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Authors: Khurram Shahzad, Thierry Pouw, Ghulame Rubbaniy, Osama El-Temtamy

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Audit Quality During the Global Financial Crisis: The Investors' Perspective.

Khurram Shahzad

Thierry Pouw *

Ghulame Rubbaniy¥

Osama El-Temtamy¥

*Faculty of Business and Economics, Vrije University, Amsterdam, the Netherlands

¥ College of Business, Zayed University, Abu Dhabi, UAE

Correspondence address: De Boelelaan 1105 1081 HV Amsterdam, The Netherlands

Phone: +31 0(20) 598 2264; email: k.shahzad@vu.nl

Abstract

In response to the concerns raised by the financial media and regulators about the audit quality around the recent global financial crisis (GFC), this study examines whether investors also perceived the audit quality to have declined during the GFC. Based on a sample of US firms over 2003-2009 and using the information content of earnings announcements as the proxy for the investors' perception of the audit quality, we find evidence of an increase in the information content of earnings announcements during the GFC period compared to pre-GFC period. The subsample analysis shows an increase in the information content of earnings announcements for both the non-financial and financial firms. Our results also show that the increase in the information content of earnings announcements is not dependent on auditors' size (Big 4 versus non-Big 4 auditors) or auditors' independence (based on the level of audit, non-audit and total audit fee). Additional tests also reveal that the reported increase in the information content of earnings announcements are not driven by a general decline in the richness of information environment during the GFC. Overall, our results provide a strong evidence of an increase in the perceived quality of audits during the GFC for US firms non-financial and financial firms.

1. Introduction

Auditors play an important role in the promotion of public listed firms and the development of financial markets (McGrath et al. 2001). Auditors increase the trust between a firm and its current and prospective investors by giving an independent opinion as to whether financial statements give a true and fair view of the financial position of the company. As the auditors' role is important in helping investors in making informed decisions and enhancing the integrity of financial markets, regulators around the world always strive to improve the quality of audits performed by the auditors.

The recent global financial crisis (GFC) led regulators' and financial media to question whether auditors duly discharged their auditing duties. For instance, the Public Company Accounting Oversight Board (PCAOB) accused auditors of not having applied the PCAOB auditing standards in connection with areas (income statement and balance sheet accounts) that were significantly affected by the economic crisis. Similarly, the collapses of 'too big to fail institutions' encouraged financial press to comment, "where were the auditors" (Woods et al., 2009) and to suggest that "it makes sense to review the audit market, because of the financial crisis".[1, 2]

The discussion among the regulators and financial media motivated several researchers to discuss whether auditors provided adequate warning beforehand about the deteriorating financial position of firms that ultimately filed for bankruptcy (Sikka, 2009; Woods et al., 2009) and to investigate whether auditors discharged their duties properly during the GFC (Geiger et al., 2014; Xu et al., 2013; Xu et al., 2011) or whether firms' themselves had preference for the better audit quality during the GFC (Persakis and Iatridis, 2016). While these studies contribute to our understanding of the quality and independence of auditors during the GFC, these studies provide evidence of audit quality by looking at the auditors' behavior, level of audit efforts exerted and firms motivation for high audit quality during the GFC. That is

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[1] Expressing the concern over low quality of audits during the GFC, a post GFC UK parliamentary report criticized auditors for the banking crisis and blamed them of forming oligopoly to restrict the fresh auditors into the audit industry.

[2] http://opinion.financialpost.com/2012/10/18/why-didnt-the-auditor-dog-bark-in-2008/

these studies provide evidence from auditors' and firms' perspective. However, there is hardly any study that examines audit quality by investigating the change in investors' trust and reliance on financial statements audited by auditors during the GFC, that is evidence from the investors' perspective. Our study attempts to fill this gap in the literature by examining the change in the information content of earnings announcements, a dimension of accounting quality, during the GFC. We consider a study on the examination of the audit quality from investors' perspective during the GFC to be important because: (i) regulators consider investors to be the primary user of financial statements[3], (ii) the very purpose of audit of financial statements is to enhance their credibility and hence increase the investors' trust and reliance on them in decision making, (iii) there are some suggestions that the investors perception of the audit quality might have suffered soon after the onset of the GFC. For instance, Sikka (2009; page. 871) notes that "… the current financial crisis shows that markets and significant others were not comforted by unqualified audit opinions issued by major audit firms".

There are arguments both for and against the possibility that information content of earnings announcements might have decreased during GFC. Prior evidence suggest that audit quality decreases during downward market conditions because auditors' decisions are influenced by downward market situation and that auditors may relax their usual skepticism amidst the market euphoria (Leone et al., 2013). In the current context, literature reports mixed evidence about audit quality around the GFC. One stream of literature evidences that auditors did not pay appropriate attention to the factors showing imminent financial problems faced by a number of firms (Gros and Micossi, 2008). These studies are augmented by the evidence of many risky firms (banks) that subsequently applied for bankruptcy after receiving unqualified reports from their auditors (Sikka, 2009). In addition, the evidence also shows that the proportion of firms that filed for bankruptcy without receiving a modified going-concern report increased during the GFC relative to pre-GFC (Woods et al., 2009) and that there was significant decline in the tendency of firms engaging Big 4 auditors (a surrogate of the audit quality) for their annual audits (Persakis and Iatridis, 2016). However, the counter stream of academic literature finds no evidence of a decline in quality or independence of audits rather these studies show that auditors' propensity to issue going concern modified reports increased during the GFC (Geiger et al., 2014; Xu et al., 2013; Xu et al., 2011). So in the light of conflicting evidence about the role that auditors played during the GFC and the fact that auditors' reputation matters to the investors (Chaney and Philipich, 2002; Weber et al., 2008), it is interesting to examine whether investors reliance on audited financial statements increased or decreased during the GFC.

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[3] https://www.iasplus.com/en/standards/other/framework

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We proxy the investors' perception of the audit quality by the information content of earnings announcements. The information content earnings announcements has been extensively used in the literature to draw conclusions about the quality of financial statements (Beaver, 1968; Landsman and Maydew, 2002; Landsman et al., 2012).[4]We measure information content of earnings announcements as the volatility of abnormal returns three days surrounding the earnings announcements date. Our sample consists of US non-financial and financial firms. We focus on financial firms separately because much of the criticism on audit quality is related to the audits of these firms (Sikka, 2009). Our results show that the information content of earnings announcements increased during the GFC (years 2007-2009) relative to the pre-GFC (2003-2006) for both non-financial firms and financial firms. These results indicate that the investors' trust on financial statements increased during the GFC which suggests investors perceived auditors to have provided better quality audits during the GFC.

As discussed earlier, the onset of GFC invited huge criticism on the role of auditors; however, much of the criticism was directed towards the Big 4 auditors. Some observers were so critical on the role of Big 4 auditors during the GFC to even comment that "The harder they fall: will the Big Four survive the credit crunch?".[5] A House of Lord's report labels Big 4 auditors as "disconcertingly complacent" for their role in the financial crisis.[6] To empirically examine whether the concerns raised by different critics about Big 4 auditors were also shared by the investors, we examine the information content of earnings announcements during GFC for firms audited by Big 4 and non-Big 4 separately. In line with our main results, we find evidence of a significant increase in the information content of earnings announcements for firms audited by Big 4 auditor and non-Big 4 audit firms and that the increase in the information content of earnings announcements is not statistically different between the auditees of Big 4 and non-Big 4 audit firms.

The question whether auditors' financial reliance on their clients compromises their independence has long been debated in academic literature and surfaced again during the GFC. This issue led some commentators to start pointing towards the relationship between the speed with which firms collapsed and the audit fee paid by them (Sikka, 2009). Therefore, we also examine whether the information content of earnings announcements decreased for client firms of the auditors that had higher fee dependency (measured as the total audit, non-audit and total fee) on their clients. The results show that our main

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[4] Our results do not remain significant when we use alternate proxy of audit quality such as earnings response coefficient used in studies on audit quality.

[5] http://www.accountingweb.com/topic/firm-news/harder-they-fall-will-big-four-survive-credit-crunch

[6] http://www.theguardian.com/business/2011/mar/30/house-of-lords-uk-auditors-financial-crisis

findings of increase in information content of earnings announcements do not vary among firms based on the fee dependency of auditors.

It is possible that our findings of the higher perception of audit quality during the GFC period is driven by the fact that investors had to rely more on the earnings announcements of the firms due to the decrease in the quality and reliability of information stemming from alternate sources of information (e.g., financial analysts and credit rating agencies etc.). Some theoretical studies also posit that the market reaction to earnings announcements depends on level of uncertainty and information asymmetry in the market (Epstein and Schneider, 2008; Lang, 1991; Veronesi, 1999). To examine whether our results merely reflect the decrease in a firm's level of pre-GFC information richness, we divide our sample into two subsamples based on the richness of information available for our sample firms in the pre-GFC period. We place firms that had higher than median analysts following, lower than median dispersion of analysts' forecasts and lower than medial earnings surprises in the pre-GFC period in the information rich sample. If our reported results are driving by the decrease in the richness of information during the GFC and do not represent an increase in the perceived audit quality, then the results would only be significant for the sample information rich sample. The results of our analyses show that the information content of earnings announcements is increase significantly for both samples and there is no significant difference between the increase in the information content of earnings announcements for both samples.

We contribute to the existing literature on the impact of the GFC on audit quality in multiple ways. First of all, existing studies (Geiger et al., 2014; Xu et al., 2013; Xu et al., 2011) emphasize on the auditors efforts and compare their propensity to issue going concern modified report before and after the GFC or on the firms' intention to engage high quality auditors during the GFC (Persakis and Iatridis, 2016). Unlike these studies, we focus on investors' side and examine the audit quality during the GFC by examining the investors' trust and reliance on the audited financial statements. Focusing on the investors' perspective is important because they are considered to be the primary users of the audited financial statements. Our study also provide answers to suggestions expressed by some researchers (Sikka, 2009) that market might have started to place lower reliance on audited financial statements. Our findings are relevant for the regulators, academics and standard setters as these groups, in their respective roles, are trying to enhance the information value of annual financial statements for investors by evaluating the performance of auditors during the GFC.

The reminder of this paper is organized as follows: Section 2 discusses the back ground provides a review of literature. Section 3 outlines the research design and methodology. Section 4 presents our empirical findings and discusses the results. Finally, Section 5 concludes our study.

2. Background and Literature review

The GFC had a huge adverse impact on the world's economy, which triggered the worlds' stock markets to plummet. Many 'too big to fail' financial institutions had to be saved by governments through bailout packages. US government, for instance, approved a $700 billion bailout package to save the troubled institutions, while UK government had to set aside $750 billion to support financial institutions. The massive impact of the GFC received immediate attention of the regulators, who started to deliberate causes and future pre-cautions of the GFC. Although a single entity may not be held responsible for the occurrence of the GFC, however, auditors, including other entities such as credit rating agencies and banks, are believed to have, in one way or other, played a role in inviting or at least not deterring the GFC. Being the watchdogs, auditors are expected to give an early warning about the deteriorating financial position of troubled firms (Ryu et al. 2009). Although it is quite subjective to say whether a firm is facing financial difficulties, there are certain indicators (for instance, high leverage ratio as identified by Auditing Practice Board 2004) to indicate whether a firm might be heading towards a severe financial distress. An examination of balance sheets of prominent institutions, however, shows that many of them had maintained excessively high leverage ratios that ranged from 11:1 to 83:1 before the GFC (Gros and Micossi 2008). Bear Stearns, the fifth largest US investment bank, for instance, had a gross leverage ratio of 31:1 just before its collapse.[7] Apparently however, banks with such visible signals of imminent risk and those that subsequently filed for bankruptcy received unqualified reports from their auditors (Sikka, 2009). The inclusion of some high profile banks in the list of institutions that applied for bankruptcy after receiving unqualified audit reports forced the regulators both in US and internationally to put greater scrutiny on audit profession (PCAOB 2009, 2011, IAASB 2009, FRC 2013, European Commission 2010). The European Commission published a green paper on audit reforms, which states that the 2008 financial crisis has highlighted considerable shortcomings in the European audit system. They mostly have blamed the auditors for giving unqualified opinions despite having awareness of the serious intrinsic weakness in the financial health of some companies; they further suggest measures for improvement in auditing procedures (European Commission 2010, Humphrey et al. 2009). In its report for the year 2011, the Association of Chartered Certified Accountants (ACCA) states that audit needs to be extended to meet stakeholders' needs more effectively. It further documents that given the scale of the global financial crisis and the extent of taxpayers' bailouts of banks, the role of auditors and accountants should be

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[7] US Securities Exchange Commission (2008). SEC's oversight of Bear Stearns and related entities: The consolidated supervised entity program. Washington, DC: SEC <http://finance.senate.gov/press/Gpress/2008/prg092608i.pdf>.

questioned.[8] The fall of big institutions also incited the popular press to debate the role of auditors in inviting the market crashes. For instance, Wall Street Journal refers to UK parliamentary report in which auditors have been criticized for banking crisis and blamed to form an oligopoly to restrict the fresh auditors into the audit industry.[9] Financial Post opines that "it makes sense to review the audit market, because of the financial crisis".[10]

The initial academic evidence about the audit quality during the GFC, however, is mixed. On the one hand findings in a number of studies are indicative of higher audit quality during the GFC. For instance Xu et al. (2011) find a significant increase in the frequency of Australian firms that received audit reports modified for going concern assumption in the GFC period relative to the period before GFC. Similarly, Xu et al. (2013) find a significant increase in the auditors' effort and their propensity to issue concern opinion during the GFC to the firms that are likely to have received such opinion based on the going concern prediction models. Using a sample of 414 financially distressed non-financial US firms that filed for bankruptcy, Geiger et al. (2014) find that the likelihood of financial distressed firms receiving going concern opinion before bankruptcy was significantly higher after the onset of the GFC. However, on the other hand, results of some important studies support the concern shown by the financial media that auditors might have been lenient in issuing unqualified reports before GFC. For instance, Sikka (2009) and Woods et al. (2009) find that the proportion of firms that filed for bankruptcy without receiving a modified going-concern report increased during the GFC relative to pre-GFC period. Corroborating these to these findings, based on a large sample of firms from 18 largest economies, Persakis and Iatridis (2016) find evidence of a decline in audit quality during the GFC.

The discussion above shows that there existed mixed evidence regarding the possible surge or drop in the audit quality during the GFC; however, the evidence has more inclination towards the suggestion that audit quality improved during the GFC. Therefore we expect an increase in information content of earnings announcements after GFC and hypothesize:

H1. The information content of earnings announcements increased during the recent GFC.

As discussed earlier, the onset of GFC invited huge criticism on the role of auditors. However, much of that criticism was dedicated to the Big 4 auditors. Sikka (2009) provide a list of major audit failures reveals that almost all banks that either sought bailout or went bankrupt after receiving clean reports from Big 4 audit firms. Together with the earlier problems faced by the Big 4, the onset of recent GFC led

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[8] http://www.accaglobal.com/content/dam/acca/global/PDF-technical/audit-publications/pol-af-auf.pdf
[9] http://online.wsj.com/article/SB10001424052748703806304576232231353594682.html
[10] http://opinion.financialpost.com/2012/10/18/why-didnt-the-auditor-dog-bark-in-2008/

some commentators to wonder "The harder they fall: Will the Big Four survive the credit crunch?"[11] A house of Lord's reports Big 4 auditors' labels as "disconcertingly complacent" for their role in the financial crisis.[12] The academic research, however, does not provide any evidence of sloppiness in Big 4 auditors' role. For instance, Geiger et al. (2014) find the increase in the likelihood of issuance of going concern assumption by Big 4 audit firms was not statistically lower than that of by the non-Big 4 audit firms during the GFC. Xu et al. (2013) report that Big 4 audit firms incorporated the implication of GFC in their audit opinions earlier and were more likely to issue going concern opinions to the financially distressed firms during GFC. Although Persakis and Iatridis (2016) show that firms' propensity to engage Big 4 auditors decreased during the GFC however their findings are not suggestive of provision of a lower audit quality by Big 4 auditors themselves.

Thus in the absence of any significant evidence showing a significant decline in the audit quality of Big 4 auditors, we do not expect a decline in the information content of earnings announcements by clients of Big 4 audit firms relative to clients of non-Big 4 audit firms. Thus we formulate our next hypothesis as follows:

H2. The increase in the information content of earnings announcements during GFC is not lower for firms audited by Big 4 audit firms compared to the firms audited by non-Big 4 audit firms.

It has been debated for long whether auditors' financial reliance on their clients comprises their independence. The issue of auditors' fee dependency on their clients emerged again during the GFC and commentators started to pinpoint the relationship between the speed with which firms collapsed and the audit fee paid to them (Sikka, 2009). This opinion was shared by regulators too. For instance, the European Commission's Green Paper implicitly opined that audit quality had declined due to auditors' financial dependence on their clients (Humphrey et al., 2009). Event though, prior studies provide a mix evidence of the association between the audit fee paid to auditors and audit quality (Asthana and Boone, 2012; Frankel et al., 2002; Hoitash et al., 2007), however, in context of the GFC, Ettredge et al. (2014) document that the audit quality was lower when firms successfully exerted pressure on auditors to low their fee. In other words, the audit quality was not negatively associated with the revenues auditors received from their clients. So in the absence of any robust evidence that audit quality was compromised during the GFC due to higher audit, non-audit for total fee paid to the auditor, we posit the following:

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[11] http://www.accountingweb.com/topic/firm-news/harder-they-fall-will-big-four-survive-credit-crunch

[12] http://www.theguardian.com/business/2011/mar/30/house-of-lords-uk-auditors-financial-crisis

H3. The increase in the information content of earnings announcements during GFC is not lower for the firms that pay higher audit fee.

3. Methodology and Data

3.1 Methodology

Based on the existing literature we use multivariate regression analysis to find evidence of any change in the information content of earnings announcements during the GFC. Throughout our analysis the dependent variable is the abnormal return volatility, which is regressed on the variables known to influence the information content of earnings announcements. In particular, we use the following model to investigate our research question:

$$AVAR_{it} \quad \beta_0 + \beta_1 GFC_t + \beta_2 BIG4_{it} + \beta_3 UE_{it} + \beta_4 REPLAG_{it} \ (1)$$

$$+ \beta_5 LEV_{it} + \beta_6 LOSS_{it} + \beta_7 SIZE_{it} + \beta_8 DISP_{it} + NUMEST_{it}$$

$$+ \beta_9 Ind\_Dummies_i + \varepsilon_{it}$$

where *AVAR* is the natural log of abnormal return volatility calculated following Landsman et al., (2012) and Landsman and Maydew (2002). Specifically, *AVAR* is the natural log of the sum of the squared abnormal return over the event window divided by the volatility of abnormal returns over the estimation period.[13] The abnormal returns are calculated in the usual way i.e. $AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$ where AR_{it} is the abnormal return, R_{it} is the stock return of firm *i* for the day *t* and R_{mt} is the return on the equally weighted index. The estimation window spreads over *t-365* to *t-10* calendar days where *t=0* is the earnings announcement day. The event day consists of 3 days that start a day before the earnings announcements (*t-1*) and end one day after earnings announcements (*t+1*).

Our variable of interest, *GFC,* is a dummy variable, which takes the value 0 if the earnings announcements relate to the pre-GFC period (2003–2006) and a value 1 if earnings announcements relate to the GFC period (2007–2009). The cutoff points for the start (2007) and end (2009) of the GFC is based on Geiger et al. (2014). *BIG4* assumes value 1 if earnings announcements are by a firm audited by one of the Big 4 and takes value 0 otherwise. We include *BIG4* as a control variable since the Big 4 auditors

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[13] Following Landsman et al (2012), we use natural log because AVAR is highly skewed. Our results remain qualitatively unchanged when we do not use the logged values of AVAR.

enhance the quality and reliability of the audits, which leads to a higher information content of earnings announcements. Previous research shows that the information content of earnings announcements is positively associated with the level of unexpected news contained in the earnings announcements (Conrad et al., 2002; Skinner and Sloan, 2002). Therefore, to control for level of unexpected news in the earnings announcements, we include variable *UE* which is calculated as the absolute value of the difference between the analysts' median earnings forecasts and the actual earnings per share divided by the year end stock prices. *REPLAG* is the difference, in number of days, between the date of earnings announcements and the date of the end of financial year to which these announcements pertain. The longer is the *REPLAG* the lower is the information content of earnings announcements. Following prior research (Chaney and Philipich, 2002) we also control for the leverage (*LEV*) of a firm. *LEV* is calculated as total

liabilities over total assets. Hayn (1995) finds that negative earnings contain little information for investors. Therefore, we include a dummy variable, *LOSS*, which indicates whether earnings of a firm are less than (*LOSS=1*) or equal to or greater than zero (*LOSS=0*). We also control for firm size, *SIZE*, by including the market capitalization of a firm, which is equal to the number of shares outstanding times the annual closing stock prices. We control for the dispersion of analysts' forecasts, *DISP,* and the number of analysts following, *NUMEST. DISP* is calculated as the standard deviation of analysts' earnings forecasts reported in I/E/B/S divided by the end of the year stock prices and *NUMEST* is the number of analysts that have issued their forecasts for a firm's earnings during a particular year. Finally, we also include industry dummies that are based on Campbell (1996) industry classifications. The subscripts i and t represents the individual firms and year respectively. We winsorize all continuous variables at the top 1% and bottom 99% percentile before performing any tests. The variable definitions are provided in Table 1.

3.2 Data

The dataset for this research comprise of all US listed firms during the period 2003–2009 and comes from four data sources; Compustat, CRSP, I/E/B/S, and Audit Analytics. We collect annual earnings announcements dates and financial data from Compustat. The data (stock and index returns) required to calculate *AVAR* comes from CRSP. We collect data required to calculate level of unexpected news *UE, DISP* and *NUMEST* from I/E/B/S. We begin by calculating *AVAR* based on CRSP data. This resulted in 25,829 observations from years 2003 to 2009. We lose 10,463 observations when we combine this data

with I/B/E/S files. The merging with Compustat financial and Audit Analytics files results in a further loss of 118 and 299 observations respectively. Then, in line with Schroeder (2015), we delete all earnings announcements that are released before the fiscal year end or after SEC filing deadline (102 observations)

or after 10-K filing date (249 observations). Our data is further reduced by 789 observations due to non-availability of data required to calculate variables used in the regression analysis. The final sample consists of 12,875 observations from 3,657 distinct firms. Out of these, 7,320 observations belong to the per-GFC period (2003–2006) and 5,555 observations relate to the GFC period (2007–2009). Table 2 describes the construction of our data.

Table 3 provides the distribution of the sample across industries and years. The greatest number of observations comes from Service industry (2,176 observations), which is closely matched by Financial (1,828 observations) and Consumer Durables industry (1,790). The least number of observations belongs to the Construction industry (238 observations). The number of observations is relatively well distributed over the years under study.

4. Empirical findings

4.1 Descriptive statistics

Table 4 provides the descriptive statistics of variables used in this study. For comparison purposes, we divided our sample in to two subsamples, i.e., pre-GFC and the GFC years. Panel A and Panel B compare the mean values of the variables over the pre-GFC and GFC years. The mean *AVAR* is significantly higher in the GFC years (0.525) compared to the pre-GFC years (0.3640). These statistics provide initial

evidence that investors did not lose trust on financial statements rather their reliance on these statements increased during the GFC. The descriptive statistics show a slight decrease in the percentage of firms audited by Big 4 audit firms (*BIG4*) during the GFC (from 85.70% to 82.30%). This is consistent with Persakis and Iatridis (2016) who show that the number of firms engaging Big 4 auditors decreased during the GFC. The level of unexpected earnings (*UE*) is also higher in the GFC years relative to pre-GFC year (0.039 versus 0.014). The reporting lag (*REPLAG)* also increased from approximately 41 days in pre-GFC years to approximately 45 days in the GFC years. Considering longer *REPLAG* in the context that percentage of firms that reported loss increased in the GFC years the increased *REPLAG* is consistent with the finding in the literature that firm delay earnings announcements when earnings are lower than expectation. Leverage (*LEV*) is slightly higher during the GFC years (0.530) compared to the pre-GFC years (0.512) but the difference is not significant at conventional level. The proportion of firms reporting losses (*LOSS*) increased from 15.20% in the pre-GFC period to 19.80% in the GFC period. The average market value is lower during the GFC (6.659) relative to pre-GFC period (6.913) indicating a loss of

value due to the GFC. The dispersion of analysts forecast (*DISP*) also rose during the GFC years (from 0.004 to 0.011). The increase in the dispersion of analysts forecast also explains the increase in *UE* during the turmoil episode. The average number of analysts following a firm stayed around 8 in the pre and post-GFC period.

4.2 Regression analysis - Change in the Information content of earnings announcements around the GFC

Our first regression analysis tests whether the information content of earnings announcements changed during the GFC. Table 5 presents the results this analysis. In all models the dependent variable is *AVAR*. The explanatory power of these models ranges between 5% to 6% which is close to what is reported in studies that use *AVAR* as a dependent variable (Landsman et al., 2012). In Model 1 we compare the information content of earnings announcements over pre-GFC years 2003–2006 with the GFC years 2007–2009 for the full sample. The difference in the information content of earnings announcements between pre-GFC and the GFC years is represented by the variable *GFC*. The coefficient on *GFC* is positive and significant (coefficient = 0.210; t-value = 8.166) which shows that information content of earnings announcements is higher in the GFC period relative to the pre-GFC period. Model 2 tests the

change in information content of earnings announcements for non-financial firms. The coefficient of *GFC* is also positive and significant in this model (coefficient = 0.183; t-value = 6.593). Finally, Model 3 examines the change in the information content of earnings announcements for financial firms. Consistent with the first two models, the coefficient on *GFC* is also positive and significant (coefficient = 0.334; t-value = 4.722) for this model. With respect to the control variables, the coefficients' on *BIG4*, *UE* (only in Model 1)*, LEV* (only in Model 3) *LOSS* (in Model 1 and Model 2), *SIZE* (Not in Model 3), *DISP* and *NUMEST* (only in Model 3) are significant and their signs are in line with the existing literature. The coefficients on other control variables are not significant but their coefficients have expected signs. None of the control variable has significant coefficient sign in the unexpected direction. So the results in Table 5 provide evidence that investors' trust on audited financial statements increased during the GFC. These results corroborate the findings of studies that are indicate that audit quality increased during the financial crisis.

4.3 Regression analysis - Change in the Information content of earnings announcements around the GFC – Big 4 versus non-Big 4 auditors

Next we test whether the increase in the information content of earnings announcements has been lower for the clients of lower for the clients for the Big 4 audit firms. Table 6 presents the results of this analysis for the full sample and the sample of non-financial and financial firms separately. We divide each of these samples in two sub-samples based on whether a firm is audited by Big 4 or non-Big 4 auditors. Model 1 and Model 2 compare the increase the increase in the information content of earnings announcements for the full sample. In both samples, the coefficient on *GFC* is positive (coefficients: 0.207 versus 0.228) and significant (t-value: 7.435 versus 3.188). These results reveal that auditees of both the Big 4 and non-Big 4 experienced an increase in the information content of earnings announcements during the GFC. Although, the coefficient on *GFC* is slightly bigger for the sample of non-Big 4 auditees however the unreported tests show that the difference in coefficients is not significantly different.[14] Model 3 and Model 4 compare the increase in the information content of earnings announcements between auditees of Big4 versus non-Big 4 audit firms for non-financial while Model 5 and Model 6 do the same for the financial firms. In all four models, the coefficient on *GFC* is positive and with the exception of Model 4, it is highly significant. Further the difference in respective coefficients of *GFC* is not significantly different between Big 4 and non-Big 4 samples. Overall, in contrast to our H2 and the criticism by regulators and financial media, the results of the analysis provide evidence that the *AVAR* of firms audited by Big 4 audit firms and non-Big 4 audit firms increased during the GFC period and this increase in not significantly lower for the clients of non-Big 4 firms.

4.4 Regression analysis - Information content of earnings announcements around the GFC – Effect of auditors' independence

Our third hypothesis posits no that any increase in *AVAR* of earnings announcements during GFC would not be lower for firms that pay higher non-audit, audit or total audit fee. Table 7 presents the results of this analysis. We divide the full sample in two sub-samples based on the median level of audit fee, non-audit fee and total fee paid to the auditors. Model 1 is based on the sample firms that paid equal to or lower than median audit fee to their auditors while Model 2 consists of firms that paid higher than median audit fee to their auditors. Similarly, Model 3 and Model 4 compare the increase in *AVAR* between equal to and lower than median and higher than median non-audit fee paying firms while Model 5 and Model 6 do the same comparison between equal to or lower than median and higher than total fee paying firms. The coefficient and level of significance of GFC in all models reveals that *AVAR* increased for all sub-

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[14] We test the difference is coefficient by pooling the Big 4 and non-Big 4 sample together and reintroducing the *Big4* dummy variable and add the interaction term between Big4 and GFC. The coefficient on the interaction term between Big4 and GFC is not significant in any of the three comparisons.

samples during the GFC. Although the coefficient on *GFC* is bigger for equal or lower than median audit fee and total fee paying firms, however this difference is not statically significant. Similarly, the difference in the magnitude of the coefficient on *GFC* between equal to or lower than median non-audit and higher than median non-audit fee paying firms is also not statistically significant.[15] Overall, the results of this analysis confirm the prediction of H3 that the increase in *AVAR* is not significantly lower for firms that pay higher than median audit, non-audit or total fee.

4.5 Regression analysis- Information content of earnings announcements around the GFC – Effect of richness of pre-GFC information quality

Existing literature documents rigorous debate about the informational value of the earnings announcements. One stream of the literature endorses earnings announcements as a major source of information for the investors (Francis et al., 2002), while the other stream supports the notion that earnings announcements are less valuable and contribute little to the share price valuation (Ball and Shivakumar, 2008; Lev and Zarowin, 1999). The later view is also consistent with the theory that the competing sources of information, for instance financial analysts' reports, credit rating agencies and management forecasts, are mainly responsible for a decline in the informational value of earnings announcements as these sources provide more timely and forward looking information. However, the literature shows that the accuracy of information provided these sources of information declined during turbulent economic periods (Beccalli et al., 2015; Sidhu and Tan, 2011). Therefore, it is likely that with the decrease in the quality and quantity of information available to investors through alternate sources of information, the investors were left with little choice but to use earnings announcements for their decision making. This may have driven the information content of earnings announcements upwards during the GFC. Therefore, our reported increase in the information content of earnings announcements may be due

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[15] We test the difference is coefficient by pooling the sub-samples together and reintroducing the a dummy variable (*FEE*) to identify observation where audit, non-audit or total fee paid to auditors is higher than the median values for the full sample. We then interact that *FEE* with *GFC*. The coefficient on the interaction term between *FEE* and *GFC* is not significant in any of the three comparisons.

to a decrease in the accuracy and reliability of alternate sources of information rather than an increase in the investors' perception of quality of audited financial statements. To test this alternate explain of our results, we divide our samples into further two groups based on the richness of information available to investors before the GFC. We consider investors to have rich level of information available to them for firms with higher than median analysts following (*NUMEST*), lower than median earnings surprise (*UE*) and dispersion of analysts' forecast (*DISP*) before the GFC. Therefore, we create variable *IRICH* and code it equal to 1 for firms with higher than median *NUMEST,* lower than median *UE* and *DISP* before the GFC. *IRICH* is set equal to 1 for these firms throughout the sample period. This construction requires each firm to have at least one observation in the pre and during the GFC period which led to a loss of a number of observations. We create *IRICH* for *NUMEST*, *UE* and *DISP* separately and interact it with *GFC* and create variable *GFC*IRICH*. If our reported increase in information content of earnings announcements is caused by the decline in the richness of information available from alternate sources of information then the *GFC*IRICH* would be positive and significant while *GFC* would be insignificant. The results of this analysis are reported in Table 8. Model 1, Model 2 and Model 3 in present the results of the analysis for unaudited earnings announcements where *IRICH* is based on *UE*, *DISP* and *NUMEST* respectively. In all three models *GFC* is positive and significant but *GFC*IRICH* is insignificant for *UE* and *DISP* sample. So the results of these two samples reveal that the increase in reported *AVAR* is not driven by decrease in the richness of information measured in terms of increase in *UE* or *DISP* during crisis. The positive and significant coefficient on *GFC*IRICH* does not indicate that the increase in *AVAR* is driven by decrease in the richness of information environment proxied by *NUMEST* rather, together with positive and significant coefficient on *GFC,* it reveals that the *AVAR* of earnings announcements increased for firms in general however this increase in higher for firms that have higher than median *NUMEST* in the pre-GFC period. These results give us further confidence to associate the increase in the information content of earnings announcements to the enhanced perceived audit quality.

4.6 Regression analysis-Information content of earnings announcements around the GFC – Sensitivity test

As it is evident from the descriptive statistics that pre-GFC and post-GFC sample differ significantly from each other with respect to almost all control variables. To reduce of the fact of those differences, we divided our non-financial and financial sample into unaudited and audited samples and then use all-dimensional propensity score matching for each of these samples separately. Following Schroeder (2016) we set caliper = 0.03. The results of this analysis are reported in Table 9 for the full sample and the

sample of non-financial and financial firm separately. In all models, the coefficient on *GFC* is positive and significant Overall these results are consistent with the results of our main analysis reported in Table 9 and thus provide us further assurance of the reliability of the results.

5. Conclusion

Auditors play a significant role in enhancing investors' confidence on financial markets. The recent global financial crisis shocked investors' confidence on financial markets and drove many, including members of Investor Advisory Group of PCAOB, to put a question mark on quality of auditor's performance around the GFC. In the absence of wake up calls from the auditors to warn market of the financial distress faced by several firms (Woods et al., 2009) (PCAOB 2011), many commentators believe that market's trust on unqualified financial statements declined as a results of the GFC (Sikka, 2009). Most of the existing literature on audit quality focuses on whether auditors increased their efforts and whether their propensity to issue qualified reports increased during the GFC or whether firms were motivated to increase the audit quality. Complementary to such studies, we focus on the investors' perspective and examine whether investors' perception of audit quality changed during the GFC.

In general and contrary to the criticism heaved by financial median and regulator we find that investors perceived audit quality to have increased during the GFC. Our results also show that the increase in the investors' perceived quality of audit was not dependent on the auditors' size or their apparent fee dependence on clients. We also find that the increase in the investors' perception of audit quality is not driven by a decrease in the richness of information stemming from other sources during the GFC. These findings corroborate the findings of Xu et al. (2011), Xu et al. (2013) and Geiger et al. (2014) who do not find evidence of auditors being lax in issuing qualified reports during the GFC.

We acknowledge that despite our additional tests we cannot rule out the fact that the quality of audits in the eyes of investors stayed the same and the increase in the information content of earnings announcements is consequence of a need for more reliable information during the GFC. In other words, it is likely that investors might have switched to earnings announcements for their decision making with a decrease in the information quality of alternate sources of information due to uncertain and turbulent market conditions during the GFC.

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Table 1. Definitions of variables.

Variables	Explanations
AVAR	Natural log of abnormal return volatility as defined in section 3
GFC	*GFC* is equal to 0 if financial statement data relates to 2003–2006 and 1 if financial statement data relates to 2007–2009.
BIG4	Dummy variable, which is equal to 1 if a firm is audited by one of the Big 4 audit firms and 0 otherwise.
UE	The absolute difference between the actual earnings per share and the most recent consensus analysts forecast divided by year end stock prices.
REPLAG	Number of days from the financial year end to the date of earnings announcements.
LEV	Year-end total liabilities divided by the total assets.
SIZE	Natural log of market value at the end of year.
LOSS	*LOSS* is equal to 1 if a firm reports loss in a particular year and 0 otherwise.
DISP	Standard deviation of analysts forecast included in the consensus forecast.
NUMEST	The number of analysts following a firm in a year.

Note: This table provides the definition of variables used in the regression analysis.

Table 2. Sample selection

Number of earnings announcements for which data is available to calculate *AVAR* from 2003-2009	24,895
Less: Observations lost when merged with I/B/E/S file	10,463
Less: Observations lost when merged with financial data	118
Less: Observations lost when merged with Audit analytics audit opinion and fee file	299
Less: Observations with earnings announcements are released before year end or after the SEC filing deadline	102
Less: Observations when earnings announcements are after 10-K filing date	249
Less: Missing data to create variables	789
Final sample	12,875

Note: This table provides the description of steps that are followed to obtain our final sample

Table 3. Tabulation of sample across industries and years

Industry/Year	2003	2004	2005	2006	2007	2008	2009	Total
Petroleum	69	61	68	82	81	92	89	542
Consumer Durables	229	251	257	270	269	259	255	1,790
Food/Tobaco	38	39	42	48	44	48	41	300
Construction	31	31	31	37	37	39	32	238
Capital Goods	243	235	245	260	261	265	231	1,740
Transport	41	50	55	66	64	57	61	394
Utilities	98	104	128	126	135	144	130	865
Textile/Trade	72	68	78	94	89	80	81	562
Services	319	318	301	302	316	320	300	2,176
Leisure	74	69	65	73	72	67	62	482
Basic Industry	202	222	228	260	248	224	230	1,614
Financial	255	288	316	290	214	258	207	1,828
Others	48	45	47	51	57	54	42	344
Total	1,719	1,781	1,861	1,959	1,887	1,907	1,761	12,875

Note: This table tabulates the firm sample across industries and years.

Table 4. Descriptive statistics

Panel A: Descriptive statistics of variables GFC years (GFC=0)						
Variables	Mean	Median	P25	P75	Stdev	N
AVAR	0.360	0.420	-0.604	1.403	1.489	7320
BIG4	0.857	1.000	1.000	1.000	0.350	7320
UE	0.014	0.003	0.001	0.010	0.042	7320
REPLAG	41.317	39.000	28.000	53.000	15.971	7320
LEV	0.512	0.505	0.299	0.693	0.258	7320
LOSS	0.152	0.000	0.000	0.000	0.359	7320
SIZE	6.913	6.766	5.820	7.840	1.531	7320
DISP	0.004	0.001	0.001	0.004	0.011	7320
NUMEST	7.775	6.000	3.000	10.000	6.234	7320
Panel B: Descriptive statistics of variables GFC years (GFC=1)						
Variables	Mean	Median	P25	P75	Stdev	N
AVAR	0.525	0.569	-0.386	1.534	1.442	5555
BIG4	0.823	1.000	1.000	1.000	0.382	5555
UE	0.039	0.007	0.002	0.025	0.099	5555
REPLAG	45.025	43.000	32.000	56.000	15.742	5555
LEV	0.530	0.521	0.323	0.708	0.262	5555
LOSS	0.198	0.000	0.000	0.000	0.399	5555
SIZE	6.659	6.533	5.468	7.734	1.704	5555
DISP	0.011	0.003	0.001	0.009	0.022	5555
NUMEST	7.743	6.000	3.000	10.000	5.638	5555

Note: This table presents the descriptive statistics of the dependent and independent variables to test whether the information content of earnings announcements changed during the GFC. Panel A presents the descriptive statistics for pre-GFC period while panel B presents the descriptive statistics for the GFC period. All continuous variables are winsorized at 1st and 99th percentile. All variables are as defined in Table 1. *,**,*** indicate significance at 10%, 5% and 1% levels, respectively.

Table 5. Regression results – Change in the information content of earnings announcements

	Model 1	Model 2	Model 3
GFC	0.210	0.183	0.334
	(8.166)***	(6.593)***	(4.722)***
BIG4	0.160	0.097	0.184
	(3.991)***	(2.016)**	(2.292)**
UE	0.521	0.297	0.801
	(2.206)**	(1.137)	(1.387)
REPLAG	-0.001	-0.002	-0.001
	(-0.586)	(-1.342)	(-0.348)
LEV	-0.012	0.067	-0.372
	(-0.198)	(0.998)	(-1.894)*
LOSS	-0.285	-0.307	-0.164
	(-6.788)***	(-7.006)***	(-1.078)
SIZE	0.037	0.028	0.009
	(2.694)***	(1.825)*	(0.302)
DISP	-4.905	-5.138	-2.630
	(-4.607)***	(-4.502)***	(-0.908)
NUMEST	0.005	0.001	0.045
	(1.499)	(0.416)	(5.215)***
Intercept	-0.487	-0.298	-0.104
	(-3.758)***	(-2.089)**	(-0.367)
Ind. Dummies	YES	YES	NO
R^2	0.05	0.05	0.06
N	12,875	11,047	1,828

Note: This table presents the results of the analysis that examines whether the information content of earnings announcement changed in GFC years relative to the pre-GFC years. Model 1 presents the results for the full sample while Model 2 and Model 3 present the results for the non-financial and financial firms' sample, respectively. The dependent variable in all models is *AVAR*. All continuous variables are winsorized at 1st and 99th percentile. All regressions included industry fixed effects and robust standard errors are clustered at firm level. All variables are as defined in **Error! Reference source not found.**Table 1. The t-values are provided in the parentheses. *,**,*** indicate significance at 10%, 5% and 1% levels, respectively.

Table 6. Regression results – Change in the information content of earnings announcements – Big4 versus non-Big4 auditors

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
GFC	0.207	0.228	0.193	0.127	0.309	0.460
	(7.435)***	(3.188)***	(6.482)***	(1.542)	(3.870)***	(3.159)***
UE	0.505	0.719	0.209	0.813	1.663	-0.125
	(1.916)*	(1.361)	(0.738)	(1.251)	(2.519)**	(-0.119)
REPLAG	-0.002	0.002	-0.002	0.000	-0.004	0.005
	(-1.639)	(0.868)	(-1.466)	(0.130)	(-1.159)	(1.019)
LEV	0.046	-0.181	0.088	-0.115	-0.423	-0.085
	(0.698)	(-0.905)	(1.250)	(-0.507)	(-1.999)**	(-0.185)
LOSS	-0.289	-0.302	-0.301	-0.334	-0.220	-0.172
	(-6.159)***	(-3.177)***	(-6.195)***	(-3.213)***	(-1.142)	(-0.679)
SIZE	0.017	0.109	0.017	0.123	-0.036	0.073
	(1.172)	(2.729)***	(1.069)	(2.325)**	(-0.986)	(1.095)
DISP	-5.204	-4.487	-5.165	-4.797	-1.663	-3.280
	(-4.524)***	(-1.699)*	(-4.214)***	(-1.603)	(-0.570)	(-0.586)
NUMEST	0.005	0.026	0.003	0.010	0.044	0.056
	(1.600)	(2.060)**	(0.702)	(0.616)	(4.455)***	(2.942)***
Intercept	-0.223	-0.790	-0.196	-0.626	0.551	-0.961
	(-1.565)	(-2.405)**	(-1.302)	(-1.525)	(1.618)	(-1.580)
Ind. Dummies	YES	YES	YES	YES	No	NO
R^2	0.05	0.07	0.05	0.06	0.05	0.05
N	10,844	2,031	9,750	1,297	1,094	734

Note: This table presents the results of the analysis that examines whether the increase in the information content of earnings announcements in the GFC years compared to pre-GFC years is lower for firms audited by Big 4 audit firms. Model 1 and Model 2 presents this comparison for the full sample. In particular Model 1 examines the change in *AVAR* for firms audited by the Big 4 audit firms from pre-GFC to GFC years while Model 2 examines the same for the firms audited by the non-Big 4 auditors. Model 3 and Model 4 provide the same comparison for the non-financial firms while Model 5 and Model 6 do so for the financial firms. The dependent variable in all models is *AVAR*. All continuous variables are winsorized at 1st and 99th percentile. All regressions included industry fixed effects and robust standard errors are clustered at firm level. All variables are as defined in Table 1. The t-values are provided in the parentheses. *,**,*** indicate significance at 10%, 5% and 1% levels, respectively.

Table 7. Regression results – Change in the information content of earnings announcements – Effect of auditors' independence

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
GFC	0.221	0.198	0.202	0.215	0.248	0.171
	(6.014)***	(5.487)***	(5.618)***	(5.833)***	(6.575)***	(4.798)***
BIG4	0.202	0.138	0.134	0.209	0.082	0.045
	(3.446)***	(2.610)***	(2.577)**	(3.491)***	(1.776)*	(0.498)
UE	0.364	0.648	0.579	0.427	0.498	0.218
	(0.963)	(2.166)**	(1.948)*	(1.125)	(1.628)	(0.598)
REPLAG	-0.002	0.000	0.000	-0.002	0.001	-0.006
	(-1.337)	(0.211)	(0.018)	(-1.095)	(0.996)	(-3.576)***
LEV	-0.019	0.015	0.020	-0.030	-0.042	-0.083
	(-0.221)	(0.175)	(0.234)	(-0.339)	(-0.487)	(-0.881)
LOSS	-0.245	-0.308	-0.305	-0.247	-0.224	-0.288
	(-4.089)***	(-5.448)***	(-5.405)***	(-4.103)***	(-4.117)***	(-4.239)***
SIZE	0.020	0.061	0.062	0.017	0.080	-0.063
	(1.107)	(3.070)***	(3.136)***	(0.952)	(3.518)***	(-3.213)***
DISP	-4.499	-5.007	-5.185	-4.345	-5.724	-2.760
	(-2.747)***	(-3.568)***	(-3.731)***	(-2.594)***	(-4.189)***	(-1.621)
NUMEST	0.007	0.002	0.001	0.008	0.017	0.004
	(1.588)	(0.385)	(0.312)	(1.693)*	(2.969)***	(1.009)
Intercept	-0.352	-0.670	-0.654	-0.360	-0.760	0.602
	(-1.952)*	(-3.733)***	(-3.669)***	(-2.010)**	(-3.902)***	(2.851)***
Ind. Dummies	YES	YES	YES	YES	YES	YES
R^2	0.04	0.06	0.06	0.04	0.06	0.04
N	6,437	6,438	6,437	6,438	6,437	6,438

Note: This table presents the results of the analysis that examines whether the increase in the information content of earnings announcements in the GFC years compared to pre-GFC years is lower for firms where auditors were fee dependent of their client. Model 1 and Model 2 compare the increase in the information content of earnings announcements by splitting the full sample into two sub-samples: the one where auditors receive audit fee which is equal to or lower than the median audit fee for the full sample (Model 1) and Model 2 where auditors received audit fee that was greater than the median audit fee for the full sample. Model 3 and Model 4 present the same comparison based on the non-audit fee while Model 5 and Model 6 present the same comparison for the total fee paid to the auditors. The dependent variable in all models is *AVAR*. All continuous variables are winsorized at 1st and 99th percentile. All regressions included industry fixed effects and robust standard errors are clustered at firm level. All variables are as defined in Table 1.The t-values are provided in the parentheses. *,**,*** indicate significance at 10%, 5% and 1% levels, respectively.

Table 8. Regression results – Change in the information content of earnings announcements – Effect of pre-GFC information of information richness.

	Model 1	Model 2	Model 3
GFC	0.243	0.258	0.179
	(6.542)***	(6.963)***	(4.890)***
IRICH	-0.542	-0.612	-0.018
	(-1.009)	(-0.305)	(-2.848)***
GFC*IRICH	-0.030	-0.043	0.103
	(-0.648)	(-0.928)	(2.083)**
BIG4	0.159	0.161	0.154
	(3.629)***	(3.640)***	(3.505)***
UE	0.571	0.478	0.519
	(2.085)**	(1.777)*	(1.950)*
REPLAG	-0.000	-0.000	-0.001
	(-0.350)	(-0.371)	(-0.578)
LEV	-0.024	-0.028	-0.021
	(-0.357)	(-0.410)	(-0.315)
LOSS	-0.287	-0.289	-0.288
	(-6.185)***	(-6.175)***	(-6.305)***
SIZE	0.031	0.032	0.040
	(2.094)**	(2.161)**	(2.666)***
DISP	-4.737	-4.583	-4.686
	(-3.901)***	(-3.435)***	(-3.854)***
NUMEST	0.004	0.004	0.017
	(1.225)	(1.307)	(3.027)***
Intercept	-0.425	-0.439	-0.449
	(-3.012)***	(-3.117)***	(-3.197)***
Ind. Dummies	YES	YES	YES
R^2	0.05	0.05	0.05
N	11,620	11,581	11,699

Note: This table presents the results of the regression analysis to test whether the increase in the information content of earnings announcements is driven by the decline in the richness of the pre-GFC information environment. Model 1, Model 2 and Model 3 respectively use, the pre-GFC higher than median level of analysts following, lower than median earnings surprise and dispersion of analysts' forecasts as the measure of richness of pre-GFC information quality.

Dependent variable, *AVAR*, is the volatility of abnormal returns during the three day window around earnings announcements. All continuous variables are winsorized at 1st and 99th percentile. All regressions included industry fixed effects and robust standard errors are clustered at firm level. All variables are as defined in Table 1. The t-values are provided in the parentheses. *,**,*** indicate significance at 10%, 5% and 1% levels, respectively.

Table 1. Regression results – Change in the information content of earnings announcements –
Propensity score matching

	Model 1	Model 2	Model 3
GFC	0.208	0.165	0.283
	(7.112)***	(5.388)***	(3.332)***
BIG4	0.138	0.100	0.109
	(3.005)***	(1.883)*	(0.920)
UE	0.367	0.261	0.912
	(0.973)	(0.717)	(0.896)
REPLAG	-0.001	-0.002	-0.004
	(-1.232)	(-1.381)	(-1.074)
LEV	0.037	0.061	-0.505
	(0.520)	(0.792)	(-2.502)**
LOSS	-0.293	-0.317	-0.158
	(-5.794)***	(-6.068)***	(-0.703)
SIZE	0.019	0.025	-0.047
	(1.285)	(1.478)	(-1.151)
DISP	-5.296	-6.072	-10.862
	(-3.451)***	(-3.580)***	(-2.142)**
NUMEST	0.006	-0.002	0.061
	(1.793)*	(-0.659)	(5.556)***
Intercept	-0.349	-0.237	0.501
	(-2.416)**	(-1.497)	(1.554)
Ind. Dummies	YES	YES	NO
R^2	0.05	0.05	0.06
N	9,744	8,624	1,014

Note: This table presents the results of the propensity based matched sample regression analysis to test whether the information content of earnings announcement changed in GFC years relative to the pre-GFC years.. Model 1 and Model 2 presents the results of the non-financial firms. Model 3 and Model 4 present the results for the financial firms. Dependent variable, *AVAR*, is the volatility of abnormal returns during the three day window around earnings announcements. All continuous variables are winsorized at 1st and 99th percentile. All regressions included industry fixed effects and robust standard errors are clustered at firm level. All variables are as defined Table 1. The t-values are provided in the parentheses. *,**,*** indicate significance at 10%, 5% and 1% levels, respectively.