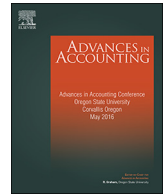




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The relation between audit fee cuts during the global financial crisis and earnings quality and audit quality

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ABSTRACT

The Global Financial Crisis (GFC) presents a unique opportunity to study how auditors respond to an exogenous shock to the clients' operating environment. Also, due to the GFC, auditors were under pressure from clients to cut audit fees during the crisis. Regulators were concerned that lower audit fees could result in lower audit effort, and more importantly, impair audit quality. We conduct a comprehensive analysis of multiple attributes of client firms' earnings quality and audit quality. Collectively, our findings indicate that there is no significant difference in earnings quality between client firms that received a fee cut during the GFC and control firms consisting of firms that did not receive a fee cut and firms that received a fee cut before the GFC. Further, there is no significant difference in the likelihood of a going concern opinion or a financial restatement, our proxies for audit quality, between client firms that received a fee cut during the GFC and control firms. Our findings contribute to understanding the role of auditors during the GFC.

1. Introduction

The Global Financial Crisis (GFC hereafter) that originated in late 2007 and the subsequent economic downturn until 2009 resulted in the deepest economic recession since the Great Depression (Kroeker, 2011; Sikka, 2009).¹ Also, as a result of the GFC, audit firms were under pressure from their clients and audit committee members to share the economic pain by cutting audit fees. For example, McAfee Inc., maker of security software and a Fortune 500 company with nearly \$7 billion in total assets in 2009, was able to cut its audit fee from \$6.491 million in 2008 to \$4.363 million in 2009, a cut of about 33% even though McAfee's total assets increased by about 7% in 2009. Whitehouse (Whitehouse, 2010a) reports that 63% of the S&P 500 firms won price concessions from their auditors during 2009. By one estimate, the total cut in audit fees for the Big 4 auditors during 2009 was more than \$337 million (Professional Services (Professional Services Monitor, 2010)). Thus, the GFC and the resulting audit fee cuts led to a huge financial consequence for the Big 4 auditors.

The above economic events are unprecedented and present a unique opportunity to study how auditors respond to an exogenous shock to

the clients' operating environment and, more importantly, the effects of widespread and significant cuts in audit fees on clients' earnings quality and audit quality.² While the GFC per se posed significant challenges to auditors, cuts in audit fees on top of that could exacerbate these challenges. Specifically, the objective of this study is to provide empirical evidence on the relation between audit fee cuts during the GFC period (described in detail below) and multiple proxies for earnings quality (described in sections III and VI) of client-firms. We also examine the effect of fee cuts on the likelihood of going concern opinions and restatement of financial statements, our proxies for audit quality (Defond, Raghunandan, & Subramanyam, 2002; Francis, Michas, & Yu, 2013; Lim & Tan, 2008).

Our study is motivated by the following reasons. First, regulators, investors, and the business press were critical of the auditors, particularly the Big 4, for not doing enough to flag and constrain questionable financial reporting practices that may have contributed to the GFC. For example, The House of Lords in the U.K. has accused auditors of a "dereliction of duty" during the GFC (Orlik, 2011). The Public Company Accounting Oversight Board PCAOB (PCAOB, 2010) noted that its inspectors identified instances where auditors sometimes failed to comply

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¹ The Financial Crisis Inquiry Commission estimates that \$11 trillion in U.S. household wealth has vanished due to the financial crisis. The Emergency Economic Stabilization Act of 2008, i.e., the \$700 billion plan to rescue the financial sector, is the largest government bailout in the U.S. history.

² We describe specific audit risks arising from the GFC in a later section.

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with PCAOB auditing standards in areas that were significantly affected by the GFC, such as write-down of assets. Further, the Investor Advisory Group (Investor Advisory Group, 2011) to the PCAOB argues that the GFC was the first big test for auditors on whether the reforms (Sarbanes–Oxley Act) introduced during the previous crisis (the Enron–Andersen saga) would prevent a future crisis and concludes that the GFC is a testimony of an audit failure. Were the deficiencies identified by the PCAOB indicative of pervasive problems with the registrants' (clients') earnings quality and audit quality? Despite the enormity of the GFC and its impact on financial reporting and auditing, there is limited empirical evidence on audit quality during the GFC. Our study provides the first comprehensive empirical evidence on the association between cuts in audit fees during the GFC and earnings quality and audit quality attributes of non-financial client firms.

Second, regulators are concerned about the potential impact of cuts in audit fees on audit quality. When the auditor receives a cut in audit fees, there is a concern that the auditor would resort to taking several shortcuts and could make mistakes or miss important steps in the audit process (Weil, 2004). For example, Lynn Turner, a former Securities and Exchange Commission (SEC) chief accountant, stated, “Investors group get nervous when a company in their portfolio, particularly one that's in hard times, wins a steeply lower fee. Our concern is whether you're paying your auditor enough to make sure it does a quality audit” (Reason, 2010). Similarly, Daniel Goelzer, former acting chairman of the PCAOB, warned audit firms that “It's been widely reported that audit committees are expecting auditors to share in the economic pain that companies are feeling, by agreeing to fee reductions. The PCAOB, however, will be watching to see whether that pressure tempts audit firms to ease up on the rigor of audits” (Whitehouse, 2010b). Also, Paul George, head of the U.K.'s Financial Reporting Council's Professional Oversight Board, commented that “a general downturn in audit work might see firms concentrate on their bottom line at the expense of audit quality” (Christodoulou, 2009).

Are the concerns of the regulators justified? Ball (Ball, 2009) argues that reputational and other mechanisms (lawsuits) deter auditors from violating the trust placed in them by investors, lenders, customers, and others. This suggests that auditors have market-based incentives to uphold audit quality despite audit fee cuts during the GFC. Thus, whether the recent audit fee cuts during the GFC have impaired earnings quality and audit quality is a timely and open empirical question. We believe the findings of our study are potentially informative to regulators, investors, audit committee members, and other participants in the capital markets.

The exact start of the GFC has been debated. According to the National Bureau of Economic Research, the GFC began in the U.S. in December 2007 (National Bureau of Economic Research (NBER), 2010). It is generally agreed that by 2008 the GFC was under way (Geiger, Raghunandan, & Riccardi, 2014; PCAOB, 2008). Further, the U.S. Senate identified September 2008 as a trigger to the start of the GFC. Therefore, we code years 2008 and 2009 as the GFC period and years 2005 and 2006 as the pre-GFC period. We exclude the transition year of 2007.³

Our primary sample consists of 5778 year observations of non-financial firms. We drop firms switching auditors to focus on continuing engagements. We measure audit fee cuts in three different ways, i.e., the percentage change in audit fees from prior year, and indicator variables for fee decrease or for deep fee decrease, respectively. To proxy for earnings quality, we use two primary measures, i.e., abnormal accruals based on the modified Jones model that controls for firm

performance and earnings informativeness, and four additional measures, i.e., Basu's (Basu, 1997) conservatism measure, earnings persistence, meeting or beating earnings benchmarks, and classification shifting. In addition, we use the going concern opinion and restatements as our primary and additional measures of audit quality, respectively. We compare earnings quality of firms that received audit fee cuts during the GFC period with two control (benchmark) groups: earnings quality of firms that did not receive a fee cut at all and firms that received fee concessions before the GFC period. Altogether, we conduct 39 tests to look for evidence of impaired earnings quality or audit quality of firms that received a fee cut during the GFC relative to the control firms.

Our results indicate that for > 90% of the tests using either main or additional measures of earnings quality and audit quality, there is no significant difference in earnings quality or audit quality between firms that received a fee cut during the GFC and the control firms. These results are also robust to a variety of variable definitions and model specifications. Overall, our findings consistently suggest that on average, cuts in audit fees during the GFC period did not impair earnings quality or audit quality. We also conduct several additional robustness tests focusing on contexts where earnings quality might be impaired following cuts in audit fees during the GFC. We focus on firms with a high fraud risk, firms with a big increase in assets (fee cuts are less justified due to higher demand for audit effort), firms paying lower than predicted audit fees, firms with high risk of inventory obsolescence or are distressed, and firms audited by auditors that are small or have a very short or long tenure with the client. Overall, results from these additional analyses consistently indicate that cuts in audit fees during the GFC did not have an adverse impact on earnings quality or audit quality.

We note that our proxies of earnings quality and audit quality, although commonly used in accounting research, are imperfect and may not fully capture the underlying constructs of interest. We attempt to mitigate this concern by using multiple proxies for earnings quality and audit quality as well as performing a battery of robustness tests. However, we acknowledge that we cannot fully dispel alternative explanations of our findings, i.e., our results could be due to model misspecifications or research design choices. Despite this limitation, our results are potentially important because empirical evidence of auditors' response to an unexpected exogenous shock to the clients' operating environment has broader implications for the role of auditing in the functioning of the capital markets.

The rest of this paper is organized as follows. Section II summarizes related research and develops our hypotheses. Section III explains our primary proxies for earnings quality, audit quality, and their respective empirical models. Section IV describes the sample selection procedure and descriptive statistics. Section V (Section VI) presents the empirical findings (the model specification and empirical findings) of main (additional) measures of earnings quality and audit quality. Section VII discusses results of robustness tests and Section VIII concludes.

2. Related research and hypotheses development

2.1. Audit fees and earnings quality

Audit fees proxy for audit effort as well as audit risk and hence, the concern with cuts in audit fees is that holding audit risk constant, the auditor could reduce the effort to minimize the loss on the engagement. Alderman and Deitrick (Alderman & Deitrick, 1982) find that auditors may sign off an engagement prematurely and gather insufficient evidence in order to stay within the budget. This is consistent with findings in Reckers, Wheeler, and Wing (Reckers, Wheeler, & Wing, 1997) that time budget constraint and lack of effort are some of the causes of premature sign-offs. The Public Oversight Board (Public Oversight Board, 2000), predecessor to the PCAOB, was also concerned that these practices could decrease audit quality.

³ We also consider two alternate definitions of the GFC period, i.e. using years 2007–2008 (2005–2006) or 2007–2009 (2004–2006) as the GFC (pre-GFC) period. Untabulated results indicate that earnings quality is not significantly different between the treatment firms and control firms for any of the three fee cut measures.

Several recent studies examine the relation between audit fees and earnings quality.⁴ For example, Srinidhi and Gul (Srinidhi & Gul, 2007) find that accrual quality is positively related to audit fees, consistent with the notion that higher audit effort is associated with higher earnings quality. By examining audit hours data for a sample of firms in Greece, Caramanis and Lennox (Caramanis & Lennox, 2008) find that low audit effort is associated with aggressive earnings management. Two studies examine whether low audit fees impact audit quality. Gupta, Krishnan, and Yu (Gupta, Krishnan, & Yu, 2011) provide evidence that earnings management is greater in firms that pay lower audit fees, i.e., below the level of expected fees relative to other firms. Similarly, Asthana and Boone (Asthana & Boone, 2012) find that audit quality (proxied by discretionary accruals and beating of earnings benchmarks) declines as negative abnormal audit fees increase in magnitude. In short, prior research finds a positive link between audit fees and earnings quality and hence, cuts in audit fees could have an adverse effect on earnings quality or audit quality.

2.2. Lowballing of audit fees

Another related stream of literature considers the effect of lowballing of audit fees for new clients, which is a special case of audit fee concession. Regulators allege that lowballing provides clients with a credible threat of dismissing incumbent auditors should they refuse an accounting concession, and therefore impairs audit quality (American Institute of Certified Public Accountants (AICPA), 1978; Securities and Exchange Commission, 1977; United States Senate, 1977). Prior research generally finds that lowballing does not impair audit quality. DeAngelo (DeAngelo, 1981a) demonstrates that lowballing does not decrease independence; rather, it is a rational and competitive response to the expectation of future quasi-rents from incumbency's technological advantages. She also claims that initial fee reductions are sunk costs in future periods and therefore do not impair auditor independence. Furthermore, in a dynamic setting with client dismissals and bargaining power, Kanodia and Mukherji (Kanodia & Mukherji, 1994) show how equilibrium audit prices would sustain rents and lowballing. Dopuch and King (Dopuch & King, 1996) find that lowballing does not materially reduce audit quality, and it has a material effect only when there is no competitive audit market. We complement the above research stream by offering empirical evidence focusing on audit fee concessions offered to *existing* audit clients during the GFC period.

2.3. The role of market mechanisms in enhancing audit quality

Watts and Zimmerman (Watts & Zimmerman, 1983) note that the audit existed early in the development of business corporations and its long survival suggests that it is a part of the efficient technology for organizing firms, i.e., auditing is a monitoring mechanism that reduces agency costs. However, to fulfill its intended objective, an auditor should report a discovered breach in a client's records. The likelihood of reporting a breach is associated with an auditor's reputation. Not surprisingly, Beattie and Fearnley (Beattie & Fearnley, 1995) identify reputation/quality as the most important factor to companies in selecting their auditor.

DeAngelo (DeAngelo, 1981b) argues that when incumbent auditors earn client-specific quasi-rents, large audit firms stand to lose more if the audit quality is poor. To put it differently, an audit firm has to maintain uniform audit quality across its entire portfolio since

⁴ There is also a strand of research that examines the effect of nonaudit fees on earnings quality; see Schneider, Church, and Ely (Schneider, Church, & Ely, 2006) for a detailed review of this research. In this study we focus on audit fees but examine cuts in nonaudit fees as an alternative fee cut measure in a later section.

a failure on one engagement can taint the firm's reputation and diminish its market share.⁵ Consistent with this notion, prior research finds that audit fee premium is associated with auditor reputation (Craswell, Francis, & Taylor, 1995; Palmrose, 1986; Simunic, 1980). Thus, maintaining audit quality is vital to preserving an auditor's reputation capital. Ball (Ball, 2009) notes that a key lesson from the demise of Arthur Andersen (as well as Laventhol and Horwath) is that reputation effects are large. As noted in our introduction, Ball argues that reputational and other mechanisms (lawsuits) deter managers and auditors from violating the trust placed in them by investors, lenders, customers, and others. However, Ball also notes that the spate of accounting scandals that led to the passage of the Sarbanes–Oxley Act implies a failure of both market and regulatory deterrence mechanisms. The implication of the discussion above is that auditors have market-based incentives to uphold audit quality despite audit fee cuts during the GFC.

2.4. Prior research on auditor response during the GFC

Environmental changes such as the Global Financial Crisis provide a good opportunity to bridge the gaps between research and practice by empirically examining whether the capacity of auditors to exercise professional judgment was being enhanced or unduly constrained during the GFC (Hopwood, 2009; Humphrey, Loft, & Woods, 2009).⁶ Prior research has examined the effect of audit fee cuts during the GFC period on financial reporting. Xu, Carson, Fargher, and Jiang (Xu, Carson, Fargher, & Jiang, 2013) find that Australian auditors reacted to the GFC by increasing both audit fees and the propensity to issue going concern opinions, and the response was earlier by Big N than non-Big N auditors. Similarly, Geiger et al. (Geiger et al., 2014) find that the propensity of U.S. auditors to issue a going concern opinion prior to bankruptcy significantly increased after the GFC and this finding holds for both Big 4 and non-Big 4 auditors. A different conclusion is reached by two other studies. Ettredge, Li, and Emeigh (Ettredge, Li, & Emeigh, 2014) provide evidence that audit fee cuts in year 2008 were positively associated with earnings misstatements, suggesting lower audit quality, and Ettredge, Emeigh, Guo, and Li (Ettredge, Emeigh, Guo, & Li, 2017) find that auditors were less likely to issue first-time going concern opinions to clients that exert fee pressure in 2008 than in other years.

On the other hand, Krishnan and Zhang (Krishnan & Zhang, 2013) find that income-increasing abnormal loan loss provisions (LLP) are decreasing in audit fee cuts while LLP validity is increasing in audit fee cuts. Doogar, Rowe, and Sivadasan (Doogar, Rowe, & Sivadasan, 2013) contribute to the debate on auditors' role in the GFC by examining how bank auditors recognize and respond to entity-level audit risk. A concurrent study by Chen, Lam, Smieliauskas, and Ye (Chen, Lam, Smieliauskas, & Ye, 2016) documents a significant positive association between discretionary LLP and audit fees during the GFC but not after the GFC. These results are consistent with elevated auditor conservatism during the GFC. However, the above two studies focus on banks and do not explore audit fee cuts. Therefore, additional research

⁵ However, some research suggests audit quality may not be uniform across engagements. Gul, Wu, and Yang (Gul, Wu, & Yang, 2013) analyze about 800 individual Chinese auditors and find that they exhibit significant variation in audit quality. Ke, Lennox, and Xin (Ke, Lennox, & Xin, 2015) find that Big 4 audit firms assign their less experienced partners to firms that are listed only in China relative to Chinese firms cross-listed in Hong Kong. Also, Big 4 audit firms are less likely to issue modified opinions and charge lower audit fees for clients who are only in China. The authors attribute the lower quality audits by the Big 4 firms to China's weak institutional environment.

⁶ Some extant research examines corporate decisions, such as investment or asset impairments, during the GFC period (e.g., (Balakrishnan, Watts, & Zuo, 2016; Gunn, Khurana, & Stein, 2018)), but does not study auditor response.

is warranted to better understand the effect of audit fee cuts during the GFC on earnings quality and audit quality.⁷

2.5. Hypotheses

The PCAOB report (PCAOB, 2010) provides some information on the types of deficiencies its inspectors observed on audits during the GFC period. The inspectors noted that adverse changes in the economic conditions increased the risk of goodwill impairment and thus, it is a challenge for the auditors to make sure that long-lived assets are properly valued and reported. The inspectors observed that auditors sometimes failed to challenge issuers' conclusions that goodwill did not need to be tested for impairment more frequently than annually, although there were indicators of impairment. Similarly, the report noted that the overall decline in economic activity resulted in reduced spending by customers and reduced sales prices. As a result, inventory turnover was lower and the risk of carrying obsolete or excess inventory rose. Once again, auditors need to make sure that obsolete inventory was recognized on a timely basis. Another area that posed a challenge to the auditors was revenue recognition. Due to the adverse economic environment, managers may have faced greater pressure to meet revenue and earnings benchmarks and thus the likelihood of earnings management could be higher during the GFC. Consistent with this notion, Trombetta and Imperatore (Trombetta & Imperatore, 2014) provide evidence that financial crises significantly affect earnings management. Further, as a financial crisis becomes more intense, managers are more likely to engage in earnings management.

While the above discussion suggests increased likelihood of income-increasing earnings management, there is also some evidence that income-decreasing earnings management could have also increased during the GFC. Habib, Bhuiyan, and Islam (Habib, Bhuiyan, & Islam, 2013) find that during the GFC managers of New Zealand firms engaged more in income-decreasing earnings management compared to their healthy firm counterparts. In addition, Gunn, Khurana, and Stein (Gunn et al., 2018) find that firms recorded timelier asset impairments during the GFC if they reported more conservatively in the five years preceding the crisis, and this relation is greater for firms with industry-specialist auditors. Following this view, firms could also report more conservatively during the GFC, resulting in higher earnings quality and audit quality. We use multiple earnings quality measures to capture the effects of both types of earnings management as well as other audit risks posed by the GFC. In addition, we focus on client firms with high risk of inventory obsolescence and those results are discussed in a later section.

If the audit fee cuts during the GFC period led to reduced audit effort, then earnings quality of firms receiving a cut in fees during the GFC should be lower than that of clients receiving fee cuts prior to the GFC or those not receiving any cut in fees at all. On the other hand, auditors could have been extra vigilant during the GFC and increased audit quality in response to the changes in operating environment caused by the GFC. In addition, as previously discussed, auditors have market-based incentives not to compromise on audit quality to maintain their reputation capital. This line of argument suggests that auditors may just absorb the economic loss arising from the fee cut. Given these opposite predictions, we present the

⁷ Our study differs from Ettredge et al. (Ettredge et al., 2014) and Ettredge et al. (Ettredge et al., 2017) in several ways. First, we use a more comprehensive set of measures of earnings quality than used in Ettredge et al. (Ettredge et al., 2014). Since earnings quality is a multifaceted construct, use of multiple proxies to evaluate the relation between audit fee cuts and earnings quality is warranted. Second, we examine investor perceptions of audit fee cuts by examining informativeness of earnings of client firms receiving fee cuts. Third, in addition to the more widely used summary measures of earnings management such as abnormal accruals, we also examine classification shifting, a subtle form of earnings management.

following hypotheses regarding the relation between audit fee cuts and earnings quality:

H1. (null): There was no difference in earnings quality between firms that received a cut in audit fees during the GFC period and control firms. (alternative): Earnings quality is lower for firms that received a cut in audit fees during the GFC period relative to control firms.

Our control firms consist of two groups: firms that did not receive a fee cut either during the GFC or before the GFC period as well as firms that received a fee cut before the GFC period.

In addition, under Auditing Standards of Field Work ((American Institute of Certified Public Accountants (AICPA), 1989), AU section 341), the auditor has a responsibility to evaluate whether there is substantial doubt about the client's ability to continue as a going concern. The auditor makes this evaluation by gathering the relevant information obtained from performing audit procedures, especially for clients in financial distress. Prior research finds a positive link between audit fees and earning/audit quality (e.g., (Asthana & Boone, 2012; Gupta et al., 2011; Srinidhi & Gul, 2007)). Thus, when there is a fee cut, the auditor may be less likely to expend the effort needed to minimize the loss on the account (alternative hypothesis) and thus more likely to impair audit quality through issuing fewer going concern opinions (Ettredge et al., 2017). In addition, the risk of dismissal following a going concern opinion may also motivate the auditor not to issue a going concern opinion.⁸

In addition to issuance of going concern opinions, we also use likelihood of a financial restatement as an additional measure of audit quality (Francis et al., 2013). As before, market-based incentives could have motivated auditors to increase audit quality during the GFC period. Thus, we present our null hypothesis and alternative hypotheses on audit quality as follows (control firms follow the same definition as in H1):

H2. (null): There was no difference in audit quality between firms that received a cut in audit fees during the GFC period and control firms. (alternative): Audit quality is lower for firms that received a cut in audit fees during the GFC period relative to control firms.

3. Research design

In this section, we first describe our measures of cuts in audit fees during the GFC followed by primary measures of earnings quality and audit quality. For each measure, we present the empirical model that will be used to test our hypotheses.⁹

3.1. Measures of cuts in audit fees

Following Krishnan and Zhang (Krishnan & Zhang, 2013), we measure our main variable of interest, i.e., cuts in audit fees, in three ways: (1) *FEECUT1*, a continuous variable of $(-1) \times$ percentage change of audit fees from prior year, i.e. (audit fees in year $t-1$ minus audit fees in year t)/audit fees in year $t-1$, which captures a full spectrum of variation in fee change with a larger value consistent with a larger fee decrease; (2) *FEECUT2*, a dichotomous variable equal to 1 if *FEECUT1* is positive and 0 otherwise; and (3) *FEECUT3*, a dichotomous variable equal to 1 if the fee cut is above 25% and 0 otherwise. Compared with *FEECUT2*, the measure *FEECUT3* captures deeper cuts in audit fees, which are more likely to impair audit effort and related

⁸ However, auditors could also become more conservative as a response to increased risks associated with the GFC (Xu et al., 2013) or high-profile corporate collapses during the crises (Fargher & Jiang, 2008).

⁹ Additional measures of earnings quality and audit quality and their corresponding empirical models and results are presented in Section VI- Additional Measures of Earnings Quality and Audit Quality.

earnings quality and audit quality. Use of multiple measures of cuts in audit fees increases the likelihood of detecting a decrease in earnings quality or audit quality caused by cuts in audit fees.

We use the above actual fee cut measures instead of abnormal (unexpected) fee cut measures in our main tests for the following reasons. First, regulators and others have expressed concerns about actual fee cuts; second, the model of estimating expected fees is prone to measurement errors and results are sensitive to which year's coefficients are used to estimate expected fees, while actual fee cut measures have no such issues; third, prior research (Krishnan & Zhang, 2013) has used similar measures and found higher earnings quality for financial firms audited by Big 4 auditors when there is a fee cut.¹⁰

3.2. Primary measures of earnings quality and audit quality

Drawing on prior literature on earnings quality, we use two primary measures of earnings quality and one primary measure of audit quality to examine the effect of audit fee cuts during the GFC on earnings quality and audit quality, respectively.¹¹ We describe our primary empirical models below.

3.3. Earnings quality I: abnormal accruals

The first primary measure of earnings quality is the abnormal accruals (ABDAC) estimated from the modified Jones model that includes prior period ROA to control for firm performance (Kothari, Leone, & Wasley, 2005). The normal component of accruals captures adjustments based on fundamental performance, thus the residual component of abnormal accruals captures managerial distortions induced by application of the accounting rules or earnings management (Dechow, Ge, & Schrand, 2010).¹² Abnormal accruals are widely used in accounting literature as a summary measure of the extent of earnings management (e.g., (Ashbaugh, Collins, Kinney Jr., & Lafond, 2008; Ashbaugh, Lafond, & Mayhew, 2003; Larcker & Richardson, 2004)).¹³ In Appendix A we describe the estimation of abnormal accruals.

We estimate the model below to test hypothesis 1. We follow prior

¹⁰ We also use three alternative fee cut measures in re-estimating model 1b and find qualitatively similar results to those in Table 2. The first measure is an indicator variable for negative abnormal audit fees, where abnormal audit fees is measured by taking the difference between actual audit fees in 2008 or 2009 and the expected fees estimated using coefficients from the audit fee model for 2006 (the pre-GFC period). The other two measures are constructed by replacing audit fees by either total fees or nonaudit fees in defining all three fee cut measures. Overall, these robustness tests indicate that our findings are not sensitive to the choice of fee cut measure.

¹¹ To identify the appropriate specifications for our models, we review articles published in *The Accounting Review*, *Journal of Accounting Research*, *Journal of Accounting and Economics*, *Review of Accounting Studies*, *Contemporary Accounting Research*, *Auditing: A Journal of Practice and Theory*, *Journal of Accounting and Public Policy*, and *Accounting Horizons* during the years 2008 through 2014.

¹² We also examine income-increasing abnormal accruals in particular, since positive or income-increasing abnormal accruals are of greater concern as an earnings management tool to investors and regulators than negative or income-decreasing abnormal accruals (Matsumoto, 2002). Untabulated results suggest that the likelihood of reporting positive abnormal accruals is not significantly associated with audit fee cuts during the GFC for all three fee cut measures. In addition, on a subsample of firms reporting positive total accruals, we find the coefficient on $FEECUT \times GFC$ is positive and significant at the 0.10 level for $FEECUT1$, but insignificant for the other two fee cut measures.

¹³ However, we note that prior research argues that abnormal accrual is a noisier measure of earnings management and subject to measurement error (Guay, Kothari, & Watts, 1996; McNichols, 2000; McNichols, 2002). We mitigate this concern by employing several alternate measures of earnings quality.

research to identify control variables (Ashbaugh et al., 2003). Following Dechow and Dichev (Dechow & Dichev, 2002) and Francis, LaFond, Olsson, and Schipper (Francis, Lafond, Olsson, & Schipper, 2004), we include three additional variables to control for innate factors that are associated with attributes of earnings: length of operating cycle, variability in sales, and variability in cash flow. We also control for auditor tenure, auditor changes, client importance, and client influence as potentially correlated omitted variables. In all models, we include industry and year dummies to control for industry and year fixed effects.¹⁴

$$\begin{aligned} ABDAC = & \alpha_0 + \alpha_1 FEECUT + \alpha_2 GFC + \alpha_3 FEECUT \times GFC + \alpha_4 SIZE \\ & + \alpha_5 MTB + \alpha_6 LEV + \alpha_7 LOSS + \alpha_8 CFO + \alpha_9 PACCRUAL \\ & + \alpha_{10} OPCYCLE + \alpha_{11} VOLCFO + \alpha_{12} VOLSALE + \alpha_{13} MERGER \\ & + \alpha_{14} FINANCE + \alpha_{15} LITIGN + \alpha_{16} INSTHOLD + \alpha_{17} ARIN \\ & + \alpha_{18} SALESGR + \alpha_{19} REPLAG + \alpha_{20} LNBSEG + \alpha_{21} FGNSALES \\ & + \alpha_{22} BIG4 + \alpha_{23} TENURE + \alpha_{24} AUDCHG + \alpha_{25} INFLUEN \\ & + \alpha_{26} CLI_IMP + IND_FIXED + YEAR_FIXED + \varepsilon \quad (1b) \end{aligned}$$

See Appendix B for definitions of variables used in the study. If the audit fee cut in general is associated with lower earnings quality, we would expect α_1 to be positive. Similarly, if there is greater earnings management during the GFC as suggested by Trombetta and Imperatore (Trombetta & Imperatore, 2014), we would expect α_2 to be positive. The coefficient of interest is α_3 . A positive (negative) coefficient on $FEECUT \times GFC$ would be consistent with the notion that the cut in audit fees during the GFC resulted in lower (higher) earnings quality relative to the control firms. Note the control firms consist of firms that did not receive a fee cut at all and firms that received fee concessions before the GFC period. We estimate the above model separately for each of the three measures of fee cut.

Following prior research, we expect a positive relation of abnormal accruals with market-to-book ratio, earnings losses, operating cycle, volatility of cash flow from operations, volatility of sales, mergers and acquisitions, subsequent year financing, litigation risk, number of business segments, and proportion of foreign sales; and a negative relation with leverage, cash flow from operations, prior year accruals, institutional share holdings, and Big 4 audit firms. Due to the mixed results in prior literature, we have no prediction for firm size, auditor tenure, auditor changes, client influence, and importance.

3.4. Earnings quality II: earnings informativeness

Our second primary measure of earnings quality is earnings informativeness, i.e., whether investors' responsiveness differs between firms that received fee cuts during the GFC and the control firms. Dechow et al. (Dechow et al., 2010) posit that investors' responsiveness to or perception of earnings is a direct proxy for earnings quality since the information in earnings is correlated with the information used by investors in their equity valuation decisions. We follow Kumar and Krishnan (Kumar & Krishnan, 2008) in estimating the informativeness of earnings.

¹⁴ As a robustness test, we also use an alternate specification of model 1b by running a regression of change in abnormal accruals on changes in all continuous variables, where fee cut is measured as change in $FEECUT1$. The results are qualitatively similar to our main findings in Table 2. In addition, we re-estimate model 1b after controlling for firm fixed effects, and results are qualitatively similar to those in Table 2 except for the coefficient on $FEECUT2$, which is positive and significant at the 0.05 level.

$$\begin{aligned}
CAR = & \theta_0 + \theta_1 FEECUT + \theta_2 EARN + \theta_3 PEARN + \theta_4 FEECUT \times EARN \\
& + \theta_5 FEECUT \times PEARN + \theta_6 GFC + \theta_7 GFC \times EARN \\
& + \theta_8 GFC \times PEARN + \theta_9 FEECUT \times GFC + \theta_{10} FEECUT \times GFC \\
& \times EARN + \theta_{11} FEECUT \times GFC \times PEARN + \theta_{12} BETA \\
& + \theta_{13} BETA \times EARN + \theta_{14} BETA \times PEARN + \theta_{15} PERSIST \\
& + \theta_{16} PERSIST \times EARN + \theta_{17} PERSIST \times PEARN + \theta_{18} LNMVE \\
& + \theta_{19} LNMVE \times EARN + \theta_{20} LNMVE \times PEARN + \theta_{21} MTB \\
& + \theta_{22} MTB \times EARN + \theta_{23} MTB \times PEARN + \theta_{24} LOSS + \theta_{25} LOSS \\
& + \theta_{26} LOSS \times EARN + \theta_{27} LOSS \times PEARN + \theta_{28} BIG4 \\
& + \theta_{29} BIG4 \times EARN + \theta_{30} BIG4 \times PEARN + \theta_{31} TENURE \\
& + \theta_{32} TENURE \times EARN + \theta_{33} TENURE^* \times PEARN \\
& + \theta_{34} AUDCHG + \theta_{35} AUDCHG \times EARN + \theta_{36} AUDCHG \\
& \times PEARN + \theta_{37} INFLUEN + \theta_{38} INFLUEN \times EARN \\
& + \theta_{39} INFLUEN \times PEARN + \theta_{40} CLI_IMP + \theta_{41} CLI_IMP \times EARN \\
& + \theta_{42} CLI_IMP \times PEARN + IND_FIXED + YEAR_FIXED + \varepsilon
\end{aligned} \tag{2}$$

See Appendix B for definitions of variables. Other variables are the same as defined in prior models. Following Kumar and Krishnan (Kumar & Krishnan, 2008), a positive and significant coefficient on *EARN* indicates the baseline informativeness of earnings. Following prior research, we expect positive coefficients on *BETA*, *PERSIST*, and *MTB* and a negative coefficient on *LOSS*. If investors perceive noise and information risk in reported earnings in the presence of audit fee cuts, the informativeness of earnings will be lower. Therefore, a negative and significant coefficient on *FEECUT* \times *GFC* \times *EARN* is consistent with investors assessing additional information risk associated with firms that received fee cuts during the GFC relative to the control firms.

3.5. Audit quality: issuance of going concern opinions

Our primary measure of audit quality is issuance of going concern opinions. We follow DeFond et al. (DeFond et al., 2002) and Lim and Tan (Lim & Tan, 2008) in examining the association between cuts in audit fees and the issuance of going concern opinions. Unlike abnormal accruals which are jointly determined by the client and the auditor, a going concern opinion is primarily driven by the auditor, and thus is a reasonable measure of audit quality.¹⁵ Since there would be few “first time” going concern opinions issued related to the GFC period of only two years, we include both the first time and ongoing going concern opinions.¹⁶ Consistent with prior research, we identify a sample of financially distressed firms, i.e. firms reporting either negative earnings or negative operating cash flows in a given fiscal year. We estimate the following logistic regression model:

¹⁵ Thoman (Thoman, 1996) argues that an auditor could limit its legal exposure by reporting more conservatively instead of working harder. DeFond and Zhang (DeFond & Zhang, 2014) note that auditors make Type I errors (issuance of a going concern in the absence of bankruptcy within the subsequent year) about 90% of the time. These findings suggest that a going concern opinion may indicate auditor conservatism rather than higher audit quality.

¹⁶ To rule out the concern that our inclusion of both first-time and continuing going concern opinions may bias against rejecting the null hypothesis 2, we also reestimate model 3 only using first-time going concern opinions and find consistent results with those in Table 4, Panel B.

$$\begin{aligned}
\text{Log}[GC/(1 - GC)] = & \varphi_0 + \varphi_1 FEECUT + \varphi_2 GFC + \varphi_3 FEECUT \times GFC \\
& + \varphi_4 ZSCORE + \varphi_5 SIZE + \varphi_6 AGE + \varphi_7 BETA \\
& + \varphi_8 RET + \varphi_9 VOL + \varphi_{10} LEV + \varphi_{11} CLEV \\
& + \varphi_{12} INVEST + \varphi_{13} FINANCE + \varphi_{14} CFO \\
& + \varphi_{15} REPLAG + \varphi_{16} BIG4 + \varphi_{17} TENURE \\
& + \varphi_{18} AUDCHG + \varphi_{19} INFLUEN + \varphi_{20} CLI_IMP \\
& + IND_FIXED + YEAR_FIXED + \varepsilon
\end{aligned} \tag{3}$$

See Appendix B for definitions of variables. Other variables are the same as defined before. Following prior studies (DeFond et al., 2002; Lim & Tan, 2008), the predicted signs on client risk measures (i.e. *ZSCORE*, *BETA*, *VOL*, *LEV*, *CLEV*, *PLOSS*, *REPLAG*) and auditor type (*BIG4*) are positive; and the predicted coefficients on client performance indicators, such as *SIZE*, *AGE*, *RET*, *INVEST*, *FINANCE*, and *CFO* are negative. A negative coefficient on *FEECUT* would be consistent with lower audit quality, i.e., lower likelihood of issuing a going concern opinion for firms that received a fee cut relative to the control firms. In addition, a negative coefficient on *FEECUT* \times *GFC* would be consistent with lower audit quality for firms that received audit fee cuts during the GFC relative to the control firms.

4. Sample

We obtain audit fee data from *Audit Analytics* for years 2005–2006 (the pre-GFC period) and 2008–2009 (the GFC period) to calculate percentage change in audit fees from the previous year. To clearly separate the pre-GFC period from the GFC period, we drop the transition year of 2007. The initial sample includes 51,343 firm years with non-zero and non-missing audit fees in both the current year and prior year. Further, we exclude non-U.S. auditors and firm-years without audit opinions and the sample size is reduced to 43,003 observations. After requiring necessary *Compustat* financial information for the abnormal accruals model, our sample consists of 9297 firm-years. We further delete firm-years in the financial services industry (SIC 60–69) and firm-years with a fiscal year-end other than December. Finally, we delete all continuous variables at the top and bottom 1% of their distributions. The final sample to estimate abnormal accruals includes 5778 firm-year observations. The numbers of observations to estimate other earnings quality models are 6709 (investor responsiveness sample), 3145 (going concern opinion sample), 8067 (conservatism sample), 10,082 (earnings persistence sample), 5048 (sample on benchmark beating to avoid a loss), 10,067 (classification shifting sample), and 12,441 (restatement sample).

The top three industry categories for the sample to estimate the abnormal accruals model are, respectively, machinery, electrical and computer equipment, scientific instruments and miscellaneous manufacturing (two-digit SIC 35–39); chemicals, petroleum, rubber, leather, stone, and concrete products (SIC 28–32); and lodging, business, and other services (SIC 70–79). Panel A, Table 1 reports descriptive statistics for variables used in the abnormal accruals model 1b for the full sample and Panel B presents the descriptive statistics separately for observations with fee cuts and the control sample. For the full sample, the untabulated mean value of audit fees is \$2.083 million, and the mean value of abnormal accruals is 1.20% of beginning assets. About 79.2% of the sample firms are audited by a Big 4 auditor. Roughly 32.7% of the observations in our sample report a negative net income. About 15.5% of the firms engaged in a merger or acquisition activity. The mean growth in sales was 6.2%. The average percentage change of total assets from the pre-GFC period to GFC period is 15.7% (untabulated), which indicates that on average, higher audit effort is needed during the GFC relative to the pre-GFC period. The mean value of audit fee cut is about 11.5%. About 47.7% of the observations received fee concessions from their auditors in years 2008 or 2009. About 8.6% of the observations received a fee cut of 25% or more and < 1% of

Table 1
Descriptive Statistics.

Panel A: descriptive statistics for the full sample (N = 5778)					
Variable	Mean	Standard deviation	Quartile 1	Median	Quartile 3
ABDAC	0.012	0.150	-0.050	0.012	0.075
FEECUT1	-0.115	0.622	-0.143	-0.006	0.106
FEECUT2	0.477	0.499	0.000	0.000	1.000
FEECUT3	0.086	0.280	0.000	0.000	0.000
GFC	0.506	0.500	0.000	1.000	1.000
SIZE	6.357	1.937	4.932	6.304	7.747
MTB	2.651	3.335	1.215	1.998	3.342
LEV	0.186	0.197	0.001	0.142	0.296
LOSS	0.327	0.469	0.000	0.000	1.000
CFO	0.071	0.158	0.035	0.089	0.149
PACCRUAL	-0.076	0.116	-0.108	-0.055	-0.020
OPCYCLE	4.488	0.781	4.106	4.563	4.982
VOLCFO	0.094	0.154	0.030	0.053	0.099
VOLSALE	0.272	0.330	0.087	0.166	0.322
MERGER	0.155	0.362	0.000	0.000	0.000
FINANCE	0.245	0.430	0.000	0.000	0.000
LITIGN	0.291	0.454	0.000	0.000	1.000
INSTHOLD	0.607	0.301	0.366	0.654	0.853
ARIN	0.227	0.167	0.088	0.197	0.327
SALESGR	0.062	0.248	-0.033	0.050	0.160
REPLAG	4.166	0.208	4.043	4.127	4.290
LNBSEG	1.581	0.805	1.099	1.099	2.303
FGNSALES	0.288	0.361	0.000	0.091	0.513
BIG4	0.792	0.406	1.000	1.000	1.000
TENURE	2.126	0.860	1.609	2.079	2.773
AUDCHG	0.039	0.193	0.000	0.000	0.000
INFLUEN	0.108	0.182	0.014	0.040	0.111
CLIIMP	0.139	0.127	0.035	0.109	0.210

This table provides the descriptive statistics of the primary variables used in the abnormal accruals test (model 1b). See Appendix B for definitions of variables. Data are pooled across years 2005 through 2009 except 2007.

Panel B: descriptive statistics for observations with and without fee cuts.

Variable	Without fee cuts FEECUT2 = 0 (N = 3024)		With fee cuts FEECUT2 = 1 (N = 2754)		Tests of differences	
	Mean	Median	Mean	Median	Mean Diff (t-statistic)	Median Diff (z-statistic)
ABDAC	0.013	0.014	0.011	0.010	0.412	1.400
GFC	0.426	0.000	0.593	1.000	-12.864*	-12.685*
SIZE	6.264	6.196	6.458	6.419	-3.808*	-3.958*
MTB	2.824	2.108	2.462	1.885	4.120*	5.964*
LEV	0.178	0.134	0.194	0.150	-3.094*	-2.657*
LOSS	0.310	0.000	0.345	0.000	-2.843*	-2.841*
CFO	0.073	0.094	0.070	0.084	0.790	3.516*
PACCRUAL	-0.068	-0.052	-0.085	-0.058	5.604*	4.909*
OPCYCLE	4.494	4.566	4.483	4.557	0.534	0.250
VOLCFO	0.099	0.056	0.088	0.051	2.833*	4.013*
VOLSALE	0.270	0.169	0.274	0.163	-0.381	0.849
MERGER	0.177	0.000	0.130	0.000	4.971*	4.960*
FINANCE	0.280	0.000	0.207	0.000	6.509*	6.485*
LITIGN	0.294	0.000	0.287	0.000	0.538	0.538
INSTHOLD	0.581	0.624	0.636	0.683	-6.930*	-6.540*
ARIN	0.230	0.200	0.224	0.195	1.333	1.232
SALESGR	0.107	0.078	0.012	0.025	14.764*	15.121*
REPLAG	4.183	4.159	4.147	4.127	6.567*	5.801*
LNBSEG	1.557	1.099	1.608	1.099	-2.402**	-2.615*
FGNSALES	0.281	0.078	0.295	0.100	-1.562	-1.479
BIG4	0.778	1.000	0.808	1.000	-2.821*	-2.820*
TENURE	2.130	2.079	2.122	2.079	0.372	-0.292
AUDCHG	0.026	0.000	0.053	0.000	-5.305*	-5.293*
INFLUEN	0.106	0.038	0.111	0.041	-1.132	-0.904
CLIIMP	0.140	0.110	0.137	0.108	0.810	1.092

This table provides the descriptive statistics and sample difference test statistics of the primary variables used in the abnormal accruals test (model 1b) for samples of firms receiving and not receiving audit fee cuts. See Appendix B for definitions of variables. Data are pooled across years 2005 through 2009 except 2007.

* Indicates significance at the 0.01 level for a two-tailed test.

the sample received a fee cut of > 50%. We also partition the sample into control sample ($FEECUT2 = 0$) and treatment sample ($FEECUT2 = 1$) and present the descriptive statistics for each partition

(see Panel B). We find that firms that received a cut in audit fees tend to be significantly different from firms that did not receive any fee cut on several firm characteristics.

Table 2
The Relation Between Audit Fee Cuts During the GFC and Abnormal Accruals.

DV = ABDAC	Pred. Sign	Baseline		FEECUT1		FEECUT2		FEECUT3	
		Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
FEECUT	+			−0.002	−0.39	−0.004	−0.74	0.016	1.64
GFC	+	0.024***	4.25	0.024***	4.30	0.019***	2.95	0.024***	4.31
FEECUT × GFC	+			0.010	1.21	0.009	1.21	−0.008	−0.56
SIZE	?	0.003*	1.66	0.003	1.69	0.003*	1.66	0.003*	1.73
MTB	+	−0.001	−1.37	−0.001	−1.38	−0.001	−1.38	−0.001	−1.33
LEV	?	0.014	1.16	0.014	1.16	0.014	1.17	0.014	1.16
LOSS	+	−0.119***	−20.34	−0.119***	−20.33	−0.120***	−20.35	−0.119***	−20.32
CFO	−	−0.397***	−15.92	−0.397***	−15.93	−0.397***	−15.88	−0.396***	−15.91
PACCRUAL	−	−0.120***	−5.48	−0.120***	−5.50	−0.120***	−5.46	−0.118***	−5.42
OPCYCLE	+	−0.011***	−2.82	−0.011***	−2.79	−0.011***	−2.82	−0.012***	−2.84
VOLCFO	+	−0.051***	−2.62	−0.050***	−2.60	−0.051***	−2.63	−0.051***	−2.63
VOLSALE	+	0.000	−0.04	0.000	−0.06	−0.001	−0.07	−0.001	−0.13
MERGER	+	−0.004	−0.84	−0.004	−0.84	−0.004	−0.85	−0.004	−0.81
FINANCE	+	0.000	−0.02	0.000	0.00	0.000	−0.01	0.000	0.02
LITIGN	+	−0.016***	−2.94	−0.016***	−2.93	−0.016***	−2.92	−0.016***	−2.95
INSTHOLD	−	−0.052***	−6.24	−0.052***	−6.26	−0.052***	−6.24	−0.052***	−6.28
ARIN	+	0.147***	8.55	0.146***	8.53	0.146***	8.51	0.148***	8.57
SALESGR	+	0.031***	2.58	0.031***	2.62	0.031***	2.60	0.031***	2.63
REPLAG	+	−0.031**	−2.53	−0.031**	−2.53	−0.031**	−2.52	−0.030**	−2.49
LNBSEG	+	0.002	0.93	0.002	0.93	0.002	0.93	0.002	0.91
FGNSALES	+	0.015***	2.68	0.015***	2.66	0.015***	2.65	0.015***	2.69
BIG4	−	−0.019***	−3.01	−0.019***	−3.03	−0.019***	−3.01	−0.019***	−3.01
TENURE	?	0.002	0.81	0.002	0.78	0.002	0.83	0.002	0.85
AUDCHG	?	−0.010	−0.88	−0.010	−0.89	−0.010	−0.84	−0.014	−1.14
INFLUEN	+	−0.007	−0.65	−0.007	−0.65	−0.007	−0.62	−0.008	−0.75
CLIIMP	+	0.021	1.39	0.022	1.42	0.021	1.39	0.021	1.37
Intercept	?	0.211***	3.66	0.210***	3.65	0.213***	3.63	0.208***	3.61
Industry Dummies		Included		Included		Included		Included	
Year Dummies		Included		Included		Included		Included	
N		5778		5778		5778		5778	
Adjusted R2 (%)		18.60%		18.60%		18.60%		18.62%	

This table presents regression estimates to test the effect of audit fee cuts during the GFC on firms' abnormal accruals. The sample includes 5778 firm-year observations spanning years 2005–2006 (the pre-GFC period) and 2008–2009 (the GFC period). See Appendix B for definitions of variables. We include thirteen industry-dummy variables to represent the fourteen industry classifications. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, for a two-tailed test.

5. Main empirical results

5.1. Association between cuts in audit fees and abnormal accruals

Table 2 reports the results of testing model 1b on the association between audit fee cuts during the GFC and abnormal accruals. In Tables 2 through 4, results are presented in four columns. Results in the “Baseline” column exclude our variables of interest, GFC and FEECUT × GFC. The remaining columns present the results, respectively, for FEECUT1, FEECUT2, and FEECUT3. We find that the coefficient on FEECUT is insignificant in all panels, indicating that in general, abnormal accruals are not associated with audit fee cuts. Next, the coefficient on GFC is positive and significant, indicating that abnormal accruals are higher during the GFC period, suggesting greater earnings management relative to the pre-GFC period. These results are consistent with the findings in Trombetta and Imperatore (Trombetta & Imperatore, 2014) that financial crises significantly affect earnings management. However, the coefficient on FEECUT × GFC is not significant at any conventional level for all three measures of fee cut, suggesting the extent of earnings management, as measured by abnormal accruals, is not significantly different between firms that received fee cuts in the GFC period and the control firms.

Turning to control variables, abnormal accruals are higher for firms that are larger, have a higher proportion of receivables and inventory in total assets, and have higher sales growth and foreign sales. Abnormal accruals are negatively related to losses, cash flows, prior period total accruals, operating cycle, volatility of cash flows, institutional holdings, litigation risk, and whether firms are audited by a Big 4 auditor (these

are significant at the 0.01 level). In short, results in Table 2 provide evidence of no significant difference in earnings quality between firms that received fee concessions and the control firms. Overall, results in Table 2 fail to reject the null hypothesis 1.

5.2. Association between cuts in audit fees and earnings response coefficient

Table 3 presents the results of earnings informativeness, measured by earnings response coefficient (model 2). The baseline earnings response coefficient as captured by EARN is positive and highly significant across three fee cut measures, consistent with prior research. This indicates that the stock market in general finds earnings to be informative. The coefficient on GFC × EARN is negative and significant, with a smaller magnitude than the coefficient on EARN, indicating that earnings are less informative during the GFC period. The coefficient on our variable of interest, FEECUT × GFC × EARN, is not significant for all three fee cut measures, consistent with the conjecture that investors do not assess the fee cuts during the GFC as impairing earnings informativeness. In short, results in Table 3 on investor perception of earnings quality are consistent with those in Table 2 and fail to reject the null hypothesis 1.

5.3. Association between cuts in audit fees and issuance of going concern opinions

Following prior research, we focus on financially distressed firms in test of going concern opinions. Descriptive statistics for the going concern sample appear in Panel A of Table 4. About 8.30% of the

Table 3
The Relation Between Audit Fee Cuts During the GFC and Informativeness of Earnings.

DV = CAR	Pred. Sign	Baseline		FEECUT1		FEECUT2		FEECUT3	
		Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
FEECUT	?			−0.010*	−1.72	0.001	0.05	0.014	0.65
EARN	?	3.101***	7.92	3.051***	7.76	3.091***	7.89	3.190***	8.12
PEARN	?	−1.202***	−3.46	−1.199***	−3.43	−1.170***	−3.28	−1.225***	−3.45
FEECUT×EARN	?			−0.100	−1.59	0.078	0.37	−0.482	−1.36
FEECUT×PEARN	?			0.054	0.92	−0.138	−0.62	0.427	1.24
GFC	?	0.004	0.35	0.007	0.52	−0.012	−0.76	−0.002	−0.14
GFC×EARN	−	−0.571***	−4.79	−0.551***	−4.46	−0.499***	−3.44	−0.572***	−4.67
GFC×PEARN	?	0.330***	2.74	0.337***	2.71	0.232	1.46	0.387***	3.01
FEECUT×GFC	?			0.016	0.97	0.026	1.43	0.052	1.44
FEECUT×GFC×EARN	−			−0.065	−0.71	−0.143	−0.62	0.095	0.24
FEECUT×GFC×PEARN	?			−0.032	−0.24	0.206	0.87	−0.457	−1.27
BETA	+	0.049***	5.62	0.049***	5.63	0.049***	5.62	0.048***	5.60
BETA×EARN	?	0.118	1.63	0.129*	1.83	0.115	1.61	0.158**	2.33
BETA×PEARN	?	−0.126***	−2.92	−0.127***	−3.00	−0.124***	−2.87	−0.136***	−3.33
PERSIST	+	0.093***	9.45	0.092***	9.42	0.093***	9.43	0.093***	9.49
PERSIST×EARN	?	−0.855***	−2.91	−0.854***	−2.90	−0.872***	−2.96	−0.877***	−2.99
PERSIST×PEARN	?	0.813***	2.71	0.799	2.66	0.823***	2.73	0.810***	2.69
LNME	?	0.022***	6.99	0.023***	7.12	0.022***	6.96	0.023***	7.11
LNME×EARN	?	−0.202***	−5.20	−0.217***	−5.52	−0.204***	−5.34	−0.209***	−5.53
LNME×PEARN	?	−0.021	−0.90	−0.018	−0.74	−0.018	−0.75	−0.014	−0.58
MTB	+	0.113***	15.51	0.113***	15.49	0.113***	15.54	0.114***	15.65
MTB×EARN	?	−0.039	−0.71	−0.039	−0.73	−0.037	−0.69	−0.025	−0.48
MTB×PEARN	?	0.026	0.64	0.029	0.72	0.027	0.67	0.018	0.46
LOSS	−	−0.105***	−6.33	−0.106***	−6.43	−0.106***	−6.34	−0.103***	−6.29
LOSS×EARN	?	−1.350***	−8.29	−1.389***	−8.51	−1.362***	−8.28	−1.344***	−8.34
LOSS×PEARN	?	−0.117*	−1.78	−0.105	−1.53	−0.104	−1.54	−0.125*	−1.67
BIG4	?	−0.031**	−2.29	−0.029**	−2.18	−0.031**	−2.33	−0.032**	−2.37
BIG4×EARN	?	0.231*	1.72	0.297**	2.17	0.245*	1.85	0.216	1.61
BIG4×PEARN	?	0.127	1.21	0.115	1.05	0.113	1.05	0.117	1.19
TENURE	?	−0.004	−0.77	−0.004	−0.65	−0.004	−0.74	−0.003	−0.52
TENURE×EARN	?	0.074	1.03	0.098	1.32	0.077	1.07	0.062	0.84
TENURE×PEARN	?	0.020	0.42	0.016	0.34	0.016	0.33	0.005	0.10
AUDCHG	?	−0.008	−0.33	−0.005	−0.21	−0.010	−0.38	−0.013	−0.49
AUDCHG×EARN	?	0.358*	1.66	0.441**	1.99	0.359	1.64	0.375*	1.66
AUDCHG×PEARN	?	0.124	0.95	0.118	0.88	0.113	0.80	0.090	0.68
INFLUEN	?	−0.061***	−2.66	−0.061***	−2.67	−0.060***	−2.61	−0.062***	−2.72
INFLUEN×EARN	?	0.745*	1.89	0.764**	1.97	0.750*	1.91	0.750*	1.91
INFLUEN×PEARN	?	−0.095	−0.31	−0.093	−0.31	−0.099	−0.32	−0.119	−0.40
CLIIMP	?	−0.063*	−1.79	−0.062*	−1.77	−0.061*	−1.75	−0.060*	−1.71
CLIIMP×EARN	?	−0.351	−0.99	−0.293	−0.83	−0.342	−0.97	−0.444	−1.26
CLIIMP×PEARN	?	−0.299	−0.92	−0.300	−0.93	−0.302	−0.93	−0.257	−0.80
Intercept	?	−0.378***	−14.09	−0.386***	−14.25	−0.379***	−13.98	−0.384***	−14.20
Industry Dummies		Included		Included		Included		Included	
Year Dummies		Included		Included		Included		Included	
N		6709		6709		6709		6709	
Adjusted R2 (%)		20.84%		20.95%		20.85%		21.21%	

This table presents regression estimates to test the effect of audit fee cuts during the GFC on firms' earnings informativeness. The sample includes 6709 firm-year observations spanning years 2005–2006 (the pre-GFC period) and 2008–2009 (the GFC period). See Appendix B for definitions of variables. We include thirteen industry-dummy variables to represent the fourteen industry classifications. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, for a two-tailed test.

sample received a going concern opinion. The mean value of audit fee cut is about 25.2%, and > 13% of the observations received a fee cut of > 25%. About 66% of the sample firms are audited by a Big 4 auditor.

The results of logistic regression of going concern opinions (model 3) are reported in Panel B of Table 4. We examine two samples: firms receiving either first-time or continuing going concern opinions (see Panel B) and only firms receiving first-time going concern opinions (results not tabulated). Overall, the likelihood of auditors issuing either first-time or continuing going concern opinions is positively associated with client risk (*VOL* and *REPLAG*) and auditor type (*BIG4*); and is negatively associated with firm performance indicators, e.g. *SIZE*, *RET*, *CFO*, and *INVEST*. Both *FEECUT* and *GFC* are not significant for all three fee cut measures. In addition, our variable of interest, *FEECUT*×*GFC*, is also insignificant for all fee cut measures, which indicates that the likelihood of issuing a going concern opinion is not related to audit fee cuts during the GFC. Results based on firms receiving first-time going

concern opinions are similar to the results in Panel B. Thus, the evidence in Table 4 fails to reject the null hypothesis 2.¹⁷

6. Additional measures of earnings quality and audit quality

6.1. Association between cuts in audit fees and accounting conservatism

Basu (Basu, 1997) finds that earnings are timelier in recognizing

¹⁷ We perform three additional analyses using the going concern sample. First, we reestimate model 3 by including lagged going concern in the model. Second, we control for debt covenant violations using data obtained from Professor Amar Sufi's (University of Chicago) website. Third, we reestimate the model using "FIRTHLOGIT" technique. This technique is preferred when the frequency of a going concern opinion is low, especially for firms with a large fee cut. Untabulated results from these analyses indicate that the coefficient on *FEECUT*×*GFC* is insignificant in all three cases.

Table 4
Panel A: Descriptive Statistics for the Going Concern Sample (N = 3145).

Variable	Mean	Standard deviation	Quartile 1	Median	Quartile 3
GC	0.083	0.275	0.000	0.000	0.000
FEECUT1	-0.252	1.228	-0.218	-0.008	0.140
FEECUT2	0.477	0.500	0.000	0.000	1.000
FEECUT3	0.134	0.340	0.000	0.000	0.000
GFC	0.540	0.498	0.000	1.000	1.000
ZSCORE	55.800	296.292	-0.592	1.577	5.167
SIZE	5.100	1.762	3.822	4.891	6.233
AGE	2.533	0.643	2.079	2.485	2.890
BETA	1.163	0.670	0.643	1.122	1.645
RET	-0.143	0.554	-0.501	-0.249	0.050
VOL	0.189	0.098	0.124	0.170	0.228
LEV	0.176	0.240	0.000	0.058	0.291
CLEV	0.012	0.110	-0.010	0.000	0.034
INVEST	0.310	0.295	0.057	0.197	0.519
FINANCE	0.574	0.495	0.000	1.000	1.000
CFO	-0.104	0.277	-0.175	-0.015	0.055
REPLAG	4.068	0.354	3.850	4.094	4.317
BIG4	0.657	0.475	0.000	1.000	1.000
TENURE	1.902	0.829	1.386	1.946	2.485
AUDCHG	0.056	0.230	0.000	0.000	0.000
INFLUEN	0.105	0.188	0.011	0.033	0.102
CLIIMP	0.121	0.126	0.019	0.086	0.182

This table provides the descriptive statistics of the primary variables used in the going concern opinion test (model 3). See Appendix B for definitions of variables. The sample consists of 3,145 financially distressed firm-year observations. Data are pooled across years 2005 through 2009 except 2007.

Panel B: the relation between audit fee cuts during the GFC and all going concern opinions

DV = Log[GC/(1-GC)]	Pred. Sign	Baseline		FEECUT1		FEECUT2		FEECUT3	
		Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
Variables		Coef.	z-stat	Coef.	z-stat	Coef.	z-stat	Coef.	z-stat
FEECUT	-			-0.042	-0.70	0.148	0.56	0.236	0.70
GFC	-	0.125	0.50	0.149	0.58	-0.109	-0.37	0.071	0.27
FEECUT × GFC	-			0.098	0.66	0.320	0.99	0.191	0.46
ZSCORE	+	-0.001	-1.46	-0.001	-1.45	-0.001	-1.45	-0.001	-1.45
SIZE	-	-0.394***	-4.61	-0.396***	-4.63	-0.389***	-4.52	-0.392***	-4.58
AGE	-	0.293*	1.76	0.297*	1.78	0.277*	1.67	0.293*	1.77
BETA	+	-0.043	-0.31	-0.044	-0.31	-0.052	-0.37	-0.036	-0.26
RET	-	-1.042***	-4.30	-1.048***	-4.30	-1.034***	-4.30	-1.035***	-4.27
VOL	+	4.265***	5.98	4.262***	5.98	4.282***	6.11	4.243***	5.96
LEV	+	0.062	0.14	0.061	0.14	0.042	0.10	0.062	0.14
CLEV	+	-2.203***	-3.19	-2.217***	-3.20	-2.206***	-3.14	-2.184***	-3.14
INVEST	-	-2.307***	-5.54	-2.308***	-5.56	-2.345***	-5.59	-2.335***	-5.61
FINANCE	-	0.603***	3.28	0.606***	3.30	0.620***	3.36	0.613***	3.34
CFO	-	-1.742***	-5.21	-1.733***	-5.18	-1.771***	-5.22	-1.744***	-5.18
REPLAG	+	2.090***	6.25	2.082***	6.24	2.101***	6.21	2.082***	6.24
BIG4	+	0.434**	2.11	0.434**	2.11	0.426**	2.05	0.440**	2.12
TENURE	?	-0.028	-0.20	-0.027	-0.19	-0.028	-0.20	-0.017	-0.12
AUDCHG	?	0.290	0.74	0.300	0.76	0.258	0.64	0.224	0.56
INFLUEN	-	-0.455	-1.01	-0.460	-1.02	-0.464	-1.02	-0.441	-0.98
CLIIMP	-	-1.082	-1.60	-1.071	-1.59	-1.031	-1.54	-1.086	-1.61
Intercept	?	-11.441***	-6.75	-11.440***	-6.76	-11.561***	-6.74	-11.499***	-6.79
Industry Dummies		Included		Included		Included		Included	
Year Dummies		Included		Included		Included		Included	
N		3145		3145		3145		3145	
N (GC = 1)		260		260		260		260	
Pseudo-R square		28.5%		28.6%		28.8%		28.7%	
Wald Chi-square		305.94		308.19		307.18		315.82	

This table presents regression estimates to test the effect of audit fee cuts during the GFC on the likelihood of auditors' issuance of going concern opinions. The sample includes 3,145 firm-year observations spanning years 2005-2006 (the pre-GFC period) and 2008-2009 (the GFC period). The results are based on a sample of financially distressed observations. See Appendix B for definitions of variables. We include thirteen industry-dummy variables to represent the fourteen industry classifications. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, for a two-tailed test.

bad news than good news in periods of high auditor liability exposure, indicating that auditors enforce conditional accounting conservatism. But if cuts in audit fees motivate the auditor to reduce effort or not force audit clients to record impairment of inventory or goodwill on a timely basis, then we would expect to see a decline in conservatism for firms

receiving a fee cut. We measure conservatism following Basu (Basu, 1997). We include *FEECUT*, *GFC*, *FEECUT* × *GFC*, as well as their respective interactions with the bad news dummy *D* and stock returns, *RET*, and estimate the following model:

$$\begin{aligned}
EARNING = & \gamma_0 + \gamma_1 D + \gamma_2 RET + \gamma_3 D \times RET + \gamma_4 FEECUT \\
& + \gamma_5 FEECUT \times D + \gamma_6 FEECUT \times RET \\
& + \gamma_7 FEECUT \times D \times RET + \gamma_8 GFC + \gamma_9 GFC \times D \\
& + \gamma_{10} GFC \times RET + \gamma_{11} GFC \times D \times RET \\
& + \gamma_{12} FEECUT \times GFC + \gamma_{13} FEECUT \times GFC \times D \\
& + \gamma_{14} FEECUT \times GFC \times RET + \gamma_{15} FEECUT \times GFC \times D \\
& \times RET + \gamma_{16} LNPRC \times D \times RET + \gamma_{17} LEV \times D \times RET \\
& + \gamma_{18} LNMVE \times D \times RET + \gamma_{19} STRET \times D \times RET \\
& + \gamma_{20} BIG4 \times D \times RET + \gamma_{21} TENURE \times D \times RET \\
& + \gamma_{22} AUDCHG \times D \times RET + \gamma_{23} INFLUEN \times D \times RET \\
& + \gamma_{24} CLI_IMP \times D \times RET + CONTROLS \times D \\
& + CONTROLS \times RET + CONTROLS \times D \times RET \\
& + IND_FIXED + YEAR_FIXED + \varepsilon
\end{aligned} \tag{4}$$

See Appendix B for definitions of variables. Based on Basu (Basu, 1997), the coefficients on *RET* and *D × RET* are both positive. A positive coefficient on *D × RET* indicates the asymmetric timeliness of earnings to bad news vs. good news in stock returns, i.e. accounting conservatism. In model (4), the variable of interest is *FEECUT × GFC × D × RET*. A negative coefficient on γ_{15} would be consistent with lower accounting conservatism, thus impaired earnings quality for clients receiving fee concessions during the GFC relative to the control firms.

We find that the coefficient on *D × RET*, although positive, is not significant, indicating that before the GFC, earnings capture both bad news and good news in stock returns in a timely manner, i.e., there is no evidence of accounting conservatism.¹⁸ Next, the coefficient on *GFC × D × RET* is negative and significant at the 0.01 level across all panels (the baseline model and the specifications representing the three fee cut measures). This indicates that accounting conservatism is lower during the GFC period. If auditors cut effort and compromise audit quality as a result of offering cuts in audit fees to clients during the GFC period, we should expect to find (incrementally) less asymmetric timeliness of earnings for client firms that received fee cuts during the GFC, i.e., a negative coefficient on *FEECUT × GFC × D × RET*. However, this variable is not significant across all three fee cut measures, suggesting that there is no significant difference in asymmetric timeliness of earnings (accounting conservatism) between firms that received fee cuts during the GFC and the control firms.¹⁹ These results are consistent with the findings in Table 2, i.e., the results fail to reject the null hypothesis 1.

6.2. Association between cuts in audit fees and earnings persistence

Earnings persistence is an important attribute of high-quality earnings. Persistent earnings are viewed as desirable since they are recurring; more persistent earnings yield better inputs to equity valuation models and hence are of higher quality than less persistent earnings (Francis et al., 2004; Penman & Zhang, 2002). In a recent study, Dichev, Graham, and Rajgopal (Dichev, Graham, & Rajgopal, 2012) find that earnings persistence is ranked as one of the most important attributes of earnings quality by CFOs. As before, we test whether cuts in audit fees are associated with lower earnings

¹⁸ We do not tabulate results for models 4 through 8 to keep the manuscript length reasonable. Those results are available from the authors upon request.

¹⁹ The GFC could lead to reduced sales and asset write-downs, which are mechanically correlated with an increase in conservatism and thus confound our results. To address this concern, we drop observations with either sales reduction or negative special items. In a reduced sample of 2769 observations, we find that asymmetric timeliness of earnings remains uncorrelated with any of the three measures of audit fee cuts during the GFC.

persistence. We estimate the following regression model:

$$\begin{aligned}
INCOME = & \chi_0 + \chi_1 LINCOME + \chi_2 FEECUT + \chi_3 FEECUT \times LINCOME \\
& + \chi_4 GFC + \chi_5 GFC \times LINCOME + \chi_6 FEECUT \times GFC \\
& + \chi_7 FEECUT \times GFC \times LINCOME + \chi_8 LNMVE \\
& + \chi_9 LNMVE \times LINCOME + \chi_{10} SALESGR \\
& + \chi_{11} SALESGR \times LINCOME + \chi_{12} SPI + \chi_{13} SPI \times LINCOME \\
& + \chi_{14} DIVDUM + \chi_{15} DIVDUM \times LINCOME + \chi_{16} LOSS \\
& + \chi_{17} LOSS \times LINCOME + \chi_{18} BIG4 + \chi_{19} BIG4 \times LINCOME \\
& + \chi_{20} TENURE + \chi_{21} TENURE \times LINCOME + \chi_{22} AUDCHG \\
& + \chi_{23} AUDCHG \times LINCOME + \chi_{24} INFLUEN \\
& + \chi_{25} INFLUEN \times LINCOME + \chi_{26} CLI_IMP \\
& + \chi_{27} CLI_IMP \times LINCOME + IND_FIXED + YEAR_FIXED \\
& + \varepsilon
\end{aligned} \tag{5}$$

See Appendix B for definitions of variables. Consistent with prior research, a positive coefficient is predicted on *LINCOME*. A negative coefficient on the variable of interest *FEECUT × GFC × LINCOME* would be consistent with lower earnings persistence, i.e., lower earnings quality for firms that received cuts in audit fees during the GFC relative to the control firms.

Results of earnings persistence (model 5) indicate that the coefficient on *LINCOME* is positive and significant at the 0.10 level across all panels, consistent with earnings persistence. The coefficient on *FEECUT × LINCOME* is -0.271 and significant at the 0.05 level for *FEECUT3*. This indicates that earnings persistence is weaker for firms that received a cut of 25% or more relative to the control firms. Next, the coefficient on *GFC × LINCOME* is negative and significant across all panels, indicating that the GFC had an adverse impact on earnings persistence. Turning to the variable of interest, the coefficient on *FEECUT × GFC × LINCOME* is positive but insignificant for all three measures of cuts in audit fees. These results indicate that there is no significant difference in earnings persistence between firms that received audit fee cuts during the GFC and the control firms. This finding also fails to reject the null hypothesis 1.

6.3. Association between cuts in audit fees and benchmark beating

The PCAOB report (PCAOB, 2010) discussed earlier suggests that due to the adverse economic environment during the GFC, managers could be under higher pressure to meet earnings benchmarks. Findings in Trombetta and Imperatore (Trombetta & Imperatore, 2014) are consistent with this notion. Therefore, we examine whether the likelihood of meeting or beating earnings benchmarks is exacerbated by audit fee cuts. Prior research has documented a statistically large number of firms with small profits or small earnings increases, a pattern that is commonly interpreted as firms with unmanaged earnings just below “zero” or below “no change in earnings” intentionally manage earnings enough to report a small profit or a small earnings increase (Burgstahler & Dichev, 1997). Similarly, the “kink” in the distribution of forecast errors, i.e. reported earnings slightly higher than consensus analyst forecasts for a large number of firms, is also widely accepted and used as an indication of earnings management to meet or beat analyst forecasts (Degeorge, Patel, & Zeckhauser, 1999). If the audit fee cuts during the GFC led auditors to cut their efforts and impair quality of audited accounting reports, we should expect to find higher likelihood of just meeting or beating earnings benchmarks in the treatment firms than in the control firms. Following Frankel, Johnson, and Nelson (Frankel, Johnson, & Nelson, 2002), we examine earnings management as: (1) the avoidance of a loss, (2) the avoidance of an earnings decline, and (3) just meeting or beating the analyst forecast. We estimate the following regression model:

$$\begin{aligned}
\text{BENCHMARK} = & \rho_0 + \rho_1 \text{FEECUT} + \rho_2 \text{GFC} + \rho_3 \text{FEECUT} \times \text{GFC} \\
& + \rho_4 \text{LITIGN} + \rho_5 \text{MTB} + \rho_6 \text{LNMVE} + \rho_7 \text{CFO} \\
& + \rho_8 \text{ISSUE} + \rho_9 \text{ROA} + \rho_{10} \text{RET} + \rho_{11} \text{INSTHOLD} \\
& + \rho_{12} \text{CURRENT} + \rho_{13} \text{LEV} + \rho_{14} \text{ACCRUAL} \\
& + \rho_{15} \text{CAPINT} + \rho_{16} \text{ZSCORE} + \rho_{17} \text{SHARES} \\
& + \rho_{18} \text{BLOAT} + \rho_{19} \text{FOLLOW} + \rho_{20} \text{REVDOWN} \\
& + \rho_{21} \text{WRITEOFF} + \rho_{22} \text{EARNGR} + \rho_{23} \text{BIG4} \\
& + \rho_{24} \text{TENURE} + \rho_{25} \text{AUDCHG} + \rho_{26} \text{INFLUEN} \\
& + \rho_{27} \text{CLI_IMP} + \text{IND_FIXED} + \text{YEAR_FIXED} + \varepsilon
\end{aligned} \tag{6}$$

See Appendix B for definitions of variables. We estimate the model for each of the three benchmark measures. Following Frankel et al. (Frankel et al., 2002) and earlier studies on meeting and beating earnings benchmarks (e.g. (Brown, 2001; Defond & Jiambalvo, 1991; Firth, 1990; Francis, Maydew, & Sparks, 1999; Lys & Watts, 1994)), we expect positive effects of litigation risk (*LITIGN*), growth prospects (*MTB*), institutional ownership (*INSTHOLD*), operating cash flows (*CFO*), financing activities (*FINANCE*), and firm performance (*ROA*, *RET*) on meeting/beating earnings benchmarks, and negative coefficients on auditor type and tenure (*BIG4*, *TENURE*) and firm loss (*LOSS*). The coefficient on *FEECUT* is predicted to be positive if firms that received a fee cut are on average more likely than the control firms to manage earnings to meet or beat benchmarks. In addition, a positive coefficient on our variable of interest, *FEECUT* × *GFC*, will be consistent with the notion that firms that received a fee cut during the GFC period are more likely to just meet or beat earnings benchmarks than the control firms.

We examine the relation between cuts in audit fees and meeting or beating three earnings benchmarks (model 6): reporting a profit, an earnings increase, and analyst forecast. For the first benchmark of reporting a profit, the coefficient on *GFC* is negative and significant at the 0.10 level (for a one-tailed test) for *FEECUT2* and *FEECUT3*, suggesting that the likelihood of reporting a profit is somewhat lower during the GFC. More importantly, the coefficient on *FEECUT* × *GFC* is insignificant for all measures of fee cut, indicating no sign of managing earnings to avoid losses. For our second earnings benchmark (beating prior year's earnings), none of the coefficients on *GFC* and *FEECUT* × *GFC* is significant for any of the fee cut measures. Finally, for the third benchmark (beating analysts' forecasts), the coefficient on *GFC* is negative and strongly significant across all panels (except for *FEECUT2*), indicating that the likelihood of beating analysts' forecasts is lower during the GFC. Interestingly, the coefficient on *FEECUT* × *GFC* is negative and strongly significant for *FEECUT3*, indicating lower likelihood of beating analysts' forecasts, and hence higher earnings quality for those firms that received a fee cut of 25% or more during the GFC. Overall, these results indicate that there is no significant difference between firms that received audit fee cuts during the GFC period and the control firms with regard to the likelihood of meeting or beating earnings benchmarks via earnings management. Thus, these findings fail to reject the null hypothesis 1.

6.4. Association between cuts in audit fees and classification shifting

McVay (McVay, 2006) finds that managers opportunistically shift expenses from core expenses (cost of goods sold and selling, general, and administrative expenses) to special items to inflate current core earnings, which results in a positive (negative) relation between unexpected core earnings (future unexpected change in core earnings) and income-decreasing special items. Different from other more widely used measures of earnings management, classification shifting does not increase total earnings but merely rearranges components of earnings. Therefore, if audit effort is reduced as a result of fee cuts, auditors may

devote more resources to searching and identifying income-increasing earnings management but might tolerate or miss classification shifting by managers.

We estimate the modified McVay (McVay, 2006) model as following:

$$\begin{aligned}
\text{UE_CE} = & \delta_0 + \delta_1 \text{PCT_SI} + \delta_2 \text{FEECUT} + \delta_3 \text{FEECUT} \times \text{PCT_SI} \\
& + \delta_4 \text{GFC} + \delta_5 \text{GFC} \times \text{PCT_SI} + \delta_6 \text{FEECUT} \times \text{GFC} \\
& + \delta_7 \text{FEECUT} \times \text{GFC} \times \text{PCT_SI} + \delta_8 \text{SIZE} \times \text{PCT_SI} \\
& + \delta_9 \text{BTM} \times \text{PCT_SI} + \delta_{10} \text{ACCR} \times \text{PCT_SI} \\
& + \delta_{11} \text{OCF} \times \text{PCT_SI} + \delta_{12} \text{ROA} \times \text{PCT_SI} \\
& + \delta_{13} \text{BIG4} \times \text{PCT_SI} + \delta_{14} \text{TENURE} \times \text{PCT_SI} \\
& + \delta_{15} \text{AUDCHG} \times \text{PCT_SI} + \delta_{16} \text{INFLUEN} \times \text{PCT_SI} \\
& + \delta_{17} \text{NAFRAT} \times \text{PCT_SI} + \text{CONTROLS} + \text{IND_FIXED} \\
& + \text{YEAR_FIXED} + \varepsilon
\end{aligned} \tag{7}$$

See Appendix B for definitions of variables. If the audit fee cuts in the GFC result in impaired earnings quality, we should expect to find the relation of special items with unexpected core earnings to be more positive for firms that received a fee cut relative to the control firms, i.e., a positive sign on *FEECUT* × *GFC* × *PCT_SI* in model 7.

We first replicate McVay (McVay, 2006) on a sample of firms with non-zero income-decreasing special items and find that the coefficient on *PCT_SI* (income-decreasing special items) is positive and significant at the 0.10 level (one-tailed test) except for *FEECUT2*, which is consistent with McVay (McVay, 2006) and indicates that firms in general overstate core earnings by shifting core expenses to special items. The insignificant coefficient on *GFC* × *PCT_SI* suggests that the general overstated core earnings through classification shifting does not seem to change during the GFC period. The coefficient on *FEECUT* is positive and significant for all three fee cut measures, indicating that unexpected core earnings is higher for firms receiving a fee cut relative to other firms. Turning to the variable of interest, the coefficient on *FEECUT* × *GFC* × *PCT_SI* is negative and significant at the 0.10 level for *FEECUT3*. This result suggests that firms that received a fee cut of 25% or more during the GFC are less likely to shift core expenses to special items—but this finding does not hold for other measures of fee cut. We also use an alternate dependent variable, *UE_ΔCE_{t+1}* (unexpected future change in core earnings), and those results are qualitatively similar. Overall, these results do not support the notion that firms receiving fee cuts in the GFC engaged in more classification shifting than the control firms. Thus, we fail to reject the null hypothesis 1.

6.5. Association between cuts in audit fees and accounting restatements

Our additional measure of audit quality is financial statement restatement, i.e., a revision of previously issued financial statement due to errors, fraud, or misapplication of GAAP. Prior research posits that accounting restatement is an objective and visible measure of audit quality since restatement of a financial statement indicates failure to detect material misstatements of originally audited financial statements (e.g., (Francis et al., 2013)(Kinney, Palmrose, & Scholz, 2004)). However, we note that absence of a restatement does not necessarily imply a high audit quality since some material misstatements could remain undetected as a result of a low quality audit.

We obtain information about restatements from *Audit Analytics*. The restatement dataset covers all SEC registrants post-2000 who have ever disclosed a financial statement restatement. Based on Dechow, Ge, Larson, and Sloan's (Dechow, Ge, Larson, & Sloan, 2011) model, we estimate the following logistic regression:

$$\begin{aligned}
\text{RESTATEMENT} = & \gamma_0 + \gamma_1 \text{FEECUT} + \gamma_2 \text{GFC} + \gamma_3 \text{FEECUT} \times \text{GFC} + \gamma_4 \text{RSST_ACCR} + \\
& \gamma_5 \text{CH_REC} + \gamma_6 \text{CH_INV} + \gamma_7 \text{SOFT_ASSETS} + \gamma_8 \text{CH_SALE} + \\
& \gamma_9 \text{CH_ROA} + \gamma_{10} \text{BIG4} + \gamma_{11} \text{TENURE} + \gamma_{12} \text{AUDCHG} + \\
& \gamma_{13} \text{INFLUEN} + \gamma_{14} \text{CLI_IMP} + \text{IND_FIXED} + \text{YEAR_FIXED} + \varepsilon_{it}
\end{aligned} \tag{8}$$

RESTATEMENT equals 1 if the financial statement for the current year is subsequently restated, and 0 otherwise. Definitions of variables used in the study appear in Appendix B. The coefficient of interest in model (8) is γ_3 . A negative (positive) coefficient would be consistent with higher (lower) audit quality for firms that received audit fee cuts during the GFC relative to the control firms.

We find that the coefficient on *FEECUT* is negative and significant for all three measures of fee cut, indicating that the likelihood of a restatement is lower for firms receiving a fee cut relative to firms that did not receive a fee cut. Next, the coefficient on *GFC* is also negative and significant at the 0.01 level for all three measures, which suggests lower likelihood of restatements during the GFC. The coefficient on our variable of interest, *FEECUT* × *GFC*, is positive and significant at the 0.10 level only for *FEECUT2*. This suggests that the likelihood of a restatement is higher for firms receiving a fee cut during the GFC relative to the control firms. We also repeat our analysis using only adverse (income-decreasing) restatements and the results indicate that the coefficient on *FEECUT* × *GFC* is insignificant for all measures of fee cut. Overall, the results of accounting restatement test fail to reject the null hypothesis 2.

6.6. Summary of results

Overall, we use three measures of audit fee cuts, two primary (i.e., abnormal accruals and earnings informativeness) and four additional (i.e., accounting conservatism, earnings persistence, benchmark beating of three variations, and classification shifting of two variations) measures of earnings quality, and two measures of audit quality, i.e., going concern opinion and restatements (two variations for each). Thus, altogether, we conduct 39 tests (13 variations of earnings and audit quality measures × 3 measures of fee cut) to test the relation between audit fee cuts during the GFC and earnings quality and audit quality. We find that in 36 out of 39 tests (about 92.31%), the coefficient on interaction of the fee cut variable and the GFC indicator variable is not statistically significant. These results indicate that there is *no* significant difference in earnings quality or audit quality between firms that received a fee cut during the GFC and those that received a fee cut prior to the GFC or did not receive a fee cut either before or during the GFC. In two cases (5.13%), our results suggest higher earnings quality; and in only one case (2.56%), our results suggest lower audit quality (more likelihood of a restatement) due to audit fee cuts during the GFC.

7. Robustness tests

In this section, we describe results of several additional analyses to assess the robustness of our results to alternative model specifications as well as to further explore the relation between cuts in audit fees during the GFC and earnings quality and audit quality.

Comparison with Ettredge et al. (Ettredge et al., 2014): Ettredge et al. (Ettredge et al., 2014) find clients that successfully exert fee pressure are more likely to have accounting misstatements in 2008 than in 2006, where fee pressure is proxied by the negative abnormal fee measure combined with an actual fee reduction measure (similar to our *FEECUT2*). We replicate Ettredge et al. (Ettredge et al., 2014) and find that for 2008, when all variables are unwinsorized, the association between fee cut and misstatements is positive and significant, similar to theirs.²⁰

Our study differs from Ettredge et al. (Ettredge et al., 2014) in two ways. First, they focus on only year 2008, while we include both 2008

and 2009. Since audit fees are generally negotiated before the beginning of each fiscal year, audit fees for year 2009 should have been negotiated around the end of year 2008, a time subject to the impact of the GFC. We believe the inclusion of both year 2008 and 2009 depicts a more complete picture of the GFC. Second, Ettredge et al. (Ettredge et al., 2014) examine only accounting misstatements while we use multiple proxies, including restatements, to fully examine the relation between audit fee cuts during the GFC and earnings quality and audit quality. Lastly, our evidence of no change in audit quality for non-financial firms during the GFC period provides a counter-balance to academic research which tends towards allegations of weakened audit independence (e.g. (Ettredge et al., 2014; Ettredge et al., 2017)).

Fee cuts for high fraud risk clients: To mitigate the concern that the lack of a significant association between audit fee cuts during the GFC and earnings quality could be due to the lack of power in our research design, we conduct several additional analyses by focusing on contexts where such an association might manifest. First, we use Dechow et al.'s (Dechow et al., 2011) F-score to identify a subsample of firms with high fraud risk. Our conjecture is that cuts in audit fees are more likely to be problematic for these firms relative to other firms and thus, if the impaired earnings quality is more salient in the GFC period, it should be easier to find a significant coefficient on *FEECUT* × *GFC* on the high fraud risk firm sample. We partition the sample based on the median F-score (1.47, i.e., an average firm in this subsample has 1.47 times the probability of fraud compared to a randomly selected firm from the population) and code observations above (below) median as the high (low) fraud risk group. We reestimate model 1b for the high fraud risk group and do not observe a significant coefficient on the variable of interest, *FEECUT* × *GFC*.

Fee cuts for clients with increased workload: Next, we identify a subsample of firms where the total assets increased by 20% or more from the prior year. The objective of this test is to identify firms where the needed audit effort is expected to increase significantly and thus, if earnings quality is impaired, it is likely to be more evident in this sample. We reestimate model 1b on this high audit workload sample and find that the coefficient on *FEECUT* × *GFC* is not significant across all the three fee cut measures.

Firms paying lower than predicted audit fees: Another subsample of firms we focus on are firms that pay lower than predicted audit fees to their auditors, since reductions in audit fees during the GFC are more likely to impair earnings quality in firms that are already paying auditors less than adequate audit fees. We constrain the sample to firms with negative abnormal audit fees, i.e., actual audit fee less than predicted audit fee, to proxy for firms paying lower than predicted audit fees. Reestimating model 1b on this new sample, we find that the coefficient on *FEECUT* × *GFC* remains insignificant for all three fee cut measures.

Non-Big 4 auditors: We reestimate model 1b separately for firms audited by second-tier auditors (Crowe Horwath, BDO, Grant Thornton, and McGladrey) and non-second-tier smaller auditors. We find that the coefficient on *FEECUT* × *GFC* is not significant for non-second-tier smaller auditors for any of the three fee cut measures. For second-tier auditors, however, the coefficient on *FEECUT* × *GFC* is negative and significant for *FEECUT1*, suggesting some evidence of higher earnings quality. Results for the other two fee cut measures are not significant though.

Effects of auditor tenure: Johnson, Khurana, and Reynolds (Johnson, Khurana, & Reynolds, 2002) find that audit quality is lower when auditor tenure is short (three years or less) or long (nine years or longer). We examine whether the relation between audit fee cuts during the GFC and abnormal accruals is conditional on auditor tenure. Untabulated results indicate that the coefficient on *FEECUT* × *GFC* for either the short or long auditor tenure subsample is not significant for all three fee cut measures.

Risk of obsolete inventory during the GFC: The PCAOB (PCAOB, 2010) noted that the overall decline in economic activity could decrease

²⁰ To examine the effect of outliers on our own test, we reestimate model 1b without excluding outliers and find that the coefficient on *FEECUT* × *GFC* is positive and significant at the 0.10 level (t -value = 1.70) for *FEECUT1*, suggesting lower earnings quality. However, the coefficient on the interaction variable is not significant for the other two dichotomous measures of fee cuts.

inventory turnover and increase the risk of obsolete inventory. We partition the sample at the median value of inventory turnover ratio and retain the observations below the median, i.e., firms with high risk of inventory obsolescence. We reestimate model 1b on this sample and still find insignificant coefficient on $FEECUT \times GFC$ for all the three fee cut measures. These results indicate that even for firms with a higher risk of inventory obsolescence, audit fee cuts during the GFC are not significantly associated with lower earnings quality.

Distressed firms: Our final analysis focuses on a subsample of distressed firms. This analysis is motivated by findings in Trombetta and Imperatore (Trombetta & Imperatore, 2014) that earnings management increases when a financial crisis is acute and organizational survival becomes an important objective and drives earnings management. Following this study, we focus on a sample of financially distressed firms (i.e., firms with negative earnings and cash flows) and reestimate model 1b. Untabulated results indicate that the coefficient on $FEECUT \times GFC$ is not significant for any of the three fee cut measures.

In sum, results from the above robustness tests together with the results of testing all the primary and additional measures of earnings quality and audit quality support the notion that audit fee cuts during the GFC, on average, did *not* have an adverse impact on earnings quality or audit quality of client firms.

8. Conclusion

During the recent Global Financial Crisis, auditors were under pressure from clients and audit committees to cut audit fees during the crisis. Since audit fees proxy for audit effort, regulators were concerned that lower audit fees during the crisis could result in lower audit effort, and more importantly, impaired audit quality. Did financial reporting quality and audit quality suffer as a result of the widespread and significant fee cuts? We conduct a comprehensive analysis of multiple attributes of client firms' earnings quality and audit quality. Collectively, our findings indicate that there is no significant difference in earnings quality between client firms that received a fee cut during the crisis and those that did not or those that received a fee cut prior to the crisis. Further, our results do not indicate that firms receiving a cut in audit fees during the crisis are less likely to receive a going concern opinion than firms in the control group. We also find that in general, the likelihood of a financial restatement is not significantly different between firms that received a fee cut during the crisis and the control firms.

One possible explanation for our results is that auditors responded to the increased risks arising from the crisis in several ways: issued

Appendix A. Estimation of abnormal accruals

We follow Dechow, Sloan, and Sweeney (Dechow, Sloan, & Sweeney, 1995) and Kothari et al. (Kothari et al., 2005) and estimate the following model to calculate abnormal accruals. We estimate the model coefficients from cross-sectional industry regressions by two-digit SIC codes for each year using all observations available on *Compustat* excluding financials and utilities. We require a minimum of ten observations for each two-digit SIC code and year combination.

$$TA = \alpha_0 + \alpha_1(1/LASSETS) + \alpha_2(\Delta SALES - \Delta AR) + \alpha_3PPE + \alpha_4LAGROA + \varepsilon \quad (1a)$$

where.

TA = Total accruals, calculated as income before extraordinary items less cash flow from operations;

$LASSETS$ = Total assets at the end of the prior year;

$\Delta SALES$ = Change in sales from the prior year to the current year;

ΔAR = Change in accounts receivable from the prior year to the current year;

PPE = Property, plant, and equipment of the current year;

$LAGROA$ = Return on assets calculated as the prior year net income before extraordinary items divided by total assets at the end of the prior year.

The residual from model 1a is our estimate of abnormal accruals ($ABDAC$).

technical guidance to staff, provided additional training, developed new audit tools, required additional audit procedures, and increased supervision of engagement personnel (PCAOB, 2010). Our findings are also consistent with findings in Krishnan and Zhang (Krishnan & Zhang, 2013), who examine the relation between audit fee cuts and the financial reporting quality of banks and conclude that Big 4 auditors constrained earnings management via loan loss provisions in banks that received cuts in audit fees.

Our findings have important implications for regulators, investors, board members, and others. Although the Global Financial Crisis is over, lessons learned from this unprecedented crisis are of broad interest to all participants in the capital markets. For example, in his testimony before Congress, then-SEC Chief Accountant James Kroeker (Kroeker, 2011) noted that we have an opportunity as well as a responsibility to learn about the role of the independent auditor in the financial crisis. Our study contributes to this dialogue by providing empirical evidence on whether fee cuts impaired earnings quality and audit quality. Also, the crisis presented a test of improvements to auditor independence and quality of public company audits introduced by the SOX. Collectively, our findings support the notion that market-based economic incentives (e.g., averting lawsuits and harm to the auditor's reputation) motivate auditors to "rise to the occasion." The various actions taken by auditors during the crisis are also consistent with this notion.

However, we acknowledge that we cannot fully dispel alternative explanations of our findings. The absence of a significant difference in earnings quality and audit quality between client firms that received a fee cut during the GFC and control firms could be due to model misspecification or ineffective proxies of earnings quality and audit quality.

Future research can extend our study by employing alternative research methods, such as experiments to examine the effect of audit fee cuts on earnings quality and audit quality. Another avenue is to explore whether auditor effort is compromised as a result of cuts in audit fees. However, this would require access to audit hours data. Future research could also examine the long-term impact of audit fee cuts on audit quality as well as audit effort and audit pricing.

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A.1. Variable definitions

Variables in model 1b: Abnormal accruals.

FEECUT = Any of the three fee cut measures defined below;

<i>FEECUT1</i>	= $(-1) \times$ percentage change of audit fees from year t-1 to year t, i.e., (audit fees in year t-1 minus audit fees in year t)/audit fees in year t-1;
<i>FEECUT2</i>	= 1 if the percentage change of audit fees is negative, and 0 otherwise;
<i>FEECUT3</i>	= 1 if the percentage change of audit fees decreases by 25% or more, and 0 otherwise;
<i>GFC</i>	= 1 for years 2008 and 2009, and 0 otherwise (years 2005 and 2006);
<i>ABDAC</i>	= Abnormal accruals estimated from model (1a);
<i>SIZE</i>	= The natural log of the firm's total assets at the year-end measured in \$millions;
<i>MTB</i>	= Market value of equity divided by book value of assets;
<i>LEV</i>	= The firm's long-term debt divided by its total assets;
<i>LOSS</i>	= 1 if the firm reports a loss in the current year, and 0 otherwise;
<i>CFO</i>	= Cash flow from operations scaled by beginning of year total assets;
<i>PACCRUAL</i>	= Prior year's total accruals equal to net income before extraordinary items minus operating cash flows scaled by beginning of year total assets;
<i>OPCYCLE</i>	= Log of operating cycle, measured by account receivable cycle plus inventory cycle ($360 \times$ averages of account receivables/sales + $360 \times$ average of inventories/cost of goods sold and each cycle is truncated at 360 days);
<i>VOLCFO</i>	= Standard deviation of cash flow from operations deflated by beginning of year total assets from year t-4 to year t (require at least 3 observations);
<i>VOLSALE</i>	= Standard deviation of sales deflated by beginning of year total assets from year t-4 to year t (require at least 3 observations);
<i>MERGER</i>	= 1 if the firm is engaged in a merger or acquisition in the current year, and 0 otherwise;
<i>FINANCE</i>	= 1 if the firm issues equity or debt in year t, and 0 otherwise;
<i>LITIGN</i>	= 1 if the firm operates in a high litigation industry (with SIC of 2833–2836, 3570–3577, 3600–3674, 5200–5961, and 7370–7374), and 0 otherwise;
<i>INSTHOLD</i>	= Annual institutional share holdings at the beginning of the year;
<i>ARIN</i>	= Ratio of receivables and inventory to total assets;
<i>SALESGR</i>	= Change in sales deflated by beginning of year total assets;
<i>REPLAG</i>	= The natural log of the number of days between the fiscal year-end date of a company and the date of the auditors' opinion;
<i>LNBSSEG</i>	= The natural log of the number of business segments;
<i>FGNSALE</i>	= Foreign sales divided by total sales of the entire company;
<i>BIG4</i>	= 1 if the firm is audited by Deloitte & Touche, Ernst & Young, KPMG, or PricewaterhouseCoopers, and 0 otherwise;
<i>TENURE</i>	= The natural log of auditor tenure in years;
<i>AUDCHG</i>	= 1 if the firm has an auditor change in year t, 0 otherwise;
<i>INFLUEN</i>	= Ratio of a company's total fees relative to the aggregate annual fees generated by the local office that audits the company;
<i>CLIIMP</i>	= Proportion of the nonaudit fees paid by an individual client to the total fees of the auditor;
<i>IND_FIXED</i>	= Industry dummies based on the 2-digit SIC codes; and
<i>YEAR_FIXED</i>	= Year dummies.

Variables in model 2: Earnings response coefficients.

<i>CAR</i>	= The market-model-based cumulative residual stock relative to the CRSP equally weighted NYSE, AMEX, NASD market index, aggregated over the one-year period beginning with the fourth month of the current fiscal year t; market model parameters are estimated over the year preceding the annual return window;
<i>EARN</i>	= Income before extraordinary items for fiscal year t, scaled by beginning market value of equity;
<i>PEARN</i>	= Income before extraordinary items for the prior fiscal year t-1 scaled by beginning market value of equity;
<i>BETA</i>	= Systematic risk, estimated as the slope coefficient from a market-model regression of daily stock returns on the equally weighted NYSE, AMEX, NASD market index return over fiscal year;
<i>PERSIST</i>	= Earnings persistence, specified as 1 when the absolute value of change in earnings, i.e. (<i>EARN</i> - <i>PEARN</i>), is above median, and 0 otherwise.
<i>LNMV</i>	= The natural log of market value of equity at the beginning of the fiscal year;

Variables in model 3: Going-concern issuance.

GC	=	1 for firm-years with going concern audit opinions, and 0 otherwise;
ZSCORE	=	Altman (Altman, 1968)'s Z-score is calculated as $-4.3 - 4.5 \times \text{net income scaled by total assets} + 5.7 \times \text{total liabilities scaled by total assets} - 0.004 \times \text{current assets/current liability}$;
AGE	=	The natural log of age of the company in years;
RET	=	Market-adjusted annual stock returns;
VOL	=	The variance of the residual from the market model over the fiscal year;
CLEV	=	Change in LEV during the year;
INVEST	=	Short- and long-term investment securities (including cash and cash equivalents), scaled by total assets.

Variables in model 4: Accounting conservatism.

EARNING	=	Income before extraordinary items reported in the current year scaled by total assets at the beginning of the year;
D	=	1 if the market-adjusted returns are negative, and 0 otherwise;
LNPRC	=	The natural log of beginning-of-period stock price;
STRET	=	Standard deviation of returns over prior year.

Variables in model 5: Earnings persistence:

INCOME	=	Earnings before extraordinary items for the current year scaled by beginning of current year total assets;
LINCOME	=	Earnings before extraordinary items for the prior year scaled by beginning of prior year total assets;
SPI	=	Special items scaled by beginning of current year total assets;
DIVDUM	=	An indicator variable that is equal to 1 if the firm pays dividends (DVPSXQ) in year t, and 0 otherwise.

Variables in model 6: Benchmark beating.

BENCHMARK1	=	1 if the firm manage earnings to avoid a loss, i.e. the firm's net income in the current year divided by the market value of equity at the beginning of prior year is at least 0 and < 0.02 , and 0 otherwise;
BENCHMARK2	=	1 if the firm manage earnings to avoid an earnings decline, i.e. the change in the firm's net income from prior year to current year divided by the market value of equity at the beginning of prior year is at least 0 and < 0.01 , and 0 otherwise;
BENCHMARK3	=	an indicator variable equal to 1 if the earnings surprise is greater than or equal to 0, Surprise is equal to EPS reported by IBES less the consensus median earnings forecast;
ISSUE	=	An indicator variable that is equal to 1 if the firm issued equity during year t and 0 otherwise;
ROA	=	Return on assets, measured as net income divided by average total assets;
CURRENT	=	the ratio of current assets to current liabilities;
ACCRUAL	=	Total accruals (IBC – OANCF + XIDOC) scaled by beginning of current year total assets;
CAPINT	=	Gross PP&E divided by total net sales;
SHARES	=	number of shares used to calculate EPS;
BLOAT	=	bloat is the lagged value of book equity plus debt, minus cash, scaled by sales;
FOLLOW	=	Number of individual analysts per the I/B/E/S detail file issuing EPS forecasts for year t;
REVDOWN	=	1 if the last available forecast of current-year EPS per I/B/E/S was less than the first forecast of current-year EPS, and 0 otherwise;
WRITEOFF	=	An indicator variable that is equal to 1 if special items is negative, and 0 otherwise;
EARNGR	=	An indicator variable that is equal to 1 if change in income is positive, and 0 otherwise.

Variables in model 7: Classification shifting.

PCT_SI	=	Income-decreasing special items as a percentage of sales, calculated as $(-1) \times \text{special items/sales}$ when special items are income-decreasing, and 0 otherwise;
UE_CE	=	Unexpected core earnings, i.e. the difference between reported and predicted core earnings, where the predicted value is calculated using the coefficients from the following model, estimated by fiscal year and industry and excluding the individual firm: $CE_t = \beta_0 + \beta_1 CE_{t-1} + \beta_2 ATO_t + \beta_3 ACCRUAL_{t-1} + \beta_4 ACCRUAL_t + \beta_5 \Delta SALES_t + \beta_6 NEG_SALES_t + \epsilon_t$ (all variables are defined as below);

UE_ACE = Unexpected change in core earnings, i.e. the difference between reported and predicted change in core earnings, where the predicted value is calculated using the coefficients from the following model, estimated by fiscal year and industry and excluding the individual firm: $\Delta CE_t = \varphi_0 + \varphi_1 CE_{t-1} + \varphi_2 \Delta CE_{t-1} + \varphi_3 \Delta ATO_t + \varphi_4 ACCRUALS_{t-1} + \varphi_5 ACCRUALS_t + \varphi_6 \Delta SALES_t + \varphi_7 NEG_SALES_t + v_i$; CE : Core earnings (before special items and depreciation), calculated as (Sales-COGS-SG&A)/Sales; ΔCE : Change in core earnings from prior year; ATO : Asset turnover ratio, defined as Sales/Average Net Operating Assets (NOA), where NOA is equal to the difference between operating assets (Total Assets- Cash- Short-term Investments) and operating liabilities (Total Assets- Total Debt- Book Value of Common and Preferred Equity- Minority Interests), and Average NOA is required to be positive; ΔATO : Change in asset turnover ratio from prior year; $\Delta SALES$: Percent change in Sales from prior year; NEG_SALES : 1 if $\Delta SALES < 0$, and 0 otherwise.

Variables in model 8: Restatement.

$RESTATEMENT$ = 1 if the firm restated the year t financial statements, and 0 otherwise;

$RSST_ACCR$ = The change in noncash working capital plus the change in noncurrent operating assets plus the change in net financial assets;

CH_REC = The change in accounts receivable scaled by average total assets;

CH_INV = The change in inventory scaled by average total assets;

$SOFT_ASSETS$ = (Total assets – PP&E – Cash and Cash Equivalent)/Total Assets;

CH_SALE = Percentage change in cash sales;

CH_ROA = The change in ROA (ROA in year t – ROA in year-1).

References

- Alderman, C. W., & Deitrick, J. W. (1982). Auditor perceptions of time budget pressures and premature sign-offs: A replication and extension. *Auditing: A Journal of Practice & Theory*, 1(Winter), 54–68.
- Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23, 589–609.
- American Institute of Certified Public Accountants (AICPA) (1978). *Commission on auditors' responsibilities: Report, conclusions, and recommendations*. New York: AICPA.
- American Institute of Certified Public Accountants (AICPA) (1989). *AU section 341: The Auditor's consideration of an entity's ability to continue as a going concern*. New York: AICPA.
- Ashbaugh, H., Collins, D., Kinney, W., Jr., & Lafond, R. (2008). The effect of SOX internal control deficiencies and their remediation on accrual quality. *The Accounting Review*, 83(1), 217–250.
- Ashbaugh, H., Lafond, R., & Mayhew, B. (2003). Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review*, 78(3), 611–639.
- Asthana, S. C., & Boone, J. P. (2012). Abnormal audit fee and audit quality. *Auditing: A Journal of Practice & Theory*, 31(August), 1–22.
- Balakrishnan, K., Watts, R., & Zuo, L. (2016). The effect of accounting conservatism on corporate investment during the global financial crisis. *Journal of Business Finance & Accounting*, 43(5–6), 513–542.
- Ball, R. (2009). Market and political/regulatory perspectives on the recent accounting scandals. *Journal of Accounting Research*, 47(2), 277–323.
- Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, 24(1), 3–37.
- Beattie, V., & Fearnley, S. (1995). The importance of audit firm characteristics and the drivers of auditor changes in UK listed companies. *Accounting and Business Research*, 25(100), 227–239.
- Brown, L. (2001). A temporal analysis of earnings surprise: Profits versus losses. *Journal of Accounting Research*, 39(2), 221–241.
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, 24(1), 99–126.
- Caramanis, C., & Lennox, C. (2008). Audit effort and earnings management. *Journal of Accounting and Economics*, 45(1), 116–138.
- Chen, F., Lam, K. C., Smieliauskas, W., & Ye, M. (2016). Auditor conservatism and banks' measurement uncertainty during the financial crisis. *International Journal of Auditing*, 20(1), 52–65.
- Christodoulou, M. (November 12, 2009). Audit quality under pressure as firms cut costs. <http://www.accountancyage.com/aa/news/1747827/audit-quality-pressure-firms-cut-costs>.
- Craswell, A., Francis, J., & Taylor, S. (1995). Auditor brand name reputations and industry specialization. *Journal of Accounting and Economics*, 20(3), 297–322.
- Deangelo, L. (1981a). Auditor independence, “low balling”, and disclosure regulation. *Journal of Accounting and Economics*, 3, 113–127 August.
- Deangelo, L. (1981b). Auditor size and audit quality. *Journal of Accounting and Economics*, 3(December), 183–199.
- Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, 77(supplement), 35–59.
- Dechow, P. M., Ge, W., Larson, C., & Sloan, R. (2011). Predicting material accounting misstatements. *Contemporary Accounting Research*, 28(1), 17–82.
- Dechow, P. M., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, 50(2–3), 344–401.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193–225.
- Defond, M. L., & Jiambalvo, J. (1991). Incidence and circumstances of accounting errors. *The Accounting Review*, 66, 643–655.
- Defond, M. L., Raghunandan, K., & Subramanyam, K. R. (2002). Do non-audit service fees impair auditor independence? Evidence from going concern audit opinions. *Journal of Accounting Research*, 40(September), 1247–1274.
- Defond, M. L., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, 58(2–3), 275–326.
- Degeorge, F., Patel, J., & Zeckhauser, R. (1999). Earnings management to exceed thresholds. *Journal of Business*, 72, 1–33.
- Dichev, I., J. Graham, and S. Rajgopal. 2012. Earnings quality: Evidence from the field. *Forthcoming Journal of Accounting and Economics*.
- Doogar, R., S. P. Rowe, and R. S. Sivadasan. 2013. Asleep at the wheel (again)? Bank audits during the lead-up to the financial crisis. *Contemporary Accounting Research* (forthcoming).
- Dopuch, N., & King, R. (1996). The effects of lowballing on audit quality: An experimental market study. *Journal of Accounting, Auditing & Finance*, 11(1), 45–68.
- Ettredge, M., Emeigh, E., Guo, F., & Li, C. (2017). Client pressure and auditor independence: Evidence from the “great recession” of 2007–2009. *Journal of Accounting and Public Policy*, 36(4), 262–283.
- Ettredge, M., Li, C., & Emeigh, E. (2014). Fee pressure and audit quality. *Accounting, Organizations and Society*, 39(May), 247–263.
- Fargher, N. L., & Jiang, L. (2008). Changes in the audit environment and auditors' propensity to issue going-concern opinions. *Auditing: A Journal of Practice & Theory*, 27(2), 55–77.
- Firth, M. (1990). Auditor reputation: The impact of critical reports issued by government inspectors. *RAND Journal of Economics*, 21, 374–387.
- Francis, J., Lafond, R., Olsson, P. M., & Schipper, K. (2004). Costs of equity and earnings attributes. *The Accounting Review*, 79(4), 967–1010.
- Francis, J., Maydew, & Sparks, H. (1999). The role of big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice & Theory*, 18, 17–34.
- Francis, J., Michas, P., & Yu, M. (2013). Office size of big 4 auditors and client restatements. *Contemporary Accounting Research*, 30(4), 1626–1661.
- Frankel, R., Johnson, M., & Nelson, K. (2002). The relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review*, (Supplement), 71–105.
- Geiger, M., Raghunandan, K., & Riccardi, W. (2014). The global financial crisis: U.S. bankruptcies and going-concern audit opinions. *Accounting Horizons*, 28(1), 59–75.
- Guay, W., Kothari, S. P., & Watts, R. (1996). A market-based evaluation of discretionary accrual models. *Journal of Accounting Research*, 34(Spring), 83–105.
- Gul, F., Wu, D., & Yang, Z. (2013). Do individual auditors affect audit quality? Evidence from archival data. *The Accounting Review*, 88(6), 1993–2023.
- Gunn, J. L., Khurana, I., & Stein, S. (2018). Determinants and consequences of timely asset impairments during the financial crisis. *Journal of Business Finance & Accounting*, 45(1–2), 3–39.
- Gupta, P., Krishnan, G., & Yu, W. (2011). *Do auditors allow earnings management when audit fees are low?* Working paper: Lehigh University.
- Habib, A., Bhuiyan, M., & Islam, A. (2013). Financial distress, earnings management and market pricing of accruals during the global financial crisis. *Managerial Finance*, 39(2), 155–180.

- Hopwood, A. (2009). Accounting and the environment. *Accounting, Organizations and Society*, 34(3-4), 433-439.
- Humphrey, C., Loft, A., & Woods, M. (2009). The global audit profession and the international financial architecture: Understanding regulatory relationships at a time of financial crisis. *Accounting, Organizations and Society*, 34(6-7), 810-825.
- Investor Advisory Group (2011). Report from the working group on: Lessons learned from the financial crisis. Available at http://pcaobus.org/News/Events/Documents/03162011_JAGMeeting/The_Watchdog_That_Didnt_Bark.pdf.
- Johnson, V., Khurana, I., & Reynolds, J. K. (2002). Audit-firm tenure and the quality of financial reports. *Contemporary Accounting Research*, 19(Winter), 637-640.
- Kanodia, C., & Mukherji, A. (1994). Audit pricing, lowballing and auditor turnover: A dynamic analysis. *The Accounting Review*, 69(4), 593-615.
- Ke, B., Lennox, C., & Xin, Q. (2015). The effect of China's weak institutional environment on the quality of big four audits. *The Accounting Review*, 90(4), 1591-1619.
- Kinney, W. R., Palmrose, Z.-V., & Scholz, S. (2004). Auditor independence, non-audit services, and restatements: Was the U.S. government right? *Journal of Accounting Research*, 42(3), 561-588.
- Kothari, S. P., Leone, A. J., & Wasley, C. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), 163-197.
- Krishnan, G., & Zhang, Y. (2013). Is there a relation between audit fee cuts during the global financial crisis and banks' financial reporting quality? *Journal of Accounting and Public Policy*, 33(3), 279-300.
- Kroeker, J. (2011). Testimony concerning the role of the accounting Profession in preventing another financial crisis. Available at <http://www.sec.gov/news/testimony/2011/ts040611jlk.htm>.
- Kumar, K., & Krishnan, G. (2008). The value-relevance of cash flows and accruals: The role of investment opportunities. *The Accounting Review*, 83(4), 997-1040.
- Larcker, D., & Richardson, S. (2004). Fees paid to audit firms, accrual choices, and corporate governance. *Journal of Accounting Research*, 42(June), 625-658.
- Lim, C.-Y., & Tan, H.-T. (2008). Non-audit service fees and audit quality: The impact of auditor specialization. *Journal of Accounting Research*, 46(1), 199-246.
- Lys, T., & Watts, R. (1994). Lawsuits against auditors. *Journal of Accounting Research*, 32, 65-93.
- Matsumoto, D. A. (2002). Management's incentives to avoid negative earnings surprises. *The Accounting Review*, 77(3), 483-514.
- McNichols, M. F. (2000). Research design issues in earnings management studies. *Journal of Accounting and Public Policy*, 19(4-5), 313-345.
- McNichols, M. F. (2002). Discussion of the quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, 77(supplement), 61-69.
- McVay, S. (2006). Earnings management using classification shifting: An examination of core earnings and special items. *The Accounting Review*, 81(3), 501-531.
- National Bureau of Economic Research (NBER) (2010). *The Business Cycle Dating Committee (September)*. Cambridge, MA: NBER.
- Orlik, R. (2011). Lords accuse auditors of "dereliction of duty" accountancy age, march 30. Available at <http://www.accountancyage.com/aa/news/2038452/lords-accuse-auditors-dereliction-duty>.
- Palmrose, Z. (1986). Audit fees and auditor size. *Journal of Accounting Research*, 24(1), 97-110.
- PCAOB (2008). *Audit considerations in the current economic environment: Staff audit practice alert no. 3. December 5*. Washington, DC: PCAOB.
- PCAOB (2010). Report on inspection observations of auditing during the economic crisis. Available at http://pcaobus.org/news/releases/pages/09292010_4010report.aspx.
- Penman, S., & Zhang, X. (2002). Accounting conservatism, the quality of earnings and stock returns. *The Accounting Review*, 77(2), 237-264.
- Professional Services Monitor (2010). Available at <http://www.amesrgi.com/psmtoday/?cat=18>.
- Public Oversight Board (2000). *Panel on audit effectiveness*. Stamford: Connecticut. <http://www.pobauditpanel.org>.
- Reason, T. 2010. Auditing your auditor. <http://www.cfo.com/article.cfm/14485723>.
- Reckers, P. M., Wheeler, S. W., & Wing, B. W. (1997). A comparative examination of auditor premature sign-offs using the direct and the randomized response methods. *Auditing: A Journal of Practice & Theory*, 16, 69-78 Spring.
- Schneider, A., Church, B., & Ely, K. (2006). Non-audit services and auditor independence: A review of the literature. *Journal of Accounting Literature*, 25, 169-211.
- Securities and Exchange Commission (1977). Securities act of 1933, release number 5869. Federal Securities Law Reports: Transfer Binder 1977-78 Decisions. Chicago: Commerce Clearing House, 88, 498-88,502.
- Sikka, P. (2009). Financial crisis and the silence of the auditors. *Accounting, Organizations and Society*, 34(6-7), 868-873.
- Simunic, D. (1980). The pricing of audit services: Theory and evidence. *Journal of Accounting Research*, 18(1), 161-190.
- Srinidhi, B., & Gul, F. (2007). The differential effects of auditors' non-audit and audit fees on accrual quality. *Contemporary Accounting Research*, 24(Summer), 595-629.
- Thoman, L. (1996). Legal damages and auditor efforts. *Contemporary Accounting Research*, 13(1), 275-306.
- Trombetta, M., & Imperatore, C. (2014). The dynamic of financial crises and its non-monotonic effects on earnings quality. *Journal of Accounting and Public Policy*, 33(3), 205-232.
- United States Senate (1977). *Report of the subcommittee on reports, accounting, and management of the committee on governmental affairs*. Washington, D.C.: U.S. Government Printing Office.
- Watts, R., & Zimmerman, J. (1983). Agency problems, auditing, and the theory of the firm: Some evidence. *Journal of Law and Economics*, 26(3), 613-633.
- Weil, J. (2004). Tracking the numbers. Outside audit: Fannie paid little for its audits. *Wall Street Journal* (October 6: C1).
- Whitehouse, T. (2010a). Exclusive report: audit fees continue to plummet. <http://www.complianceweek.com/exclusive-report-audit-fees-continue-to-plummet/article/186924/>.
- Whitehouse, T. 2010b. Audit firms told to step up their scrutiny. <http://www.complianceweek.com/audit-firms-told-to-step-up-their-scrutiny/article/192994/>
- Xu, Y., Carson, E., Fargher, N., & Jiang, L. (2013). Responses by Australian auditors to the global financial crisis. *Accounting and Finance*, 53(1), 301-338.