		-	-		-	-		0.004	(0.803)		0.024	(0.054)	*	-0.005	(0.779)	
HERF	-0.011	(0.198)		0.014	(0.248)		0.036	(0.140)		-0.027	(0.260)		0.010	(0.607)		-0.017	(0.204)	
SIZE	-0.002	(0.005)	***	-0.002	(0.142)		-0.007	(0.005)	***	-0.010	(0.020)	**	-0.002	(0.565)		0.002	(0.185)	
LEV	-0.005	(0.456)		-0.001	(0.917)		0.006	(0.636)		-0.064	(0.006)	***	0.023	(0.108)		-0.002	(0.864)	
CFO	0.088	(0.000)	***	0.005	(0.747)		-0.062	(0.012)	**	0.020	(0.734)		-0.064	(0.019)	**	-0.073	(0.000)	***
STD_CFO	0.185	(0.000)	***	0.142	(0.000)	***	0.098	(0.000)	***	0.111	(0.128)		0.055	(0.025)	**	0.049	(0.000)	***
MB	0.001	(0.000)	***	0.001	(0.002)	***	0.001	(0.136)		0.003	(0.020)	**	0.001	(0.039)	**	-0.001	(0.246)	
LOSS	0.025	(0.000)	***	0.001	(0.787)		-0.008	(0.227)		0.020	(0.121)		-0.014	(0.016)	**	-0.015	(0.003)	***
ABS_LTA	0.054	(0.000)	***	0.060	(0.000)	***	0.027	(0.161)		0.040	(0.202)		0.046	(0.001)	***	0.027	(0.001)	***
Z_SCORE	-0.000	(0.600)		-0.003	(0.000)	***	-0.004	(0.000)	***	0.003	(0.407)		-0.001	(0.330)		-0.002	(0.000)	***
LIT	0.016	(0.000)	***	0.003	(0.482)		-0.003	(0.664)		0.003	(0.744)		-0.004	(0.640)		0.006	(0.325)	
TENURE	-0.001	(0.362)		0.004	(0.091)	*	-0.005	(0.273)		-0.004	(0.540)		0.002	(0.579)		-0.003	(0.194)	
AB_FEE	-0.004	(0.027)	**	0.003	(0.239)		0.005	(0.337)		0.004	(0.632)		-0.010	(0.024)	**	-0.003	(0.438)	
MAT_WEAK	0.005	(0.143)		0.003	(0.363)		0.003	(0.636)		0.005	(0.768)		0.011	(0.071)	*	0.008	(0.093)	*
TIER_2	-	-		-	-		-	-		-0.008	(0.421)		-0.006	(0.268)		-0.004	(0.420)	
Industry and Year Fixed Effects	Yes			Yes			Yes			Yes			Yes			Yes		
R-squared	0.2736			0.2106			0.2882			0.3128			0.1906			0.1836		
N	6,361			3,806			1,135			483			1,502			2,773		

In this table, an OLS regression is used to test if a relationship exists between the absolute value of abnormal accruals and competitive distances. The dependent variable is the absolute value of abnormal accruals (ABS_DACC_SIZE*)*, and the variables of interest are competitive distances (B4_TO_B4, B4_TO_NB4, NB4_TO_NB4, and NB4_TO_B4*)*. The sample period is 2004-2015.
Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively. Coefficient p-values are two-tailed and based on *t*-statistics using robust standard errors, clustered by company. P-values are shown in parentheses.

4.2 Restatements

DeFond and Zhang (2014) recommend using audit quality measures that are at opposing ends of the "egregiousness" scale to understand the magnitude of the relationship between audit quality and the variables of interest. Abnormal accruals are considered less egregious since they are linked to within GAAP earnings manipulation. On the other hand, a restatement is a more direct measure of audit quality and suggests that the original financial statement audit was of poorer quality (Palmrose and Scholz 2004). Restatements are more egregious because they indicate that the auditor erroneously issued an unqualified opinion on financial statements that were materially misstated. While restatements have a low measurement error and provide clear indication of poor audit quality, restatements also have a few disadvantages. Restatements are relatively rare, and the absence of a restatement does not necessarily imply better audit quality (DeFond and Zhang 2014).

RESTATE is an indicator variable that takes the value of 1 if a client restated their financial statements for that particular fiscal year, and zero otherwise. Quarterly restatements and restatements that are due to clerical error are excluded (Lobo and Zhao 2013). Additionally, restatements can be broken down into "Big R" and "Little r" restatements. A Big R restatement requires a reissuance of the audit opinion and is reported on an 8-K filing with the Securities and Exchange Commission (SEC). Conversely, a Little r restatement often consists of prior period errors that are corrected in the current financial statements and does not require reissuance of the audit opinion or an 8-K filing (Tan and Young 2015; Hogan and Jonas 2016). BIG_R is an indicator variable equal to 1 if the restatement is reported on an 8-K, and zero otherwise. LITTLE_R is an indicator variable set to 1 if the restatement is not reported on an 8-K, and zero otherwise.

A logistic regression is used to test the relationship between competitive distance and restatements following control variables based on Romanus, Maher, and Fleming (2008), Blankley, Hurtt, and MacGregor (2012), Lobo and Zhao (2013), and Bills et al. (2016). Industry and year fixed effects are included, and heteroskedasticity is controlled by using robust standard errors clustered by company. Restatements are further broken down into Big R and Little r, and the models are re-estimated to see if a particular restatement is driving the results. Finally, Equations (3a) and (3b) are run using the full sample, and then, regressions are run separately based on a company's filing status (large accelerated, accelerated, and non-accelerated).

$$\begin{aligned}RESTATE_{i,t} =& \beta_1 B4\_TO\_B4_{i,t} + \beta_2 B4\_TO\_NB4_{i,t} + \beta_3 JOINT\_SPEC_{i,t} + \beta_4 HERF_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 LOSS_{i,t} + \beta_8 MB_{i,t} \\ &+ \beta_9 ROA_{i,t} + \beta_{10} LOG\_SEG_{i,t} + \beta_{11} FOREIGN_{i,t} + \beta_{12} MERGER_{i,t} + \beta_{13} ARINV_{i,t} + \beta_{14} FIN_{i,t} + \beta_{15} EPR_{i,t} + \beta_{16} FREEC_{i,t} \\ &+ \beta_{17} MAT\_WEAK_{i,t} + \beta_{18} FIRM\_SIZE_{i,t} + \beta_{19} CLIENT\_IMPORTANCE_{i,t} + \beta_{20} GC_{i,t} + \beta_{21} TENURE_{i,t} \\ &+ \beta_{22} AB\_FEE_{i,t} + \beta_{23} LRESTATE_{i,t-1} + \text{Industry and Year fixed effects}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3a)$$

$$\begin{aligned}RESTATE_{i,t} =& \beta_1 NB4\_TO\_NB4_{i,t} + \beta_2 NB4\_TO\_B4_{i,t} + \beta_3 SPEC_{i,t} + \beta_4 HERF_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 LOSS_{i,t} + \beta_8 MB_{i,t} \\ &+ \beta_9 ROA_{i,t} + \beta_{10} LOG\_SEG_{i,t} + \beta_{11} FOREIGN_{i,t} + \beta_{12} MERGER_{i,t} + \beta_{13} ARINV_{i,t} + \beta_{14} FIN_{i,t} + \beta_{15} EPR_{i,t} + \beta_{16} FREEC_{i,t} \\ &+ \beta_{17} MAT\_WEAK_{i,t} + \beta_{18} FIRM\_SIZE_{i,t} + \beta_{19} CLIENT\_IMPORTANCE_{i,t} + \beta_{20} GC_{i,t} + \beta_{21} TENURE_{i,t} + \beta_{22} AB\_FEE_{i,t} \\ &+ \beta_{23} LRESTATE_{I,t-1} + \beta_{24} TIER\_2_{i,t} + \text{Industry and Year fixed effects}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3b)$$

Refer to Appendix for variable definitions. Note, when the equation is run to test the association between audit quality and local competitive distance (ignoring industry), B4_TO_B4 is replaced with B4_TO_B4_MSA and B4_TO_NB4 is replaced by

B4_TO_NB4_MSA for the large audit firm sample in Equation (3a). For the small audit firm sample at the local level, NB4_TO_B4 is replaced by NB4_TO_B4_MSA and NB4_TO_NB4 is replaced by NB4_TO_NB4_MSA in Equation (3b). Also, HERF is replaced by HERF_MSA for Equations (3a) and (3b). See Section 5.

Equation (3a) addresses Hypotheses 1 and 2 in relation to competitive distance and large audit firm quality. The variables of interest are B4_TO_B4 (H1) and B4_TO_NB4 (H2). A negative sign on B4_TO_B4 indicates that as competitive distance between two large audit firms decreases (more competition), the likelihood of restatement increases. On the other hand, a positive coefficient on B4_TO_B4 signifies that as competitive distance between two large audit firms decreases, the likelihood of restatements decreases (higher audit quality). Hypothesis 2 examines if large audit firm quality is related to competitive distance between large and small audit firms. A negative sign on B4_TO_NB4 provides evidence that decreasing competitive distance between the audit firms is related to a greater likelihood of restatement and lower audit quality. However, if the sign on B4_TO_NB4 is positive, then decreasing competitive distance between the audit firms leads to a lower likelihood of restatement for large audit firms and better audit quality.

Hypotheses 3 and 4 are tested in Equation (3b), and the variables of interest are NB4_TO_NB4 (H3) and NB4_TO_B4 (H4). Hypothesis 3 states that within the small audit firm market, the competitive distance between two small audit firms is not associated with audit quality. A negative sign on NB4_TO_NB4 indicates that decreasing competitive distance between two small audit firms is associated with a greater likelihood of restatement (poorer audit quality). A positive sign on NB4_TO_NB4 demonstrates that decreasing competitive distance between two small audit firms is associated with a lower likelihood of restatement (higher audit quality). For Hypothesis 4, a negative sign on NB4_TO_B4 implies that a decrease in competitive distance is associated with a higher likelihood of restatement. A positive sign on NB4_TO_B4 supports the concept that competition does not impair auditor independence, and competition leads to higher audit quality (lower likelihood of restatement).

Firms that are likely to partake in earnings management are also more likely to restate. Therefore, the restatement model in Equations (3a) and (3b) has several control variables in common with the abnormal accruals models in Equations (2a) and (2b). HERF, JOINT_SPEC, SPEC, and TIER_2 are included to control for other aspects of competition (Newton et al. 2013; Numan and Willekens 2014). The size of the company (SIZE) is in the model because larger companies face higher levels of scrutiny from regulators (Balsam et al. 2003), and SIZE is predicted to have a negative coefficient. A positive relationship between RESTATE and leverage (LEV) is expected, as Jaggi and Lee (2002) provide support that companies with debt constraints manage earnings upwards. Also, control variables related to capital markets are in the restatement models based on the findings of Richardson et al. (2002) about predicting earnings management. These variables include MB, FIN, EPR, and FREEC, and they are predicted to have positive coefficients. FREEC is a measure of free cash flow calculated as operating cash flow less average capital expenditures for the current year and prior year scaled by lagged total assets. Equations (3a) and (3b) also contain control variables related to the complexity of the company (LOG_SEG, FOREIGN, and MERGER). Ge and McVay (2005) and Doyle, Ge, and McVay (2007a) find evidence that

complexity is related to lower quality financial reporting. Thus, positive coefficients are projected for the complexity variables. ROA, LOSS, and GC are included to control for financial performance as prior literature has found mixed relationships between these variables and financial reporting quality (Kinney and McDaniel 1989; Beasley 1996; Summers and Sweeney 1998; Erickson, Hanlon, and Maydew 2006). Previous studies have found a positive relationship between accounts receivable-inventory ratio and fraudulent reporting (Feroz, Park, and Pastena 1991; Summers and Sweeney 1998), so a positive coefficient is expected for ARINV. Audit tenure (TENURE) is a control variable because longer tenure may lead to a conflict of interest between an auditor and its client. MAT_WEAK is included because this variable provides insight into a company's internal control system. MAT_WEAK is expected to have a positive coefficient because if a company has poor internal controls, it is likely to have poor financial reporting quality (Feldmann, Read, and Abdolmohammadi 2009). Also, audit firm size (FIRM_SIZE) and client importance to the audit firm (CLIENT_IMPORTANCE) are control variables. A negative coefficient is predicted for FIRM_SIZE given that Francis and Yu (2009) show that larger audit offices are associated with higher audit quality. A positive coefficient on CLIENT_IMPORTANCE is expected since a client's influence can lead to independence issues with their auditors. AB_FEE controls for additional audit effort (Numan and Willekens 2012; Newton et al. 2013). Additionally, a lagged restatement control variable (LRESTATE) is found in the model, following Lobo and Zhao (2013). Lastly, industry and year fixed effects are done to control for any systematic time and industry effects.

The descriptive statistics for Equations (3a) and (3b) for the large and small audit firm samples associated with local-industry competitive distances are displayed in Table 2: Panel B. All continuous variables are winsorized at the 1st and 99th percentile. The large audit firm restatement sample consists of 9,813 observations, and the small audit firm restatement sample consists of 5,572 observations. B4_TO_B4 has a mean of 0.223, and B4_TO_NB4 has a mean of 0.318, which are similar to Bills and Stephens (2016) 0.227 for B4_TO_B4 and 0.321 for B4_TO_NB4. The means for NB4_TO_NB4 and NB4_TO_B4 are 0.039 and 0.191, respectively. The means reported by Bills and Stephens (2016) are 0.031 for NB4_TO_NB4 and 0.162 for NB4_TO_B4. In the large audit firm sample, 11.2% of companies restate their financial statements (5.7% Big R and 5.5% Little r), and in the small audit firm sample, 8.9% of companies restate their financial statements (6.1% Big R and 2.8% Little r). HERF, SIZE, LEV, LOG_SEG, FIN, MAT_WEAK, FIRM_SIZE, CLIENT_IMPORTANCE, GC, and JOINT_SPEC are control variables in the large audit sample that have means comparable to other studies such as Cao, Myers, and Omer (2012), Francis et al. (2013b), Bills and Stephens (2016), and Bills et al. (2016). Compared to other studies, the means of LOSS, ROA, MERGER, EPR, FREEC, and TENURE are lower; while the means of MB and FOREIGN are higher. These variations may be from sample restrictions (Big 4 only) as well as differences in time periods. For the small audit firm sample, LEV, LOSS, MB, LOG_SEG, FOREIGN, MAT_WEAK, GC, and SPEC are similar to the means stated in Bills and Stephens (2016) and Bills et al. (2016), which are both studies with small audit firm samples covering

similar time periods. The remaining control variables vary somewhat from other studies since they do not cover similar time periods, have different sample selection techniques, or define the variables in a different manner.

Pearson (Spearman) correlations among the variables are shown below (above) the diagonal in the correlation table, Table 3: Panels C and D. B4_TO_NB4 and B4_ TO_B4 have high correlation of 0.68 (Pearson) and 0.57 (Spearman) similar to the large audit firm abnormal accrual sample. For the large audit sample, the variables of interest (B4_TO_NB4 and B4_ TO_B4) are positively but not significantly related to the dependent variable for restatements (RESTATE). For the small audit sample, NB4_TO_NB4 and NB4_ TO_B4 are positively correlated with restatements (RESTATE).

Table 5 displays the results of the logistic regressions for Equations (3a) and (3b) that regress RESTATE on the variables of interest and a set of control variables. The coefficients, p-values, and significance levels for the large audit firm sample are displayed in the first three columns, and the next three columns display the coefficients, p-values, and significance levels for the small audit firm sample. In the large audit firm sample, some control variables are in the wrong predicted direction; however, they are not significant. For the variables of interest, B4_ TO_B4 and B4_ TO_NB4 are not significant. These outcomes are in favor of the null hypotheses (H1 and H2) that competitive distances in the large audit firm market are not associated with audit quality as represented by restatements. In the small audit firm sample, SIZE, MB, FOREIGN, and EPR are the control variables that load significantly in the wrong predicted direction. NB4_ TO_NB4 and NB4_ TO_B4 do not load significantly for the small audit firm sample. Thus, competitive distances in the small audit firm sample do not affect audit quality.

The results of Equations (3a) and (3b) for the different filing types are shown in Table 5: Panel B. For the filing types in the large audit firm sample B4_ TO_B4 and B4_ TO_NB4 do not load significantly, demonstrating that competitive distance in the large audit market is not associated with the likelihood of restatement. The only exception is in the accelerated filers group, where weak evidence exists of a positive relationship between competitive distance between large and small audit firms and restatements ($p < 0.10$). In the small audit firm sample, the only coefficient that is significant ($p < 0.05$) is NB4_ TO_NB4 for the non-accelerated filers. NB4_ TO_B4 is not significant across any filing type. The negative coefficient on NB4_ TO_NB4 provides limited evidence that as the competitive distance between two small audit firms decreases, the likelihood of restatement increases.

Additionally, Equations (3a) and (3b) are re-estimated by replacing the dependent variable, RESTATE, with BIG_R (Table 5: Panel C) and LITTLE_R (Table 5: Panel D) to test whether competitive distance is related to certain types of restatements. For the large audit firm sample, the coefficients on B4_ TO_B4 and B4_ TO_NB4 are not significant in Panels C and D. Furthermore, in the small audit firm sample, the coefficients on NB4_ TO_NB4 and NB4_ TO_B4 are not significant. Overall, the majority of the restatement regressions (RESTATE, BIG_R, and LITTLE_R) do not support an association between competitive distance and the likelihood of restatement.

Table 5
Panel A: Local-Industry Restatement Samples
Dependent Variable: RESTATE

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		-1.625	(0.000)	***	-3.635	(0.000)	***
B4_TO_B4	+/-	**-0.211**	**(0.493)**		-	-	
B4_TO_NB4	+/-	**0.313**	**(0.245)**		-	-	
NB4_TO_NB4	+/-	-	-		**-0.560**	**(0.484)**	
NB4_TO_B4	+/-	-	-		**0.383**	**(0.185)**	
JOINT_SPEC	-	0.165	(0.175)		-	-	
SPEC	-	-	-		0.396	(0.227)	
HERF	+/-	-0.086	(0.831)		-0.386	(0.348)	
SIZE	-	-0.031	(0.316)		0.101	(0.016)	**
LEV	+	0.366	(0.056)	*	0.026	(0.787)	
LOSS	+/-	0.036	(0.775)		0.226	(0.076)	*
MB	+	0.001	(0.920)		-0.005	(0.056)	*
ROA	+/-	-0.541	(0.107)		0.003	(0.696)	
LOG_SEG	+	-0.002	(0.988)		0.300	(0.192)	
FOREIGN	+	-0.021	(0.846)		-0.296	(0.063)	*
MERGER	+	0.230	(0.013)	**	0.411	(0.002)	***
ARINV	+	0.158	(0.629)		0.339	(0.310)	
FIN	+	0.338	(0.117)		0.021	(0.723)	
EPR	+	0.878	(0.002)	***	-0.117	(0.080)	*
FREEC	+	0.513	(0.101)		-0.030	(0.109)	
MAT_WEAK	+	1.154	(0.000)	***	1.051	(0.000)	***
FIRM_SIZE	-	0.000	(0.974)		-0.022	(0.134)	
CLIENT_IMPORTANCE	+	-0.112	(0.749)		0.139	(0.497)	
GC	+/-	0.020	(0.943)		-0.198	(0.228)	
TENURE	+/-	0.107	(0.250)		0.050	(0.532)	
AB_FEE	+/-	-0.117	(0.177)		-0.296	(0.001)	***
LRESTATE	+	3.557	(0.000)	***	2.884	(0.000)	***
TIER_2	-	-	-		-0.027	(0.863)	
Industry and Year Fixed Effects			Yes			Yes	
N			9,813			5,572	

(Table 5: cont'd.)

Panel B: Local-Industry Restatement Samples
Dependent Variable: *RESTATE*

	Large Sample									Small Sample								
	Large Acc.			Acc.			Non-Acc.			Large Acc.			Acc.			Non-Acc.		
	Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT	-1.003	(0.096)	*	-3.342	(0.000)	***	-4.285	(0.000)	***	-1.999	(0.626)		-0.461	(0.739)		-3.511	(0.000)	***
B4_TO_B4	**-0.322**	**(0.474)**		**-0.486**	**(0.357)**		**0.571**	**(0.515)**		-	-		-	-		-	-	
B4_TO_NB4	**-0.123**	**(0.764)**		**0.738**	**(0.089)**	*****	**1.205**	**(0.104)**		-	-		-	-		-	-	
NB4_TO_NB4	-	-		-	-		-	-		**5.573**	**(0.342)**		**0.269**	**(0.838)**		**-3.252**	**(0.034)**	******
NB4_TO_B4	-	-		-	-		-	-		**-6.610**	**(0.253)**		**0.670**	**(0.333)**		**0.393**	**(0.250)**	
JOINT_SPEC	0.523	(0.002)	***	0.014	(0.948)		-0.217	(0.602)		-	-		-	-		-	-	
SPEC	-	-		-	-		-	-		1.770	(0.385)		-0.211	(0.708)		0.825	(0.080)	*
HERF	0.006	(0.992)		-0.368	(0.576)		0.249	(0.832)		-8.475	(0.102)		-1.218	(0.201)		-0.039	(0.933)	
SIZE	-0.068	(0.163)		-0.002	(0.981)		-0.088	(0.491)		0.045	(0.887)		-0.313	(0.008)	***	0.198	(0.001)	***
LEV	0.529	(0.076)	*	0.246	(0.489)		0.122	(0.815)		0.425	(0.801)		0.729	(0.100)		0.014	(0.897)	
LOSS	-0.030	(0.889)		0.217	(0.240)		-0.454	(0.155)		-0.416	(0.621)		-0.134	(0.612)		0.406	(0.016)	**
MB	-0.010	(0.329)		0.025	(0.155)		-0.028	(0.195)		-0.005	(0.833)		-0.013	(0.226)		-0.004	(0.149)	
ROA	0.167	(0.795)		-0.616	(0.215)		-1.215	(0.018)	**	1.996	(0.131)		0.085	(0.015)	**	-0.000	(0.956)	
LOG_SEG	0.025	(0.905)		0.116	(0.686)		-0.020	(0.969)		2.977	(0.049)	**	0.058	(0.906)		0.580	(0.039)	**
FOREIGN	-0.094	(0.558)		0.075	(0.659)		-0.153	(0.627)		-0.449	(0.540)		-0.037	(0.900)		-0.318	(0.172)	
MERGER	0.132	(0.301)		0.344	(0.026)	**	0.229	(0.445)		1.429	(0.019)	**	0.467	(0.048)	**	0.201	(0.319)	
ARINV	0.222	(0.677)		0.233	(0.630)		0.337	(0.758)		5.973	(0.007)	***	-0.874	(0.247)		0.545	(0.143)	
FIN	0.819	(0.025)	**	0.064	(0.834)		0.263	(0.611)		3.802	(0.014)	**	0.987	(0.000)	***	-0.039	(0.554)	
EPR	0.040	(0.955)		1.156	(0.005)	***	0.851	(0.027)	**	-0.463	(0.612)		0.323	(0.227)		-0.174	(0.018)	**
FREEC	0.645	(0.251)		0.054	(0.903)		0.789	(0.215)		0.731	(0.148)		0.242	(0.048)	**	-0.042	(0.013)	**
MAT_WEAK	1.484	(0.000)	***	0.960	(0.000)	***	1.454	(0.000)	***	2.864	(0.000)	***	1.206	(0.000)	***	1.048	(0.000)	***
FIRM_SIZE	-0.001	(0.340)		0.000	(0.898)		-0.001	(0.664)		-0.195	(0.003)	***	-0.062	(0.077)	*	-0.014	(0.474)	

(Table 5: cont'd.)

	Large Sample						Small Sample					
	Large Acc.		Acc.		Non-Acc.		Large Acc.		Acc.		Non-Acc.	
	Coeff.	P-Value	Coeff.	P-Value	Coeff.	P-Value	Coeff.	P-Value	Coeff.	P-Value	Coeff.	PValue
CLIENT_IMPORTANC	-	(0.796	0.511	(0.532)	-1.030	(0.665)	-5.104	(0.021) **	0.298	(0.549)	0.141	(0.565)
GC	0.002	(0.999	-	(0.732)	-0.007	(0.984)	6.033	(0.096) *	-0.927	(0.016) **	-0.107	(0.547)
TENURE	0.182	(0.196	0.026	(0.850)	0.206	(0.488)	0.485	(0.367)	0.324	(0.052) *	-0.060	(0.517)
AB_FEE	-	(0.306	0.029	(0.848)	-0.238	(0.318)	3.053	(0.006) ***	-0.502	(0.015) **	-0.286	(0.006) ***
LRESTATE	3.744	(0.000 **	3.356	(0.000) ***	2.727	(0.000) ***	3.109	(0.002) ***	3.091	(0.000) ***	2.763	(0.000) ***
TIER_2	-	-	-	-	-	-	0.082	(0.927)	0.291	(0.353)	-0.025	(0.912)
Industry and Year Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes	
N	5,128		3,291		1,230		330		1,378		3,701	

(Table 5: cont'd.)

Panel C: Local-Industry Restatement Samples
Dependent Variable: BIG_R

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		0.496	(0.515)		-4.754	(0.000)	***
B4_TO_B4	+/-	**0.070**	**(0.896)**		-	-	
B4_TO_NB4	+/-	**0.542**	**(0.276)**		-	-	
NB4_TO_NB4	+/-	-	-		**-1.823**	**(0.122)**	
NB4_TO_B4	+/-	-	-		**0.419**	**(0.246)**	
JOINT_SPEC	-	0.027	(0.894)		-	-	
SPEC	-	-	-		0.653	(0.152)	
HERF	+/-	0.064	(0.927)		-0.474	(0.359)	
SIZE	-	-0.108	(0.073)	*	0.134	(0.010)	**
LEV	+	0.552	(0.114)		-0.087	(0.508)	
LOSS	+/-	0.046	(0.813)		0.148	(0.347)	
MB	+	0.033	(0.023)	**	-0.007	(0.033)	**
ROA	+/-	-1.093	(0.003)	***	0.015	(0.155)	
LOG_SEG	+	-0.487	(0.124)		0.348	(0.251)	
FOREIGN	+	0.275	(0.103)		-0.578	(0.006)	***
MERGER	+	0.226	(0.125)		0.190	(0.231)	
ARINV	+	-0.718	(0.205)		-0.101	(0.809)	
FIN	+	0.546	(0.092)	*	0.076	(0.335)	
EPR	+	0.796	(0.027)	**	-0.078	(0.363)	
FREEC	+	0.340	(0.416)		-0.021	(0.404)	
MAT_WEAK	+	1.581	(0.000)	***	1.378	(0.000)	***
FIRM_SIZE	-	0.003	(0.005)	***	-0.004	(0.808)	
CLIENT_IMPORTANC	+	-0.333	(0.565)		0.426	(0.089)	*
GC	+/-	0.279	(0.438)		-0.402	(0.057)	*
TENURE	+/-	0.140	(0.408)		0.090	(0.355)	
AB_FEE	+/-	-0.284	(0.066)	*	-0.257	(0.020)	**
LRESTATE	+	4.171	(0.000)	***	2.836	(0.000)	***
TIER_2	-	-	-		-0.402	(0.062)	*
Industry and Year Fixed Effects		Yes			Yes		
N		9,701			5,517		

(Table 5: cont'd)

Panel D: Local-Industry Restatement Samples
Dependent Variable: LITTLE_R

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		-2.717	(0.000)	***	-4.613	(0.000)	***
B4_TO_B4	+/-	**-0.353**	**(0.405)**		-	-	
B4_TO_NB4	+/-	**-0.091**	**(0.808)**		-	-	
NB4_TO_NB4	+/-	-	-		**1.363**	**(0.179)**	
NB4_TO_B4	+/-	-	-		**0.262**	**(0.629)**	
JOINT_SPEC	-	0.226	(0.194)		-	-	
SPEC	-	-	-		-0.151	(0.707)	
HERF	+/-	0.123	(0.832)		-0.154	(0.827)	
SIZE	-	0.009	(0.825)		0.013	(0.849)	
LEV	+	0.051	(0.863)		0.176	(0.185)	
LOSS	+/-	0.079	(0.599)		0.286	(0.151)	
MB	+	-0.028	(0.019)	**	0.001	(0.840)	
ROA	+/-	0.454	(0.313)		-0.012	(0.242)	
LOG_SEG	+	0.319	(0.146)		0.138	(0.737)	
FOREIGN	+	-0.211	(0.142)		0.169	(0.552)	
MERGER	+	0.194	(0.104)		0.625	(0.005)	***
ARINV	+	0.702	(0.136)		0.885	(0.144)	
FIN	+	0.149	(0.627)		-0.053	(0.528)	
EPR	+	0.548	(0.138)		-0.112	(0.248)	
FREEC	+	0.351	(0.400)		-0.039	(0.112)	
MAT_WEAK	+	0.008	(0.961)		0.124	(0.551)	
FIRM_SIZE	-	-0.002	(0.066)	*	-0.036	(0.094)	*
CLIENT_IMPORTANCE	+	-0.070	(0.901)		-0.318	(0.327)	
GC	+/-	-0.378	(0.412)		0.311	(0.177)	
TENURE	+/-	-0.002	(0.988)		-0.091	(0.497)	
AB_FEE	+/-	0.033	(0.775)		-0.258	(0.063)	*
LRESTATE	+	2.394	(0.000)	***	1.996	(0.000)	***
TIER_2	-	-	-		0.582	(0.027)	**
Industry and Year Fixed Effects		Yes			Yes		
N		9,684			5,449		

In this table, a logistic regression is used to test if a relationship exists between restatements and competitive distances. The dependent variables are RESTATE, BIG_R, and LITTLE_R for Panels A-B, Panel C, and Panel D, respectively. The variables of interest are competitive distances (B4_TO_B4, B4_TO_NB4, NB4_TO_NB4, and NB4_TO_B4). The sample period is restricted to 2004-2013. Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Coefficient p-values are two-tailed and based on Wald Chi-squares using robust standard errors, clustered by company.
P-values are shown in parentheses.

4.3 Going Concern Opinions

The final measure of audit quality is the issuance of going concern opinions to financially distressed companies. A going concern opinion is issued by an auditor to a client when an auditor has substantial doubt about the client's ability to continue as a going concern for at least one operating cycle. A going concern opinion is costly for clients; consequently, managers pressure auditors to not issue a going concern opinion. If an auditor surrenders to the managers' pressure and issues a clean opinion, this action is a violation of auditor independence and a signal of lower audit quality. Fewer issuances of going concern opinions is an indication of poorer audit quality. Going concern opinions provide strong evidence of audit quality because it is an output measure of auditor communication. However, going concern opinions also have limitations: it is not a continuous measure, it cannot detect subtle audit quality differences, and it has limited generalizability since it only applies to financially distressed firms (DeFond and Zhang 2014).

GC is an indicator variable that is equal to 1 if a company receives a going concern opinion in the current year, and zero otherwise. Because going concern opinions are relatively rare, the going concern sample is reduced to financially distressed companies to increase the power of the tests. Following prior research (DeFond, Raghunandan, and Subramanyam 2002; Lim and Tan 2008; Numan and Willekens 2014), financially distressed companies report either negative net income or negative operating cash flows during the current fiscal year. The logistic regression model below tests whether the likelihood of issuing a going concern opinion is associated with competitive distance. Industry and year fixed effects are included, and heteroskedasticity is controlled for by using robust standard errors clustered by company. Finally, Equations (4a) and (4b) are only estimated using the full sample due to the reduced sample size.

$$GC_{i,t} = \beta_1 B4\_TO\_B4_{i,t} + \beta_2 B4\_TO\_NB4_{i,t} + \beta_3 JOINT\_SPEC_{i,t} + \beta_4 HERF_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 MB_{i,t} + \beta_7 DEBT_{i,t} + \beta_8 LOSS\_GC_{i,t} + \beta_9 L\_LOSS\_GC_{i,t-1} + \beta_{10} STD\_SALE_{i,t} + \beta_{11} Z\_SCORE_{i,t} + \beta_{12} CASH_{i,t} + \beta_{13} CLIENT\_IMPORTANCE_{i,t} + \beta_{14} L\_GC_{i,t-1} + \beta_{15} REPORT\_LAG_{i,t} + \beta_{16} L\_RETURN_{i,t-1} + \beta_{17} STD\_RET_{i,t} + \beta_{18} TENURE_{i,t} + \beta_{19} AB\_FEE_{i,t} + \text{Industry and Year fixed effects}_{i,t} + \varepsilon_{i,t} \quad (4a)$$

$$GC_{i,t} = \beta_1 NB4\_TO\_NB4_{i,t} + \beta_2 NB4\_TO\_B4_{i,t} + \beta_3 SPEC_{i,t} + \beta_4 HERF_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 MB_{i,t} + \beta_7 DEBT_{i,t} + \beta_8 LOSS\_GC_{i,t} + \beta_9 L\_LOSS\_GC_{i,t-1} + \beta_{10} STD\_SALE_{i,t} + \beta_{11} Z\_SCORE_{i,t} + \beta_{12} CASH_{i,t} + \beta_{13} CLIENT\_IMPORTANCE_{i,t} + \beta_{14} L\_GC_{i,t-1} + \beta_{15} REPORT\_LAG_{i,t} + \beta_{16} L\_RETURN_{i,t-1} + \beta_{17} STD\_RET_{i,t} + \beta_{18} TENURE_{i,t} + \beta_{19} AB\_FEE_{i,t} + \beta_{20} TIER\_2_{i,t} + \text{Industry and Year fixed effects}_{i,t} + \varepsilon_{i,t} \quad (4b)$$

Refer to Appendix for variable definitions. Note, when the equation is run to test the association between audit quality and local competitive distance (ignoring industry), B4_TO_B4 is replaced with B4_TO_B4_MSA and B4_TO_NB4 is replaced by B4_TO_NB4_MSA for the large audit firm sample in Equation (4a). For the small audit firm sample at the local level, NB4_TO_B4 is replaced by NB4_TO_B4_MSA and NB4_TO_NB4 is replaced by NB4_TO_NB4_MSA in Equation (4b). Also, HERF is replaced by HERF_MSA for Equations (4a) and (4b). See Section 5.

Hypotheses 1 and 2 are examined using Equation (4a), where the variables of interest are B4_TO_B4 (H1) and B4_TO_NB4 (H2). A negative coefficient on B4_TO_B4 provides evidence that decreasing competitive distance between large audit firms is associated with higher audit quality (a greater likelihood of a going concern opinion). On the other hand, a positive coefficient on

B4_TO_B4 provides evidence that as competitive distance decreases between large audit firms, audit firms issue fewer going concern opinions (lower audit quality). A negative coefficient on B4_TO_NB4 indicates that as competitive distance decreases between a large and a small audit firm, a going concern opinion is more likely to be issued (higher audit quality). However, a positive sign on B4_TO_NB4 implies that as competitive distance decreases between large and small audit firms, a going concern opinion is less likely to be issued (lower audit quality).

The small audit firm samples relate to Hypotheses 3 and 4 and are tested using Equation (4b). NB4_TO_NB4 (H3) and NB4_TO_B4 (H4) are the variables of interest. A negative coefficient on NB4_TO_NB4 suggests a greater likelihood of issuing a going concern opinion (higher audit quality) as competitive distance decreases between small audit firms. Alternatively, a positive coefficient on NB4_TO_NB4 suggests a lower likelihood of issuing a going concern opinion (lower audit quality) when competitive distance between two small audit firms decreases. A negative coefficient on NB4_TO_B4 suggests that as the competitive distance between small and large audit firms decreases, there is a greater likelihood of issuing a going concern opinion (higher audit quality). Lastly, a positive sign on NB4_TO_B4 denotes that decreasing competitive distance between small and large audit firms is associated with a lower likelihood of issuing a going concern opinion (lower audit quality).

The control variables for Equations (4a) and (4b) are derived from the following studies: Francis and Yu (2009), Bills and Stephens (2016), and Numan and Willekens (2014). First, prior studies have examined the influence of competition on audit quality measures (Kallapur et al. 2010; Reichelt and Wang 2010; Boone et al. 2012; Numan and Willekens 2012; Francis et al. 2013a; Numan and Willekens 2014; Bills and Stephens 2016; Ettredge et al. 2017). Thus, variables linked to competition such as HERF, JOINT_SPEC, SPEC, and TIER_2 are control variables in the models. Larger companies are less likely to go bankrupt due to more resources and being at a more mature stage in the business life cycle (McKeown, Mutchler, and Hopwood 1991; Lim and Tan 2008), so the control variable, SIZE, is included and predicted to have a negative association with GC. Equations (4a) and (4b) contain several variables related to financial health of a company as well as riskiness of a company. Firms with losses (LOSS_GC, L_LOSS_GC) and higher amounts of debt are more likely to fail in the future and receive a going concern opinion, so these variables are expected to have a positive coefficient. Sales volatility (STD_SALE), market-to-book ratio (MB), and stock return volatility (STD_RET) represent the operating risk and the growth risk of a company. Companies with volatile sales, volatile stock returns, and growth are more likely to go bankrupt due to the unsteady nature of their business. These variables are projected to have positive coefficients. Z_SCORE measures the probability that a company will go bankrupt, the lower the score the higher the likelihood of bankruptcy. Thus, it should be negatively related to GC (Altman 1983). The control variable CASH proxies for the liquidity of a company; the more liquid a company is the less likely it will fail. A negative relationship between CASH and GC is expected. If a company has received a going concern opinion in the prior year (L_GC), then the company has a higher likelihood of receiving another going concern opinion. Thus, a positive coefficient is expected on L_GC. L_RETURN proxies for the success of a company;

if a company has a higher prior year stock return, then it is less likely to receive a going concern opinion. REPORT_LAG is a control variable because prior studies have found that a delay in reporting is associated with going concern opinions (DeFond et al. 2002). Client influence may also play a role on auditor's independence and willingness to issue a going concern report, so CLIENT_IMPORTANCE is included in the models and predicted to be negatively associated with GC. Additionally, audit tenure (TENURE) is in the models because research studies debate if auditor tenure affects an auditor's independence and their ability to provide a high quality audit. AB_FEE is used to control for additional audit effort. Lastly, industry and year fixed effects are included to control for any systematic time and industry effects.

Table 2: Panel C reports the descriptive statistics for Equations (4a) and (4b) for the large and small audit firm samples associated with local-industry competitive distance. The sample sizes are 3,432 and 1,780 for the large and small audit firm samples, respectively. All continuous variables are winsorized at the 1st and 99th percentile. B4_TO_B4 has a mean of 0.225 compared to 0.227 for Bills and Stephens (2016), and B4_TO_NB4 has a mean of 0.308 compared to Bills and Stephens (2016) 0.321. The means for NB4_TO_NB4 and NB4_TO_B4 are 0.044 and 0.158, respectively. These means are comparable to Bills and Stephens (2016) means of 0.031 for NB4_TO_NB4 and 0.162 for NB4_TO_B4. In the large audit firm sample, 5.9% of financially distressed companies receive a going concern opinion, and 11.3% of financially distressed companies receive a going concern opinion in the small audit firm sample. The following means of the control variables in the large audit firm sample are consistent with prior studies: HERF, SIZE, DEBT, LOSS_GC, L_LOSS_GC, MAT_WEAK, CLIENT_IMPORTANCE, L_GC, REPORT_LAG, and JOINT_SPEC (Lim and Tan 2008; Francis and Yu 2009; Numan and Willekens 2014; Bills and Stephens 2016). Several variables have means that are higher than previous studies (MB, CASH, and STD_RET), and some variables have means that are lower than previous studies (STD_SALE, Z_SCORE, L_RETURN, and TENURE). For the small audit sample, HERF, SIZE, ME, DEBT, CASH, MAT_WEAK, and SPEC are similar to prior studies (Lim and Tan 2008; Francis and Yu 2009; Reichelt and Wang 2010; Numan and Willekens 2014; Bills et al. 2016; Bills and Stephens 2016). Other variables from the small audit firm sample differ from prior studies possibly due to timing issues or sample selection factors.

Pearson (Spearman) correlations among the variables are shown below (above) the diagonal in the correlation table, Table 3: Panels E and F. B4_TO_B4 and B4_TO_NB4 are highly, positively correlated with each other. B4_TO_B4 and B4_TO_NB4 are positively, but not significantly, correlated with going concern opinions (GC). In the small audit sample correlations, NB4_TO_B4 is positively, but not significantly, correlated with going concern opinions (GC). NB4_TO_NB4 is significantly and negatively correlated to going concern opinions (GC) through Spearman correlations.

Table 6 presents the logistic regression results from estimating Equations (4a) and (4b). Columns 1-3 and columns 4-6 report the coefficients, p-values, and significance levels for the large and small audit firm samples, respectively. The majority of the control variables load in their predicted direction; however, those variables that are not in their predicted direction are not significant.

B4_TO_B4 is used to test Hypothesis 1 related to competitive distance between large audit firms and audit quality as proxied by going concern opinions. The coefficient on B4_TO_B4 is not significant, suggesting that an association between competitive distance and the likelihood of a going concern opinion is not supported. Likewise, B4_TO_NB4 is also not significant. This result suggests that the competitive distance between a large audit firm and its nearest small audit firm competitor and the likelihood of a going concern opinion are not related. In the small audit firm sample, most of the control variables load in the appropriate direction, and the control variables that are not in the predicted direction are not significant. NB4_TO_NB4 and NB4_TO_B4 test if competitive distances in the small audit market are connected to audit quality as measured by going concern opinions. Neither variable of interest loads significantly, indicating that the likelihood of a going concern opinion is not associated with either competitive distance between small audit firms or competitive distance between a small audit firm and its nearest large audit firm competitor. Due to the reduced sample size of the going concern opinion samples, Equations (4a) and (4b) are not estimated for each filing type.

In conclusion, the large audit firm results specify that the competitive distance between large audit firms and the competitive distance between a large audit firm and its nearest small audit firm competitor are not related to audit quality as measured by abnormal accruals, restatements, and going concern opinions. For the small audit firms, most of the tests find that audit quality is not associated with competitive distance between small audit firms and competitive distance between a small audit firm and its nearest large audit firm competitor. However, the exception is that among small audit firms, weak evidence exists that competitive distance is negatively related to abnormal accruals and restatements. Overall, these results are interesting because they demonstrate that audit market

Table 6
Local-Industry Going Concern Opinion Samples
Dependent Variable: GC

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		-4.183	(0.010)	**	-2.993*	(0.094)	*
B4_TO_B4	+/-	**-0.860**	**(0.337)**		-	-	
B4_TO_NB4	+/-	**0.796**	**(0.275)**		-	-	
NB4_TO_NB4	+/-	-	-		**2.757**	**(0.211)**	
NB4_TO_B4	+/-	-	-		**-0.910**	**(0.152)**	
JOINT_SPEC	+	-0.216	(0.568)		-	-	
SPEC	+	-	-		-0.472	(0.397)	
HERF	+/-	-0.177	(0.863)		-0.449	(0.602)	
SIZE	-	-0.830	(0.000)	***	-0.441***	(0.000)	***
MB	+	0.023	(0.112)		0.004	(0.763)	
DEBT	+	1.561	(0.000)	***	1.824***	(0.000)	***
LOSS_GC	+	1.431	(0.004)	***	0.952**	(0.027)	**
L_LOSS_GC	+	1.310	(0.000)	***	0.687**	(0.028)	**
STD_SALE	+	-0.246	(0.772)		-1.113	(0.110)	

(Table 6: cont'd.)

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
Z_SCORE	-	-0.086	(0.000)	***	-0.072***	(0.001)	***
CASH	-	-1.678	(0.000)	***	-1.372***	(0.008)	***
CLIENT_IMPORTANCE	-	-0.806	(0.587)		0.427	(0.174)	
L_GC	+	2.211	(0.000)	***	2.259***	(0.000)	***
REPORT_LAG	+	0.032	(0.000)	***	0.017***	(0.009)	***
L_RETURN	-	-0.291	(0.255)		-0.908***	(0.000)	***
STD_RET	+	1.654	(0.113)		1.863*	(0.086)	*
TENURE	+/-	-0.268	(0.171)		-0.356***	(0.010)	**
AB_FEE	+/-	0.317	(0.152)		-0.132	(0.520)	
TIER_2	+	-	-		-0.113	(0.714)	
Industry and Year Fixed Effects		Yes			Yes		
N		3,432			1,780		

In this table, a logistic regression is used to test if a relationship exists between going concern issuances and competitive distances. The dependent variable is GC. The variables of interest are competitive distances (B4_TO_B4, B4_TO_NB4, NB4_TO_NB4, and NB4_TO_B4). The sample period is restricted to financially distressed firms and covers the years 2004 through 2015.
Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Coefficient p-values are two-tailed and based on Wald Chi-squares using robust standard errors, clustered by company.
P-values are shown in parentheses.

competition may not be as big of a concern as previously thought. Audit market competition does not incentivize higher audit quality or force auditors to compromise audit quality.

CHAPTER 5. ADDITIONAL TESTS AND SENSITIVITY TESTS

5.1 Competitive Distances at a Local Level

Section 4 discusses the results where competitive distance is measured at a local-industry level (two-digit SIC, MSA). In this section, competitive distance is measured at a local level (MSA). A local level measure is a broader measure than the local-industry measure because the local-industry measure is restrictive and significantly reduces the amount of observations that can be used. The local level holds industry effects constant. Additionally, Numan and Willekens (2012) cite that it is possible for some small audit firms to compete with large audit firms at the local level for clients. A disadvantage of this measure is that it is less reliable since most audit firms specialize within an industry (Francis, Reichelt, and Wang 2005; Reichelt and Wang 2010).

At a local level, B4_TO_B4_MSA (NB4_TO_NB4_MSA) is the smallest absolute market share difference between company i's Big 4 (non-Big 4) auditor and its closest Big 4 (non-Big 4) audit firm competitor within an MSA in a year. Similarly, at a local level, B4_TO_NB4_MSA (NB4_TO_B4_MSA) is defined as the smallest market share difference between company i's Big 4 (non-Big 4) auditor and its closest non-Big 4 (Big 4) audit firm competitor in an MSA in a year.

Table 7 displays the descriptive statistics for the dependent variables (audit quality measures) and the variables of interest (local competitive distances). The descriptive statistics for the audit quality proxies are similar to the values reported in Table 2, except that abnormal accruals at the local level are slightly lower than the values reported at the local-industry level. In the large audit firm samples, the mean for B4_TO_B4_MSA ranges from 0.092 to 0.099, and the mean for B4_TO_NB4_MSA ranges from 0.247 to 0.253. For the small audit firm sample, the mean for NB4_TO_NB4_MSA is between 0.008 to 0.010, and NB4_TO_B4_MSA is between 0.104 and 0.112. These local competitive distance means are lower than the local-industry values because more clients are available and more audit firms are competing for market share at a local level than at a local-industry level.

Table 7
Descriptive Statistics
Panel A: Local Abnormal Accruals Samples

	Large Audit Firm Sample (N=19,685)					Small Audit Firm Sample (N=6,084)				
	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
ABS_DACC_SIZE	0.056	0.059	0.017	0.038	0.074	0.078	0.074	0.026	0.056	0.106
B4_TO_B4_MSA	0.099	0.122	0.025	0.054	0.116	-	-	-	-	-
B4_TO_NB4_MSA	0.253	0.144	0.157	0.229	0.322	-	-	-	-	-
NB4_TO_NB4_MSA	-	-	-	-	-	0.008	0.017	0.000	0.001	0.008
NB4_TO_B4_MSA	-	-	-	-	-	0.104	0.061	0.062	0.102	0.145

(Table 7: cont'd.)

Panel B: Local Restatement Samples

	Large Audit Firm Sample (N=16,738)					Small Audit Firm Sample (N=8,773)				
	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
RESTATE	0.113	0.316	0.000	0.000	0.000	0.089	0.285	0.000	0.000	0.000
BIG_R	0.052	0.221	0.000	0.000	0.000	0.057	0.232	0.000	0.000	0.000
LITTLE_R	0.061	0.239	0.000	0.000	0.000	0.032	0.176	0.000	0.000	0.000
B4_TO_B4_MSA	0.097	0.121	0.024	0.052	0.112	-	-	-	-	-
B4_TO_NB4_MSA	0.251	0.142	0.157	0.230	0.318	-	-	-	-	-
NB4_TO_NB4_MSA	-	-	-	-	-	0.008	0.028	0.000	0.001	0.005
NB4_TO_B4_MSA	-	-	-	-	-	0.112	0.092	0.067	0.104	0.145

Panel C: Local Going Concern Opinion Samples

	Large Audit Firm Sample (N=4,981)					Small Audit Firm Sample (N=2,952)				
	Mean	Std Dev	First Quartile	Median	Third Quartile	Mean	Std Dev	First Quartile	Median	Third Quartile
GC	0.058	0.233	0.000	0.000	0.000	0.113	0.316	0.000	0.000	0.000
B4_TO_B4_MSA	0.092	0.114	0.024	0.051	0.106	-	-	-	-	-
B4_TO_NB4_MSA	0.247	0.133	0.160	0.231	0.316	-	-	-	-	-
NB4_TO_NB4_MSA	-	-	-	-	-	0.010	0.024	0.000	0.002	0.008
NB4_TO_B4_MSA	-	-	-	-	-	0.108	0.077	0.064	0.103	0.147

Refer to Appendix for variable definitions.

Tables 8-10 regress Equations (2a) through (4b); however, the competitive distances and the Herfindahl index are measured at the local level. For abnormal accruals, both B4_TO_B4_MSA and B4_TO_NB4_MSA are statistically significant for the large audit sample. B4_TO_B4_MSA is negative and significant at $p < 0.01$. This result demonstrates that as local competitive distance decreases between two large audit firms, the abnormal accruals increase. In contrast, B4_TO_NB4_MSA loads positive and significant at $p < 0.05$. This outcome implies that decreasing competitive distance between large and small audit firms (more competition) is associated with lower abnormal accruals (better audit quality) as supported by Boone et al. (2012).

The small audit firm sample results for abnormal accruals are also displayed in Table 8. NB4_TO_NB4_MSA and NB4_TO_B4_MSA have negative coefficients; however, neither loads significantly suggesting that competitive distances at the MSA level in the small audit market are not associated with the absolute value of abnormal accruals.

Table 9 displays the logistic regression results for the restatement samples. B4_TO_B4_MSA is not significant, but B4_TO_NB4_MSA is positive and significant at $p < 0.05$. This result indicates that as competitive distance decreases, the likelihood of a restatement also decreases. In other words, more competition (lower competitive distance) is associated with higher audit quality

Table 8
Local Abnormal Accruals Samples
Dependent Variable: ABS_DACC_SIZE

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		0.060	(0.000)	***	0.105	(0.000)	***
B4_TO_B4_MSA	+/-	**-0.015**	**(0.003)**	****	-	-	
B4_TO_NB4_MSA	+/-	**0.010**	**(0.032)**	**	-	-	
NB4_TO_NB4_MSA	+/-	-	-		**-0.095**	**(0.116)**	
NB4_TO_B4_MSA	+/-	-	-		**-0.020**	**(0.218)**	
JOINT_SPEC	-	-0.002	(0.110)		-	-	
SPEC	-	-	-		0.002	(0.412)	
HERF_MSA	+/-	0.000	(0.559)		0.000	(0.858)	
SIZE	-	-0.003	(0.000)	***	-0.004	(0.000)	***
LEV	-	-0.008	(0.027)	**	-0.012	(0.066)	*
CFO	+	0.016	(0.054)	*	-0.055	(0.000)	***
STD_CFO	-	0.204	(0.000)	***	0.087	(0.000)	***
MB	+	0.001	(0.000)	***	0.001	(0.003)	***
LOSS	+	0.007	(0.000)	***	-0.009	(0.001)	***
ABS_LTA	+	0.058	(0.000)	***	0.061	(0.000)	***
Z_SCORE	-	-0.002	(0.000)	***	-0.001	(0.022)	**
LIT	+	0.011	(0.000)	***	0.005	(0.148)	
TENURE	+/-	0.001	(0.259)		-0.002	(0.213)	
AB_FEE	+/-	-0.001	(0.319)		-0.001	(0.693)	
MAT_WEAK	+	0.002	(0.127)		0.003	(0.221)	
TIER_2	-	-	-		-0.006	(0.015)	**
Industry and Year Fixed Effects		Yes			Yes		
R-Squared		0.2288			0.1517		
N		19,685			6,084		

In this table, an OLS regression is used to test if a relationship exists between the absolute value of abnormal accruals and competitive distances measured at a local level. The dependent variable is the absolute value of abnormal accruals (ABS_DACC_SIZE), and the variables of interest are competitive distances (B4_TO_B4_MSA, B4_TO_NB4_MSA, NB4_TO_NB4_MSA, and NB4_TO_B4_MSA). The sample period is 2004-2015.
Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Coefficient p-values are two-tailed and based on t-statistics using robust standard errors, clustered by company.
P-values are shown in parentheses.

(lower likelihood of restatements). For the small audit firm sample, NB4_TO_NB4_MSA and NB4_TO_B4_MSA are not significant, and these results indicate that local competitive distances in the small audit market are not associated with restatements.

Table 9
Panel A: Local Restatement Samples
Dependent Variable: *RESTATE*

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		-2.292	(0.000)	***	-2.964	(0.000)	***
B4_TO_B4_MSA	+/-	**-0.357**	**(0.352)**		-	-	
B4_TO_NB4_MSA	+/-	**0.721**	**(0.021)**	**	-	-	
NB4_TO_NB4_MSA	+/-	-	-		**0.250**	**(0.893)**	
NB4_TO_B4_MSA	+/-	-	-		**0.155**	**(0.719)**	
JOINT_SPEC	-	0.100	(0.172)		-	-	
SPEC	-	-	-		-0.126	(0.258)	
HERF_MSA	+/-	-0.033	(0.237)		0.050	(0.081)	*
SIZE	-	-0.026	(0.283)		0.081	(0.018)	**
LEV	+	0.272	(0.085)	*	0.022	(0.794)	
LOSS	+/-	0.066	(0.492)		0.174	(0.092)	*
MB	+	-0.003	(0.671)		-0.004	(0.055)	*
ROA	+/-	-0.398	(0.195)		-0.001	(0.804)	
LOG_SEG	+	0.185	(0.097)	*	0.184	(0.264)	
FOREIGN	+	0.031	(0.678)		-0.348	(0.005)	***
MERGER	+	0.263	(0.000)	***	0.368	(0.001)	***
ARINV	+	-0.194	(0.432)		0.055	(0.829)	
FIN	+	0.365	(0.009)	***	0.017	(0.713)	
EPR	+	0.421	(0.068)	*	-0.054	(0.387)	
FREEC	+	0.592	(0.038)	**	-0.028	(0.052)	*
MAT_WEAK	+	1.182	(0.000)	***	0.978	(0.000)	***
FIRM_SIZE	-	0.001	(0.424)		-0.018	(0.125)	
CLIENT_IMPORTANCE	+	-0.179	(0.320)		0.128	(0.420)	
GC	+/-	-0.339	(0.167)		-0.285	(0.033)	**
TENURE	+/-	0.084	(0.262)		-0.042	(0.521)	
AB_FEE	+/-	-0.113	(0.074)	*	-0.307	(0.000)	***
LRESTATE	+	3.513	(0.000)	***	2.888	(0.000)	***
TIER_2	-	-	-		-0.030	(0.813)	
Industry and Year Fixed Effects		Yes			Yes		
N		16,738			8,773		

In this table, a logistic regression is used to test if a relationship exists between restatements and competitive distances measured at a local level. The dependent variable is RESTATE. The variables of interest are competitive distances (B4_TO_B4_MSA, B4_TO_NB4_MSA, NB4_TO_NB4_MSA, and NB4_TO_B4_MSA). The sample period is restricted to 2004-2013.
Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Coefficient p-values are two-tailed and based on Wald Chi-squares using robust standard errors, clustered by company.
P-values are shown in parentheses.

Table 10 reports the logistic regression results for the going concern opinion samples. For both the large and small audit firm samples, none of the competitive distances (B4_TO_B4_MSA, B4_TO_NB4_MSA, NB4_TO_NB4_MSA, and NB4_TO_B4_MSA)

Table 10
Local Going Concern Opinion Samples
Dependent Variable: *GC*

	Predicted Sign	Large Sample			Small Sample		
		Full Sample			Full Sample		
		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT		-2.453	(0.019)	**	-5.520	(0.010)	**
B4_TO_B4_MSA	+/-	**-0.841**	**(0.436)**		**-**	**-**	
B4_TO_NB4_MSA	+/-	**0.671**	**(0.468)**		**-**	**-**	
NB4_TO_NB4_MSA	+/-	**-**	**-**		**1.624**	**(0.696)**	
NB4_TO_B4_MSA	+/-	**-**	**-**		**-1.460**	**(0.199)**	
JOINT_SPEC	+	-0.031	(0.902)		-	-	
SPEC	+	-	-		0.201	(0.394)	
HERF_MSA	+/-	0.031	(0.634)		-0.012	(0.853)	
SIZE	-	-0.690	(0.000)	***	-0.494	(0.000)	***
MB	+	0.016	(0.202)		0.006	(0.655)	
DEBT	+	1.527	(0.000)	***	1.584	(0.000)	***
LOSS_GC	+	0.820	(0.003)	***	1.063	(0.006)	***
L_LOSS_GC	+	0.775	(0.002)	***	0.680	(0.008)	***
STD_SALE	+	-0.188	(0.781)		-1.181	(0.037)	**
Z_SCORE	-	-0.135	(0.000)	***	-0.073	(0.000)	***
CASH	-	-1.650	(0.000)	***	-1.020	(0.027)	**
CLIENT_IMPORTANCE	-	-0.127	(0.807)		-0.048	(0.848)	
L_GC	+	2.311	(0.000)	***	2.586	(0.000)	***
REPORT_LAG	+	0.028	(0.000)	***	0.026	(0.000)	***
L_RETURN	-	-0.473	(0.024)	**	-0.492	(0.029)	**
STD_RET	+	2.082	(0.014)	**	1.285	(0.162)	
TENURE	+/-	-0.246	(0.146)		-0.126	(0.286)	
AB_FEE	+/-	-0.060	(0.747)		-0.183	(0.282)	
TIER_2	+	-	-		-0.140	(0.583)	
Industry and Year Fixed Effects		Yes			Yes		
N		4,981			2,952		

In this table, a logistic regression is used to test if a relationship exists between going concern issuances and competitive distances measured at a local level. The dependent variable is GC. The variables of interest are competitive distances (B4_TO_B4_MSA, B4_TO_NB4_MSA, NB4_TO_NB4_MSA, and NB4_TO_B4_MSA). The sample period is restricted to financially distressed firms and covers the years 2004 through 2015.
Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively.
Coefficient p-values are two-tailed and based on Wald Chi-squares using robust standard errors, clustered by company.
P-values are shown in parentheses.

load significantly. Overall, these results indicate that local competitive distances in the large and small audit firm markets are not associated with the likelihood of issuing a going concern opinion.

In conclusion, with these additional tests, some evidence provides that local competitive distance may influence audit quality for abnormal accruals and restatements; however, readers should take caution when interpreting these results due to the nature of measuring competitive distances at a local level without regard to industry.

5.2 Autocorrelation

Autocorrelation is the similarity between observations as a function of the time lag between them. One way to account for autocorrelation is to include the lagged dependent variable as an explanatory variable on the right-hand side of the equation. If the lagged dependent variable is not included as a control variable, then it is possible to have unreliable results due to omitted variable bias. If the lagged dependent variable is included, then it is expected that its current value is to be explained heavily by its past values. An issue with including the lagged dependent variable in the model is that it will likely make the independent variable coefficients smaller and the standard errors larger. For the restatement and going concern tests, lagged restatements and lagged going concern opinions are already included as control variables (See Tables 5 and 6 and Tables 9 and 10).

For the abnormal accrual samples, an autocorrelation test created by Wooldridge (2002) is used to test if autocorrelation is present in the models. The results indicate that autocorrelation is present in both the large and small audit firm abnormal accrual models ($p < 0.01$) (untabulated). Table 11 shows the results of Equations (2a) and (2b) with lagged absolute value of abnormal accruals as a control variable. The results for the large audit firm sample remain unchanged with neither competitive distance loading significantly. For the small audit firm sample, NB4_TO_NB4 is negative and significant ($p < 0.05$) similar to Table 4, and now, NB4_TO_B4 loads positive and significant ($p < 0.05$).

Table 11
Local-Industry Abnormal Accruals Samples
Sensitivity Test
Dependent Variable: ABS_DACC_SIZE

	Large Sample			Small Sample		
	Full Sample			Full Sample		
	Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT	0.032	(0.000)	***	0.155	(0.000)	***
L_ABS_DACC_SIZE	0.262	(0.000)	***	0.131	(0.000)	***
B4_TO_B4	**0.000**	**(0.997)**		-	-	
B4_TO_NB4	**-0.006**	**(0.160)**		-	-	
NB4_TO_NB4	-	-		**-0.050**	**(0.037)**	**
NB4_TO_B4	-	-		**0.017**	**(0.016)**	**
JOINT_SPEC	-0.001	(0.622)		-	-	

(Table 11: cont'd.)

	Large Sample			Small Sample		
	Full Sample			Full Sample		
	Coeff.	P-Value		Coeff.	P-Value	
SPEC	-	-		0.005	(0.594)	
HERF	-0.001	(0.931)		-0.018	(0.071)	*
SIZE	-0.002	(0.000)	***	-0.003	(0.002)	***
LEV	-0.009	(0.068)	**	-0.003	(0.803)	
CFO	0.025	(0.040)	**	-0.034	(0.074)	*
STD_CFO	0.134	(0.000)	***	0.076	(0.000)	***
MB	0.001	(0.000)	***	0.001	(0.063)	*
LOSS	0.011	(0.000)	***	-0.007	(0.099)	*
ABS_LTA	-0.033	(0.016)	**	0.040	(0.049)	**
Z_SCORE	-0.003	(0.000)	***	-0.001	(0.012)	**
LIT	0.011	(0.000)	***	0.001	(0.821)	
TENURE	0.001	(0.393)		-0.000	(0.962)	
AB_FEE	0.000	(0.743)		-0.003	(0.241)	
MAT_WEAK	0.004	(0.078)		0.004	(0.298)	
TIER_2	-	-		-0.002	(0.607)	
Industry and Year Fixed Effects	Yes			Yes		
R-squared	0.2681			0.1703		
N	8,880			3,432		

In this table, an OLS regression is used to test if a relationship exists between the absolute value of abnormal accruals and competitive distances while controlling for autocorrelation. The dependent variable is the absolute value of abnormal accruals (ABS_DACC_SIZE), and the variables of interest are competitive distances (B4_TO_B4, B4_TO_NB4, NB4_TO_NB4, and NB4_TO_B4). The sample period is 2004-2015.
Refer to Appendix for variable definitions.
***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively. Coefficient p-values are two-tailed and based on t-statistics using robust standard errors, clustered by company.
P-values are shown in parentheses.

5.3 Research Design Sensitivity Tests

In their paper, Eshleman and Lawson (2017) provide evidence of a positive relationship between audit market concentration and audit quality. Specifically, they find that higher audit market concentration, as proxied by the Herfindahl index, is associated with lower absolute value of abnormal accruals. In other words, less competition is linked to higher audit quality. In their design, they rank the Herfindahl index by quintiles and run their regression on the full sample, the non-switching audit client sample, the switching audit client sample, the first-year engagements with low-balling, and the first-year engagements with no lowballing. Their results of a positive association between audit market concentration and audit quality hold in the full, the non-switching, and the first-year engagement with no lowballing samples. To see if the results of this paper are sensitive to design choices, the methodology of Eshleman and Lawson (2017) are followed for the absolute value of abnormal accrual regressions in Table 12. Equations (2a) and (2b)

are presented; however, the competitive distances are ranked in quintiles, and the samples are broken down into 5 different groups, following Eshleman and Lawson (2017).

Table 12: Panel A displays the results for the absolute value of abnormal accruals large audit market sample. B4_TO_B4^{RANK} and B4_TO_NB4^{RANK} do not load significantly for both the pooled sample and non-switching sample. For first-year engagements, B4_TO_NB4^{RANK} does not load significantly in any of the samples, and B4_TO_B4^{RANK} loads negative and weakly significant ($p < 0.10$). However, when first-year engagements are split between lowballing and no lowballing, B4_TO_B4^{RANK} is positive and significant when it is a first-year engagement with lowballing (discounting) of audit fees. This positive coefficient signifies that as competitive distance increases (less competition), the absolute value of abnormal accruals also increases.

Panel B of Table 12 presents the regression results for the small audit firm sample for the absolute value of abnormal accruals. NB4_TO_B4^{RANK} is not significant for any of the regression variations. NB4_TO_NB4^{RANK} is negative and significant for the pooled sample and the non-switching sample. This negative coefficient suggests that as a small audit firm decreases its competitive distance from other small audit firms (lower ranking of competitive distance), the absolute value of abnormal accruals increases (lower audit quality). In conclusion, Table 12 demonstrates that the setting (switching, non-switching, not lowballing, and lowballing) does affect whether or not a relationship exists between competitive distances and abnormal accruals.

Table 12
Local-Industry Abnormal Accruals Samples
Dependent Variable: *ABS_DACC_SIZE*
Panel A: Large Sample
Sensitivity Test

	Pooled			Non-Switching			Switching Samples								
							Switching Full			No Lowball			Yes Lowball		
	Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT	0.048	(0.000)	***	0.051	(0.000)	***	-0.059	(0.087)	*	-0.121	(0.086)	*	0.014	(0.787)	
B4_TO_B4^{RANK}	**-0.001**	**(0.271)**		**-0.001**	**(0.191)**		**-0.005**	**(0.084)**	*	**-0.006**	**(0.268)**		**0.010**	**(0.042)**	**
B4_TO_N B4^{RANK}	**-0.000**	**(0.527)**		**-0.000**	**(0.718)**		**-0.000**	**(0.888)**		**-0.001**	**(0.837)**		**0.005**	**(0.314)**	
JOINT_SPEC	-0.001	(0.683)		-0.000	(0.907)		0.003	(0.744)		0.016	(0.372)		-0.013	(0.263)	
HERF	0.003	(0.662)		0.005	(0.551)		0.058	(0.043)	**	0.047	(0.441)		0.057	(0.173)	
SIZE	-0.003	(0.000)	***	-0.003	(0.000)	***	0.003	(0.310)		0.005	(0.272)		-0.001	(0.707)	
LEV	-0.009	(0.065)		-0.012	(0.056)	*	0.012	(0.649)		0.008	(0.877)		0.011	(0.731)	
CFO	0.026	(0.014)	**	0.030	(0.017)	**	0.049	(0.326)		0.061	(0.495)		0.021	(0.650)	
STD_CFO	0.159	(0.000)	***	0.150	(0.000)	***	0.186	(0.002)	***	0.189	(0.018)	**	0.172	(0.011)	**
MB	0.001	(0.000)	***	0.001	(0.000)	***	0.001	(0.439)		0.004	(0.092)	*	-0.000	(0.967)	
LOSS	0.010	(0.000)	***	0.011	(0.000)	***	0.024	(0.019)	**	0.037	(0.097)	*	0.008	(0.468)	
ABS_LTA	0.058	(0.000)	***	0.056	(0.000)	***	0.040	(0.233)		0.006	(0.907)		0.057	(0.140)	
Z_SCORE	-0.003	(0.000)	***	-0.004	(0.000)	***	-0.000	(0.969)		0.004	(0.448)		-0.001	(0.698)	
LIT	0.012	(0.000)	***	0.015	(0.000)	***	0.018	(0.085)	*	0.011	(0.546)		0.013	(0.327)	
TENURE	0.001	(0.627)		0.001	(0.786)		-	-		-	-		-	-	
AB_FEE	-0.001	(0.609)		-0.004	(0.019)	**	-0.001	(0.847)		0.007	(0.534)		-0.006	(0.398)	
MAT_WEAK	0.003	(0.100)		0.003	(0.234)		-0.004	(0.603)		0.003	(0.845)		-0.006	(0.587)	
Industry and Year Fixed Effects	Yes			Yes			Yes			Yes			Yes		
R-squared	0.2335			0.2454			0.3307			0.4030			0.4081		
N	11,302			7,956			350			169			169		

(Table 12: cont'd.)

Panel B: Small Sample

	Pooled			Non-Switching			Switching Samples								
							Switching Full			No Lowball			Yes Lowball		
	Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value		Coeff.	P-Value	
INTERCEPT	0.153	(0.000)	***	0.259	(0.000)	***	0.091	(0.013)	**	0.105	(0.032)	**	0.065	(0.233)	
NB4_TO_NB4^{RANK}	**-0.003**	**(0.010)**	**	**-0.008**	**(0.005)**	***	**-0.003**	**(0.230)**		**-0.002**	**(0.672)**		**-0.004**	**(0.267)**	
NB4_TO_ B4^{RANK}	**0.001**	**(0.160)**		**-0.001**	**(0.619)**		**0.002**	**(0.537)**		**0.003**	**(0.397)**		**0.000**	**(0.975)**	
SPEC	-0.002	(0.787)		0.017	(0.238)		-0.009	(0.595)		-0.045	(0.019)	**	0.025	(0.360)	
HERF	-0.008	(0.395)		0.022	(0.223)		0.006	(0.790)		0.017	(0.648)		-0.002	(0.945)	
SIZE	-0.001	(0.174)		0.002	(0.561)		-0.003	(0.201)		-0.001	(0.834)		-0.004	(0.153)	
LEV	-0.004	(0.706)		-0.016	(0.339)		-0.019	(0.393)		-0.034	(0.347)		-0.007	(0.786)	
CFO	-0.064	(0.000)	***	-0.090	(0.019)	**	-0.035	(0.248)		-0.014	(0.759)		-0.063	(0.138)	
STD_CFO	0.054	(0.000)	***	0.025	(0.146)		0.080	(0.000)	***	0.081	(0.018)	**	0.074	(0.004)	***
MB	0.000	(0.613)		0.000	(0.964)		0.000	(0.770)		0.000	(0.964)		0.001	(0.548)	
LOSS	-0.012	(0.001)	***	-0.010	(0.210)		-0.010	(0.299)		-0.004	(0.802)		-0.016	(0.234)	
ABS_LTA	0.035	(0.000)	***	0.017	(0.323)		0.013	(0.412)		0.012	(0.566)		0.014	(0.565)	
Z_SCORE	-0.002	(0.001)	***	-0.002	(0.083)	*	-0.002	(0.053)	*	-0.003	(0.117)		-0.002	(0.248)	
LIT	0.003	(0.532)		-0.001	(0.967)		-0.001	(0.944)		0.012	(0.480)		-0.014	(0.264)	
TENURE	-0.002	(0.355)		-0.007	(0.437)		-	-		-	-		-	-	
AB_FEE	-0.004	(0.117)		0.003	(0.712)		-0.007	(0.271)		-0.014	(0.165)		-0.005	(0.621)	
MAT_WEAK	0.008	(0.029)	**	0.006	(0.535)		0.018	(0.030)	**	0.013	(0.300)		0.024	(0.034)	**
TIER_2	-0.004	(0.201)		-0.003	(0.708)		-0.002	(0.845)		-0.008	(0.539)		0.006	(0.595)	
Industry and Year Fixed Effects	Yes			Yes			Yes			Yes			Yes		
R-squared	0.1770			0.2540			0.2068			0.2262			0.2603		
N	4,758			676			829			415			414		

In this table, an OLS regression is used to test if a relationship exists between the absolute value of abnormal accruals and ranked competitive distances. The dependent variable is the absolute value of abnormal accruals (ABS_DACC_SIZE), and the variables of interest are competitive distances (B4_TO_B4 ^{RANK}, B4_TO_NB4 ^{RANK}, NB4_TO_NB4 ^{RANK}, and NB4_TO_B4 ^{RANK}). The sample period is 2004-2015. For both the large and small audit firm samples, the model is run on the entire large(small) sample and then restricted to the non-switching observations, the switching observations, the no lowball switching observations, and the lowball switching observations.

Refer to Appendix for variable definitions.

***,**,* Denote $p < 0.01$, $p < 0.05$, and $p < 0.10$, respectively. Coefficient p-values are two-tailed and based on t-statistics using robust standard errors, clustered by company.

P-values are shown in parentheses.

5.4 Research Design Sensitivity Tests (untabulated)

To test if the results are sensitive to the audit quality proxy choice, additional OLS regressions are run using accrual quality as the proxy for audit quality. Accrual quality captures how well working capital accruals map into past, present, and future operating cash flows (Dechow and Dichev 2002). For this test, accrual quality is regressed on competitive distances (B4_TO_B4, B4_TO_NB4, NB4_TO_NB4, and NB4_TO_B4) and a set of control variables. Accrual quality is defined as the standard deviation of the residuals from year t through year t-4 from the Dechow and Dichev (2002) accruals quality measure, as adjusted by McNichols (2002). A higher standard deviation signifies poorer accrual quality as well as poorer audit quality. The results of these tests (untabulated) are not conclusive except for the small sample results. The small sample accrual quality results support the main small sample abnormal accrual results that competitive distance is negatively related to audit quality.

Another test is done to examine if the main results are sensitive to the continuous nature of the competitive distance variables. For this sensitivity test, the main models (Table 4: Panel A, Table 5: Panel A, and Table 6: Panel A) are re-run except the competitive distance variables are replaced by ranked competitive distance variables (terciles, quartiles, quintiles, and deciles). The competitive distance variables are ranked by year. The results (untabulated) are similar to the results found in the main results.

Lastly, the Herfindahl index is a concentration control variable that is used in all the models; however, it is highly correlated with some of the competitive distance variables of interest, B4_TO_B4 and NB4_TO_B4. Competitive distance and the Herfindahl index both rely on market share to calculate their values. Therefore, for this sensitivity test, the Herfindahl index is re-calculated based on client count (Boone et al. 2012), and the main models (Table 4: Panel A, Table 5: Panel A, and Table 6: Panel A) are re-run to examine if the models are sensitive to Herfindahl index specifications (untabulated). The results remain the same regardless of how the Herfindahl index is computed.

CHAPTER 6. CONCLUSION

This paper examines the relationship between audit quality and competitive distance within and between the large and small audit markets. Prior literature has found mixed results when proxying competition with concentration measures such as the Herfindahl index. Recently, papers researching audit market competition have used competitive distance to capture competition. Competitive distance is founded in spatial economics and is based on a firm's relative location in a market. It is calculated as the absolute smallest difference in market shares between two competitors. Competitive distance is captured within the large audit market, within the small audit market, and between the large and small audit markets.

Most of the results indicate that local-industry competition between large audit firms, between small audit firms, and between large and small audit firms is not associated with audit quality as proxied by abnormal accruals, restatements, Big R, Little r, and going concern opinions. The small audit firm sample provides some evidence that local-industry competitive distance between two small audit firms is associated with abnormal accruals and restatements when a client is a non-accelerated filer.

In the additional tests section, competitive distance is measured at a local level. These tests provide some evidence that local competition affects audit quality. Specifically, the results show that for abnormal accruals, decreasing local competitive distance between large audit firms is linked with higher abnormal accruals. In contrast, decreasing local competitive distance between a large audit firm and its nearest small audit firm competitor is associated with lower abnormal accruals and a lower likelihood of a restatement.

A limitation of this study is endogeneity related to the direction of causality between competitive distances and the proxies for audit quality. Does lower competitive distances (more competition) lead to higher abnormal accruals, more restatements, and fewer going concern opinions? Or, do these demands for poorer financial reporting quality lead to more competition between auditors, as clients demand cheaper audits? It is not possible to completely disentangle these effects, and readers should exercise caution when interpreting the outcomes.

Overall, competition has been a concern for regulators. Regulators fear that highly concentrated markets and not enough competition cause auditors to become complacent and not offer high quality audits. This paper provides insight into the dynamics of audit quality and competition within the large audit market, competition within the small audit market, and competition between these two markets.

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Appendix. Variable Definitions

Dependent Variables

Variables	Definition
ABS_DACC_SIZE	Absolute value of abnormal accruals for company i using performance-adjusted abnormal accruals model based on the cross-sectional modified Jones equation (Jones 1991, Kothari et al. 2005). The model is run by size-year deciles and requires at least 11 observations per group, following the methodology of Ecker et al. (2013).
RESTATE	Indicator variable equal to 1 if company i has restated their financial statements in year t, and 0 otherwise.
BIG_R	Indicator variable equal to 1 if company i has restated their financial statements in year t and announced it in an 8-K filing or Press Release, and 0 otherwise.
LITTLE_R	Indicator variable equal to 1 if company i has restated their financial statements in year t and announced it in the 10-K filing, and 0 otherwise.
GC	Indicator variable equal to 1 if company i received a going-concern report in year t, and 0 otherwise.

Variables of Interest

Variables	Definition
B4_TO_B4	The smallest absolute industry market share difference between company i's Big 4 auditor and its closest Big 4 audit firm competitor in an MSA.
$B4\_TO\_B4^{RANK}$	Ranking of B4_TO_B4 into quintiles per year.
B4_TO_NB4	The smallest absolute industry market share difference between company i's Big 4 auditor and its closest non-Big 4 audit firm competitor in an MSA.
$B4\_TO\_NB4^{RANK}$	Ranking of B4_TO_NB4 into quintiles per year.
NB4_TO_B4	The smallest absolute industry market share difference between company i's non-Big 4 auditor and its closest Big 4 audit firm competitor in an MSA.
$NB4\_TO\_B4^{RANK}$	Ranking of NB4_TO_B4 into quintiles per year.
NB4_TO_NB4	The smallest absolute industry market share difference between company i's non-Big 4 auditor and its closest non-Big 4 audit firm competitor in an MSA.
$NB4\_TO\_NB4^{RANK}$	Ranking of NB4_TO_NB4 into quintiles per year.
B4_TO_B4_MSA	The smallest absolute market share difference between company i's Big 4 auditor and its closest Big 4 audit firm competitor in an MSA.
B4_TO_NB4_MSA	The smallest absolute market share difference between company i's Big 4 auditor and its closest non-Big 4 audit firm competitor in an MSA.
NB4_TO_B4_MSA	The smallest absolute market share difference between company i's non-Big 4 auditor and its closest Big 4 audit firm competitor in an MSA.
NB4_TO_NB4_MSA	The smallest absolute market share difference between company i's non-Big 4 auditor and its closest non-Big 4 audit firm competitor in an MSA.

Control Variables

Variables	Definition
ABS_LTA	Absolute value of total accruals scaled by lagged total assets of company i.
AB_FEE	The residual from the following audit fee model: AUDIT_FEES= $+\beta_0 + X'\beta$ +Industry and Year fixed effects$_{i,t}$ $+\varepsilon_{i,t}$; X is a vector of control variables common to fee models such as client size, current assets, accounts receivable inventory turnover, return on asset, loss indicator, foreign operations indicator, merger indicator, busy year end indicator, leverage, intangibles, log of business segments, going concern indicator, and material weakness indicator.
ACC_FILER	Indicator variable equal to 1 if company i is an accelerated filer, and 0 otherwise.
ARINV	The sum of company i's accounts receivable and inventory, divided by total assets.
CASH	Sum of company i's total cash and investment securities divided by total assets.
CFO	Operating cash flow scaled by lagged total assets of company i.

(Appendix cont'd.)

Variables	Definition
CLIENT_IMPORTANCE	Audit fees for company i divided by the sum of all audit fees reported in Audit Analytics for the same audit firm office in year t
DEBT	Total liabilities divided by total assets for company i
EPR	Company i's income from continuing operations divided by market capitalization.
FIN	The sum of company i's additional cash raised from issuance of long-term debt, common stock, and preferred stock; scaled by total assets.
FIRM_SIZE	The natural log of the number of publicly traded clients audited by company i's audit firm office during year t.
FOREIGN	An indicator variable equal to 1 if company i has income from foreign operations, and 0 otherwise.
FREEC	The sum of company i's cash from operations less average capital expenditures of the current and prior years scaled by lagged total assets.
HERF	The industry Herfindahl index calculated as the sum of squared industry market shares (in audit fees) of all local audit offices in an MSA.
HERF_MSA	The Herfindahl index calculated as the sum of squared market shares (in audit fees) of all audit offices in an MSA.
JOINT_SPEC	Indicator variable equal to 1 if an audit firm has at least a 30% market share at the local level (2 digit SIC, MSA) and at least a 30% market share at the national level (2 digit SIC), and 0 otherwise. Market share is based on audit fees.
L_GC	Indicator variable equal to 1 if company i received a going-concern report in year t-1, and 0 otherwise.
L_LOSS_GC	An indicator variable equal to 1 if company i has negative income from operations after deprecation in year t-1.
L_RETURN	Company i's previous 12-month stock returns.
LARGE_ACC_FILER	Indicator variable equal to 1 if company i is a large accelerated filer, and 0 otherwise.
LRESTATE	Indicator variable equal to 1 if company i has restated their financial statements in year t-1, and 0 otherwise.
LEV	Leverage of company i, defined as long-term debt divided by assets.
LIT	Indicator variable equal to 1 if company i operates in a high litigation industry (SIC 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370), and 0 otherwise.
LOG_SEG	The natural log of 1 plus the number of business segments of company i.
LOSS	Indicator variable equal to 1 if company i has net income < 0, and 0 otherwise.
LOSS_GC	An indicator variable equal to 1 if company i has negative income from operations after depreciation in year t, and 0 otherwise.
MAT_WEAK	Indicator variable equal to 1 if company i has an internal control weakness, and 0 otherwise.
MB	The market-to-book ratio of company i, defined as market value of equity divided by book value.
MERGER	Indicator variable equal to 1 if company i had a merger or acquisition in year t, and 0 otherwise.
NON_ACC_FILER	Indicator variable equal to 1 if company i is a non-accelerated filer, and 0 otherwise.
REPORT_LAG	Number of days between company i's fiscal year-end and its earnings announcement date.
ROA	Return on assets for company i in year t. Net income for company i in year t divided by company i's assets in year t.
SIZE	Log of total assets for company i.
SPEC	Indicator variable equal to 1 if company i has an auditor that has at least a 30% market share in a 2 digit SIC, MSA per year, and 0 otherwise.
STD_CFO	Standard deviation of operating cash flow scaled by lagged total assets of company i for year t through year t-2.

(Appendix cont'd.)

Variables	Definition
STD_RET	Company i's stock volatility and is the standard deviation of 12 monthly stock returns for year t.
STD_SALE	Standard deviation of sales scaled by lagged total assets of company i for year t through year t-2.
TENURE	The natural logarithm of (the number of years that the auditor has audited company i's financial statements).
TIER_2	Indicator variable equal to 1 if company i is audited by a second tier firm, and 0 otherwise. Second tier is defined as non-Big 4 firms that are inspected annually by the Public Company Accounting Oversight Board (PCAOB).
Z_SCORE	Altman's score for company i, measures the likelihood of company survival. The lower the score the greater the bankruptcy risk.

VITA

Jeanne-Claire White was born and raised in Lake Charles, Louisiana. She graduated from Appalachian State University in Boone, North Carolina with a Bachelor of Science in Business Administration with Honors in 2011. She graduated from Louisiana State University in Baton Rouge, Louisiana with a Master of Science in Accounting in 2012. She became a licensed Certified Public Accountant and worked as an auditor for 2 years in North Carolina before entering the doctorate program of Accounting at LSU. Her research interests include financial reporting quality, auditing, and corporate social responsibility. Her teaching interests include financial accounting, auditing, and intermediate accounting.