Going-Concern Decisions and the Global Financial Crisis

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ABSTRACT

The "Global Financial Crisis" (GFC) has had a significant impact on the auditing profession, audit firms, and their clients. This paper replicates and extends prior studies that have investigated auditor going-concern reporting in the wake of audit failures (e.g., Feldmann and Read, 2010) and economic catastrophe (e.g., Geiger et al., 2014) by examining audit opinions issued by Big 4 and non-Big 4 audit firms to 305 U.S. pre-bankruptcy companies from 2008–2014. This paper uses logistic regression models to examine whether the likelihood of issuing a GCO was influenced by the GFC and, if so, whether such influence persisted in the periods that followed the GFC, and whether reporting behavior and persistence differed by audit firm size. The authors find that auditors behaved more conservatively during the GFC by issuing higher levels of going-concern opinions and this behavior persisted in the two years immediately following. The eventual waning in conservatism that occurs after the two-year period beyond the GFC is primarily associated with Big 4 audit firms; the reporting behavior of non-Big 4 firms did not significantly differ across time periods.

JEL Classification: M4

Keywords: going-concern audit opinions; type II misclassifications; audit firm size; bankruptcy; auditor conservatism; global financial crisis

I.   INTRODUCTION

Prior research has found that significant legal, economic, and regulatory events have had a material impact on auditor reporting decisions. Specifically, research has indicated that events such as passage of the Private Securities Litigation Reform Act (PSLRA) of 1995, the financial reporting/audit failures of the late 1990s (e.g., Enron and their audit firm, Arthur Andersen), passage of the Sarbanes-Oxley Act of 2002 (SOX), and the Global Financial Crisis (GFC) (2007-2009) have significantly impacted auditor conservatism as determined by examination of the going-concern opinion (GCO) decisions of auditors.

Geiger et al. (2014) and Beams and Yan (2015) are two relatively recent studies of GCO decisions within the context of the GFC. The former study, based on a sample of companies that filed bankruptcy between 2004 and 2010, documented a significant increase in the likelihood of a bankrupt company receiving a GCO opinion immediately prior to bankruptcy during the GFC relative to before the GFC. The latter study differed from the former in the following ways: it studied the persistence of auditor conservatism subsequent to the end of the GFC, and it focused on first-time GCOs examining a sample of financially distressed U.S. firms (as opposed to financially distressed firms that filed for bankruptcy) in 2005-2011. They also found that distressed companies were more likely to receive a first-time GCO during the GFC, consistent with increased auditor conservatism, but that the effect waned by 2010.

Our paper re-examines whether the likelihood of an auditor issuing a GCO to a financially distressed client who subsequently files bankruptcy increased during the GFC relative to the pre-GFC period. Assuming findings consistent with prior research (i.e., that the likelihood of issuing a GCO does increase during the GFC), this paper examines whether this increased auditor conservatism persists after the GFC has concluded and whether there are differences in the reporting decisions of Big 4 and non-Big 4 firms. This study differs from Geiger et al. (2014) and/or Beams and Yan (2015) in the following ways. First, the cutoff dates of time periods reviewed in this study differ, and the authors investigate the GCO reporting behavior during the GFC *relative* to the surrounding periods, pre- and post-GFC. Following methodology employed in Feldmann and Read (2010) (who studied GCO decisions post-ENRON bankruptcy), this paper examines four time periods – pre-GFC (audit opinions dated before September 1, 2008, the date identified by Geiger et al. (2014) as the start of the GFC), GFC (audit opinions dated September 1, 2008 to June 30, 2010), and post-GFC (July 1, 2010 to June 30, 2012 and July 1, 2012 to May 5, 2014)[1].

Second, the authors' sample is comprised of financially distressed U.S. companies that subsequently filed for bankruptcy, controlling for companies that had previously received a GCO. Beams and Yan (2015) studied financially distressed U.S. companies, regardless of whether they filed for bankruptcy, and focused on first-time GCO decisions. Third, the paper extends the study of differences in reporting behavior between Big 4 and non-Big 4 audit firms during the GFC and in the period before and the periods after. Finally, this paper heeds the call made in Geiger et al. (2014) and provides some additional evidence concerning client size-based differences in GCO reporting within the context of the GFC.

The remainder of this paper is organized as follows. The next section discusses the background for this study and provides the development of research questions. This is followed by a description of the research method and data used for the analyses. After

presenting the results of the main analysis as well as additional and sensitivity analyses, the paper concludes with a summary.

II.   BACKGROUND AND DEVELOPMENT OF RESEARCH QUESTIONS

A.   Going Concern Reporting and Client Bankruptcy

The Public Company Accounting Oversight Board's (PCAOB) AS 2415 requires auditors to evaluate their client's ability to continue as a going-concern (GC) for a "reasonable period of time" (defined as no more than one year from the client's financial statement date). If the auditor, based on procedures performed and evidence gathered during the audit, believes there is "substantial doubt" about the client's ability to continue as a GC, the auditor is required to inquire of management's plans to mitigate the cause of the auditor's "substantial doubt" and to assess the likelihood that management's plan will be effective. If, after evaluating management's plan, the auditor continues to have "substantial doubt," an explanatory paragraph reflecting this conclusion should be included in the auditor's opinion.

Section .04 of AS 2415 is clear that auditors are not responsible for predicting the future. As such, the issuance of a GCO should not be interpreted as a predictor of client bankruptcy, liquidation or merger. This means that issuance of a GCO should not be viewed as a forecast of impending client bankruptcy. Conversely, client bankruptcy that occurs subsequent to issuance of a "clean opinion" (i.e. an unqualified opinion that does not include a going concern modification) does not, in itself, signal audit deficiency.

Despite this, however, Geiger, Raghunandan, and Rama (1998) assert that issuers, financial statement users, and legislators often consider a reporting error to have occurred when the auditor renders a "clean opinion" on the financial statements immediately prior to the issuer (client) filing bankruptcy. The relationship between GC reporting and bankruptcy has received substantial attention from researchers, legislators, politicians, and the press, among others (Geiger et al., 2014). As Geiger et al. (2014) note, prior empirical research has found that roughly half of U.S. public companies filing bankruptcy received a GCO on the most recent financial statements filed prior to commencement of the bankruptcy process. Carson et al. (2013) provide a comprehensive review of GC research.

B.   Impact of Significant Legal, Regulatory, and Economic Events on Auditor Going-Concern Decision-Making

Prior research has examined the impact of significant legal, regulatory, and economic events on auditor behavior, including on the conservatism of U.S. auditor GCO decisions. Geiger and Raghunandan (2001) studied the impact of the PSLRA. Because the PSLRA was perceived to reduce auditor litigation costs, Geiger and Raghunandan (2001) examined whether the likelihood that a bankrupt company receiving a prior GCO decreased after enactment of the PSLRA. Their findings indicated that bankrupt companies with "low" (but not "high") financial stress were less likely to receive a GCO prior to bankruptcy subsequent to enactment of the PSLRA.[2]

Francis and Krishnan (2002) also studied the impact of the PSLRA, but focused on differences in the GCO decisions of Big 6 versus non-Big 6 firms. They found that

subsequent to the passage of the PSLRA, both Big 6 and non-Big 6 auditors became less conservative, although the decline in non-Big 6 auditor conservatism was not as pronounced as the decline in Big 6 auditor conservatism. Geiger, Raghunandan, and Rama (2006) conducted a similar study, but found that while Big 6 auditors became less conservative post-PSLRA, the behavior of non-Big 6 auditors did not change.

Nogler (2008) examined the impact of the bankruptcy of ENRON on auditor GCO decisions. He concluded that auditors issued more GCOs post-ENRON (i.e., reported more conservatively), but that the findings varied by audit firm size and the industry in which the audit client operated. Further, the effect waned over the four-year post-ENRON bankruptcy period studied. Feldmann and Reed (2010) also found evidence of increased conservatism in auditor GCO reporting decisions subsequent to the bankruptcy of ENRON, although the conservative behavior did not persist into the fifth and sixth calendar years subsequent. Finally, Myers et al. (2013) find that non-Big N auditors (but not Big N auditors) became more conservative in the GCO decisions post-ENRON (i.e., 2002-2006).

Geiger et al. (2005) studied the effect of the changes in audit regulation brought by the Sarbanes-Oxley Act of 2002 (SOX). The authors suggested the regulatory changes brought by the passage of SOX incented auditors to behave more conservatively in the post-SOX period in an effort to enhance their reputations (damaged by a multitude of audit failures, such as ENRON and WorldCom), reduce the risk of litigation, and stave off additional regulatory scrutiny. More specifically, they hypothesized bankrupt companies would be more likely to receive a GCO prior to bankruptcy in the post-SOX period. The authors' hypothesis was confirmed based on data on bankruptcies that occurred through December 29, 2003.

Geiger et al. (2014) examined the effect of the global financial crisis (GFC) on auditor GCO decisions. Because of the significant impact the GFC had on companies, markets, and financial systems and the concerns formally communicated by the PCAOB to auditors (regarding GCO reporting), the authors hypothesized that auditors were more likely to issue a GCO prior to a bankruptcy during the GFC. Using a sample of companies that filed bankruptcy between 2004 and 2010, the authors found that, indeed, there was a significant increase in the likelihood of a bankrupt company receiving a GCO opinion immediately prior to bankruptcy during the GFC relative to before the GFC.

Beams and Yan (2015) studied the effect of the GFC on auditor conservatism relative to first-time GCO decisions and further, unlike Geiger et al. (2014), studied the persistence of auditor conservatism subsequent to the end of the GFC. Also unlike Geiger et al. (2014), the authors' sample included financially distressed U.S. firms (as opposed to financially distressed firms that filed for bankruptcy – presumably the more severe cases – that were examined by Geiger et al. (2014)). The sample included distressed firms in 2005-2011. The authors found that distressed companies were more likely to receive an initial GCO during the GFC, consistent with increased auditor conservatism, but the effect waned by 2010.

Prior research, particularly Geiger et al. (2014) and Beams and Yam (2015), leads to the following[3]:

H1: Audit firms are more likely to issue a GCO to companies that subsequently file for bankruptcy during the GFC period than in the period that precedes the GFC.

C.   Persistence of Auditor Conservatism Following Significant Economic Events

As previously noted, Nogler (2008) examined the impact of the bankruptcy of ENRON on auditor GCO decisions. He concluded that auditors issued more GCOs post-ENRON (i.e., reported more conservatively), but the effect waned over the four-year post-ENRON bankruptcy period studied (2002-2005).

Feldmann and Read (2010) studied the persistence of the "ENRON effect" on auditor conservatism in GCO reporting. They noted that it was unclear whether the increased auditor conservatism post-ENRON would persist over time. As such, they examined GCOs issued during four time periods spanning 2000-2007 (and bankruptcies filed through August 2008). There findings indicate a significant "ENRON effect" in 2002, 2003, 2004 and 2005, but not in 2006 and 2007, when the likelihood of a bankrupt company receiving a GCO prior to bankruptcy returned to pre-ENRON levels. The authors conclude the impact of ENRON on the conservativeness of auditor reporting appears to have been temporary.

Clearly the financial reporting failures and audit failures (e.g., ENRON) that lead to passage of SOX had a significant impact on public companies, their managers and employees, investors, creditors and auditors. Financial reporting failures led to losses for investors, creditors, and employees and litigation against the company and corporate executives, and often led to corporate bankruptcy. The related audit failures lead to litigation losses and reputational damage to involved audit firms. The additional regulation (i.e., SOX) and oversight (e.g., PCAOB) that resulted, however, impacted all public companies (e.g., corporate governance, internal controls over financial reporting) and the auditors of these companies (e.g., required PCAOB inspections).

As significant as the financial reporting failures, the audit failures, the passage of SOX, and the creation of the PCAOB were, it is reasonable to expect the impact of the GFC on audit clients and audit firms (as well as on investors, creditors, employees, markets and economies) was much more significant and pervasive. The GFC led to the "Great Recession" in the U.S. There was significant impact on employment, housing, the credit markets, the equity markets, government spending and deficits, government regulation, and the financial system in general. The impact was felt by individuals and institutions. In all likelihood, *every* U.S. public company was adversely impacted financially by the GFC, whether it be from decreased revenues (due to pricing pressure or lower demand), increased costs (including the costs of capital), or less access to capital.

As previously noted, the economic impact of the GFC on U.S. companies lead to increased audit risk and litigation for audit firms[4] and greater scrutiny from regulators and legislators (for a more detailed discussion, see Geiger et al. (2014)). Thus, it is reasonable to believe that any increase in auditor conservatism resulting from the GFC might be more persistent. Additionally, the GFC negatively impacted many individuals, including those auditors who are involved in making the GCO decision. Like with U.S. companies, the GFC made it more difficult for individuals to obtain credit. Real estate property values declined (sometimes causing the fair value of the property to be less than the loan balance). Investment portfolios and retirement account balances shrank. In sum, the impact of the GFC on auditors who make GCO decisions, both professionally and personally, was more pervasive than it was, on average, in the past.

As previously noted, Beams and Yan (2015) studied the persistence of auditor conservatism subsequent to the end of the GFC, as they defined it. They found distressed

companies were no more likely to receive a first-time GCO post-GFC (2010-2011) than they were pre-GFC (2005-2006), suggesting that auditor conservatism returned to pre-GFC levels and the impact of the GFC on auditor reporting decisions was temporary. The differences between their study and this study (i.e., time periods utilized, sample selection criteria) are detailed above. The authors of this paper believe this study may yield differing results since (1) this paper analyzes distressed companies that ultimately went bankrupt (i.e., companies presumably experiencing more severe levels of financial distress) as opposed to distressed companies that may or may not have gone bankrupt; (2) this paper studies ALL GCOs, not just first-time GCOs; and (3) this paper's time periods differ significantly, and this paper studies two time periods subsequent to the GFC[5]. If auditor conservatism increased during the GFC, as prior research indicates, did this more conservative behavior persist post-GFC? And, if so, for how long? This leads to the following:

RQ1: If there is an increase in auditor conservatism during the GFC, will such increased conservatism in GCO reporting persist in periods subsequent to the GFC?

D.   The Effect of Audit Firm Size on Auditor Conservatism in the Going-Concern Decision

Francis and Krishnan (2002) assert that the behaviors of then Big 6 audit firms likely differed from those of other firms due to differences in firm reputation and clientele that lead to different incentives and risk-management policies. More specifically, Geiger et al. (2005, 29) state: "It is likely that loss functions and hence the threshold judgments related to going concern will vary across audit firms of different sizes." Historically, Big N auditors have reported more conservatively than other (smaller) auditors (DeFond and Subramanyam, 1998; Francis and Krishnan, 1999). Subsequent prior research, however, has been mixed regarding the impact of audit firm size on going-concern decisions.

As previously noted, Francis and Krishnan (2002) found that subsequent to the passage of the PSLRA (which reduced the likelihood of successful litigation against auditors) both Big 6 and non-Big 6 auditors became less conservative, although the decline in non-Big 6 auditor conservatism was not as pronounced as the decline in Big 6 auditor conservatism (i.e., non-Big 6 auditors reported more conservatively than Big 6 auditors post-passage). Francis and Krishnan (2002) suggest that non-Big 6 firms have become more conservative relative to Big 6 firms because of the potential high costs of litigation relative to fewer firm resources (in comparison with the costs and resources of Big 6 firms). Also as previously noted, Geiger et al. (2006) found that Big 6 auditors became less conservative after passage of the PSLRA, but that non-Big 6 auditors exhibited no such change in reporting behavior.

Focusing on auditor reporting behavior pre- and post-ENRON bankruptcy, Nogler (2008) hypothesized that the proportion of GCOs for clients entering bankruptcy (post-ENRON) would be greater for (then) Big 5/4 firms than for other firms. He found, however, that "smaller" firms became more conservative in the post-ENRON bankruptcy environment than did Big 5/4 firms and "second tier" firms. In their study of auditor conservatism after ENRON, Feldmann and Read (2010) included auditor firm size as a variable in their regression model, but it was insignificant, suggesting that auditor behavior after ENRON did not differ significantly between Big 4 and other firms.

In additional analysis, Geiger et al. (2005) considered the impact of audit firm size on auditor GCO decisions immediately prior to and subsequent to the passage of SOX. They found no significant differences in the reporting decisions of (then) Big 5 and non-Big 5 firms. In an examination of Type I and II GCO reporting errors prior to and subsequent to the enactment of SOX, Myers et al. (2013) suggested that non-Big N auditors may be more conservative in their going-concern reporting decisions due to the impact of the Act on litigation risk and because non-Big N firms have riskier clients, fewer resources, and are more at-risk when named in a lawsuit. Contrary to Geiger et al. (2005), their results indicated that indeed non-Big N auditors were more likely to issue a GCO after 2001.

Finally, Geiger et al. (2014) hypothesized the likelihood of issuing a GCO increased more for Big 4 firms than non-Big 4 firms following commencement of the GFC. Contrary to expectations, no significant differences between the GCO reporting behaviors of Big 4 firms and non-Big 4 firms were found. Rather, the probability of issuing a GCO significantly increased at the onset of the GFC for both Big 4 and non-Big 4 firms. Recall that Geiger et al. (2014) did not extend their analysis beyond the GFC period to examine whether the effect persisted post-GFC.

This mixed findings of prior research lead to the following research question:

RQ2: Will the GCO decisions of Big 4 and non-Big 4 firms differ during and/or subsequent to the GFC?

III.   RESEARCH METHOD

A.   Data

The authors begin by obtaining a list of firms from Audit Analytics and BankruptcyData.com that filed for bankruptcy between January 1, 2008 and December 31, 2014.The authors exclude duplicate filings, filings by privately-held companies, and filings by companies that lack necessary audit opinion data. Consistent with Feldmann and Read (2010) the authors use the audit report date to classify an observation into one of four time periods. Consistent with Geiger et al. (2014) and Feldmann and Read (2010), the authors limit the sample to those observations having an audit report date of 12 months or less prior to the bankruptcy filing date, eliminate firms in financial services (SIC: 6000–6999) and remove firms that are not in financial distress[6]. A firm is considered to be in financial distress if it possesses any one of the following: negative net income, negative retained earnings, negative working capital, or negative cash flows from operations (e.g., McKeown, Mutchler, and Hopwood, 1991; Geiger et al., 2005; Geiger et al., 2014). The process of confirming industry and determining financial distress also led to a reduction in sample size due to firms lacking the necessary data in Compustat or in 10-K filings in the SEC's EDGAR database. A final sample size of 305 observations resulted. See Table 1.

Table 1
Sample selection and description

	2014	2013	2012	2011	2010	2009	2008	Total
Company bankruptcies identified from Audit Analytics and BankruptcyData.com[a]	63	102	106	128	154	341	232	1,126
Less:								
Privately-held or lacking audit opinion data	22	45	39	43	70	127	70	416
In the financial services	3	5	5	9	20	35	17	94
No audit opinion within 1 year prior to bankruptcy	6	17	13	19	16	38	40	149
Not in Compustat / lacking control variables	3	12	10	18	9	49	56	157
Not financially distressed	0	1	0	0	0	1	3	5
Final Sample	**29**	**22**	**39**	**39**	**39**	**91**	**46**	**305**

[a] Observations classified by year in which bankruptcy filing occurred.

Final sample classified by audit opinion date

Year of Bankruptcy	7/1/2012 – 5/5/2014 Time Period 4	7/1/2010 – 6/30/2012 Time Period 3	9/1/2008 – 6/30/2010 Time Period 2	3/15/2007 – 8/31/2008 Time Period 1	Total
2014	29				29
2013	19				19
2012	1	3			4
2011		37	10		47
2010		30	38		68
2009		1	73	18	92
2008				46	46
Total	49	71	121	64	305

B.   Empirical Model

The authors employ logistic regression models with audit opinion type as the dependent variable and include control variables utilized in extant GC research (Geiger et al., 2005; Fargher and Jiang, 2008; Feldmann and Read, 2010; Geiger et al., 2014) to examine whether the likelihood of issuing a GCO was influenced by the GFC (H1) and, if so, whether such influence persisted in the periods that followed the GFC (RQ1), and whether reporting behavior and persistence differed by audit firm size (RQ2). Control variables include company size (measured as annual sales in millions), probability of bankruptcy measured by Hopwood's score[7], bankruptcy lag (the number of days between the audit opinion date and the bankruptcy filing date), audit report lag (the number of days between the fiscal year-end date and the audit opinion date), as well as indicator variables for the following: default status, receiving a GC modified opinion in the prior year, and client risk.

Following Feldmann and Read (2010) and Geiger et al. (2014), the variables of interest in these models are the time periods during which the audit opinion was rendered and auditor type. This study classifies an observation into *TIME1* if the audit opinion is dated prior to the start of the GFC (defined as September 1, 2008 per Geiger et al. (2014)) and on or after March 15, 2007 (the earliest audit opinion date in the sample). An observation is categorized into *TIME2* if the audit opinion was issued during the GFC, which the authors consider to be September 1, 2008 through June 30, 2010. This study selects the date June 30, 2010 as the cut-off for audit opinions issued during the GFC for the following reason. Geiger et al. (2014) report that the GFC officially ended in June of 2009 (NBER, 2010). The average length of time for the sample of firms from the end of the fiscal reporting year to the audit report date is 182 days or approximately 6 months. Thus, firms having a fiscal year end up through December 31, 2009 (i.e. at least half of their fiscal year occurred during the GFC) would have received their completed and signed audits on average by the end of June, 2010[8]. Observations are allocated to *TIME3* and *TIME4* if the audit opinion was dated July 1, 2010 through June 30, 2012 and July 1, 2012 through May 5, 2014, respectively[9]. Observations are also classified by auditor type – Big 4 or non-Big 4. The regression models are as follows:

$$Going\text{-}Concern\ (0,\ 1) = b_0 + b_1 SIZE + b_2 HOP + b_3 BKTLAG + b_4 AUDLAG + b_5 DEF$$
$$+ b_6 PRIORGC + b_7 RISKY + b_8 BIG4 + b_9 TIME2 \qquad \text{(Model 1)}$$

$$Going\text{-}Concern\ (0,\ 1) = b_0 + b_1 SIZE + b_2 HOP + b_3 BKTLAG + b_4 AUDLAG + b_5 DEF$$
$$+ b_6 PRIORGC + b_7 RISKY + b_8 BIG4 + b_9 TIME1 + b_{10} TIME3 + b_{11} TIME4 \quad \text{(Model 2)}$$

where *Going-Concern* = 1 when the firm received a GCO. Variable definitions:
SIZE = natural log of sales (in millions of dollars);
HOP = Hopwood bankruptcy probability score, see Feldmann and Read (2010);
BKTLAG = square root of the number of days from audit report date to bankruptcy date;
AUDLAG = square root of the number of days from fiscal year end to audit report date;
DEF = 1 if the company is in default, else 0;
PRIORGC = 1 if company received an opinion modified for going concern in the previous year, else 0;
RISKY = 1 if company operates in a risky industry[10], else 0;
BIG4 = 1 if Big 4 auditor, else 0;
TIME1 = audit opinion dated between 3/15/2007 and 8/31/2008 (Pre-GFC period);
TIME2 = audit opinion dated between 9/1/2008 and 6/30/2010 (GFC period);
TIME3 = audit opinion dated between 7/1/2010 and 6/30/2012 (1st Post-GFC period);
TIME4 = audit opinion dated between 7/1/2012 and 5/5/2014 (2nd Post-GFC period).

Following Geiger et al. (2014), model one includes only *TIME2* and is the coefficient of interest with respect to determining whether the likelihood of issuing a GCO was affected during the GFC and similar to Feldmann and Read (2010), the authors exclude *TIME2* (the GC period) in model 2 in order to compare the variables *TIME1*, *TIME3*, and *TIME4* to *TIME2*. A negative coefficient on any of these variables indicates that the likelihood of receiving a GC modified opinion is lower in those periods relative to the GFC period.

IV.   RESULTS

Table 2 presents audit opinion data organized by time period and by auditor type for the 305 firms in the sample. Recall that the earliest (latest) audit opinion in the sample was rendered on March 15, 2007 (May 5, 2014) and that bankruptcy was entered into, on average, six months later. The significant impact of the GFC on companies and auditors can be noted by the number audit opinions given during each time period that later led to a bankruptcy filing. Audit opinions issued during the GFC period (*TIME2*) gave rise to the highest number (121) of future bankruptcies. In the pre-GFC period (*TIME1)*, there were 64 subsequent bankruptcies filed and post-GFC there were 71 (during *TIME3*) and 49 (during *TIME4*) subsequent bankruptcies filed, respectively. During the GFC period, 79 percent of firms that subsequently filed for bankruptcy received a GCO, more than any other period. Conversely, during the GFC 21 percent of subsequently bankrupt firms received a non-modified opinion, a percentage lower than the pre- and post-GFC periods (39 percent, 34 percent, and 33 percent, respectively). Stated differently, auditors committed the least number of type II misclassifications during the GFC than in the preceding and subsequent periods. The authors of this paper also observe that non-Big 4 auditors issued a higher proportion of GCOs than Big 4 firms in all time periods. Further, where Feldmann and Read (2010) find the percentage of type II errors for the most recent two-year period (i.e. *TIME3* and *TIME4*) is comparable to the period prior to Enron and SOX, this study observes a similar trend but only for Big 4 auditors with a 48 percent rate of misclassification that is trending toward the pre-GFC percentage (54 percent). However, the rate of type 2 errors for non-Big 4 firms *decreased* in *TIME4* relative to *TIME1*. Collectively, Table 2 provides some initial evidence that conservatism in GCO reporting may have differed between Big 4 and non-Big 4 audit firms during the periods of analysis.

The descriptive statistics for all control variables in the model for all companies in the sample are presented in Panel A of Table 3. Following prior research, this study partitions the data by time period and opinion type and identify variables that are significantly different between bankrupt firms receiving a GCO and those not receiving a GCO (No GCO). Similar to Feldmann and Read (2010), when examined with all time periods combined, companies that have a higher bankruptcy probability score, a shorter bankruptcy lag, a longer audit report lag, are in default, received a GCO in the prior year, or have a non-Big 4 auditor are *more* likely to receive a GCO, but significance of some of these variables is lost across individual time periods. The riskiness of the client does not appear to be significantly related to the likelihood of receiving a GCO in any time period. With respect to observations in specific time periods: the average Hopwood bankruptcy probability score, and the Hopwood score of companies receiving a GCO, of 56.05 and 69.17 respectively, is highest during *TIME2* (i.e. the GFC); companies having higher sales (i.e. larger companies) had a higher Hopwood score and received more of the GCOs in *TIME2* and *TIME4*, and the majority of non-GCOs were issued by the Big 4 firms and this difference is significant in *TIME1* and *TIME4*.

Table 2
Audit opinions for bankrupt firms by time period: Number and percentage

	Time Period														
	3/15/2007 –8/31/2008 Time Period 1 (Pre-GFC)			9/1/2008 – 6/30/2010 Time Period 2 (GFC)			7/1/2010 – 6/30/2012 Time Period 3 (Post-GFC I)			7/1/2012 – 5/5/2014 Time Period 4 (Post-GFC II)			Totals		
Type of Audit Opinion	All Firms	Firms w/ Big4 Auditor	Firms w/ Non-Big4 Auditor	All Firms	Firms w/ Big4 Auditor	Firms w/ Non-Big4 Auditor	All Firms	Firms w/ Big4 Auditor	Firms w/ Non-Big4 Auditor	All Firms	Firms w/ Big4 Auditor	Firms w/ Non-Big4 Auditor	All Firms	Firms w/ Big4 Auditor	Firms w/ Non-Big4 Auditor
Going-Concern Modified	**39**	13	26	**96**	38	58	**47**	14	33	**33**	12	21	**215**	77	138
	61%	46%	72%	**79%**	73%	84%	**66%**	54%	73%	**67%**	52%	81%	**71%**	60%	78%
Not Modified	**25**	15	10	**25**	14	11	**24**	12	12	**16**	11	5	**90**	52	38
	39%	54%	28%	**21%**	27%	16%	**34%**	46%	27%	**33%**	48%	19%	**29%**	40%	22%
Total Sample	**64**	28	36	**121**	52	69	**71**	26	45	**49**	23	26	**305**	129	176
	100%	100%	100%	**100%**	100%	100%	**100%**	100%	100%	**100%**	100%	100%	**100%**	100%	100%

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Table 3
Descriptive statistics: Mean by time period and by opinion type

Panel A: Entire sample of firms

TIME PERIOD		N	SALES	HOP	BKT_DAYS	AUD_DAYS	DEF	PRIORGC	RISKY	BIG4
1	GC	39	119.62	23.06	188	90	0.26	0.38	0.31	0.33
	No GC	25	475.97	5.86	274	83	0.08	0.08	0.24	0.60
	Total	64	258.82***	16.34***	222***	87**	0.19*	0.27***	0.28	0.44**
2	GC	96	2,214.06	69.17	158	96	0.43	0.40	0.17	0.40
	No GC	25	1,057.70	5.67	225	82	0.00	0.08	0.24	0.56
	Total	121	1,975.14	56.05***	171***	93***	0.34***	0.33***	0.18	0.43
3	GC	47	236.10	39.46	166	92	0.21	0.62	0.21	0.30
	No GC	24	625.54	7.28	228	74	0.00	0.04	0.33	0.50
	Total	71	367.74*	28.58*	187***	86***	0.14***	0.42***	0.25	0.37
4	GC	33	655.05	32.79	140	111	0.36	0.42	0.33	0.36
	No GC	16	309.80	21.73	183	82	0.13	0.00	0.31	0.69
	Total	49	542.32	29.17	154*	101**	0.29*	0.29***	0.33	0.47**
Total	GC	215	1,162.46	48.73	162	96	0.34	0.45	0.23	0.36
	No GC	90	647.90	9.01	232	80	0.04	0.06	0.28	0.58
	Total	305	1,010.62	37.01***	183***	91***	0.25***	0.33***	0.24	0.42***

*, **, *** Significant difference between GC and No GC subsets at p-value < 0.10, < 0.05, or < 0.01, respectively.

Variable Definitions:
SALES = dollar of sales in millions; HOP = Hopwood bankruptcy probability score, see Feldmann and Read (2010); BKT_DAYS = days between the audit opinion date and bankruptcy date; AUD_DAYS = days between the fiscal year end and the audit opinion date; DEF = 1 if the company is in default, else 0;
PRIORGC = 1 if company received an opinion modified for going concern in the previous year, else 0; RISKY = 1 if company operates in a risky industry, else 0;
BIG4 = 1 if Big4 auditor, else 0; TIME1 = audit opinion dated between 3/15/2007 and 8/31/2008; TIME2 = audit opinion dated between 9/1/2008 and 6/30/2010;
TIME3 = audit opinion dated between 7/1/2010 and 6/30/2012; and TIME4 = audit opinion dated between 7/1/2012 and 5/5/2014.

Panel B: Firms in sample audited by a Big4 firm

TIME PERIOD		N	SALES	HOP	BKT_DAYS	AUD_DAYS	DEF	PRIORGC	RISKY
1	GC	13	309.39	13.30	162	88	0.15	0.15	0.31
	No GC	15	656.16	5.17	287	82	0.00	0.07	0.27
	Total	28	495.16**	8.95**	229***	84	0.07	0.11	0.29
2	GC	38	5,498.62	19.79	127	84	0.34	0.11	0.16
	No GC	14	1,671.06	7.34	253	81	0.00	0.07	0.21
	Total	52	4,468.13	16.44	161***	83	0.25***	0.10	0.17
3	GC	14	747.08	3.87	188	84	0.14	0.29	0.00
	No GC	12	1,063.49	6.06	232	65	0.00	0.00	0.33
	Total	26	893.11	4.88	208	75***	0.08	0.15**	0.15**
4	GC	12	1,677.07	18.60	120	97	0.17	0.17	0.17
	No GC	11	330.85	29.39	169	78	0.09	0.00	0.36
	Total	23	1,033.23*	23.76	144	88**	0.13	0.09	0.26
Total	GC	77	3,163.04	15.61	143	86	0.25	0.16	0.16
	No GC	52	954.58	11.08	240	77	0.02	0.04	0.29
	Total	129	2,272.81	13.79	182***	83***	0.16***	0.11**	0.21*

*, **, *** Significant difference between GC and No GC subsets at p-value < 0.10, < 0.05, or < 0.01, respectively.

Panel C: Firms in sample audited by a non-Big4 firm

TIME PERIOD		N	SALES	HOP	BKT_DAYS	AUD_DAYS	DEF	PRIORGC	RISKY
1	GC	26	24.74	27.95	201	91	0.31	0.50	0.31
	No GC	10	205.68	6.90	254	84	0.20	0.10	0.20
	Total	36	75.00**	22.10**	216	89	0.28	0.39***	0.28
2	GC	58	62.10	101.53	178	104	0.48	0.59	0.17
	No GC	11	277.06	3.55	188	84	0.00	0.09	0.27
	Total	69	96.37	85.91***	179	100***	0.41***	0.51***	0.19
3	GC	33	19.33	54.55	156	95	0.24	0.76	0.30
	No GC	12	187.59	8.50	225	84	0.00	0.08	0.33
	Total	45	64.20***	42.27*	174**	92**	0.18***	0.58***	0.31
4	GC	21	71.04	40.90	152	118	0.48	0.57	0.43
	No GC	5	263.49	4.86	213	90	0.20	0.00	0.20
	Total	26	108.05*	33.97***	163*	113*	0.42	0.46***	0.38
Total	GC	138	46.19	67.21	173	101	0.39	0.61	0.27
	No GC	38	228.24	6.17	220	85	0.08	0.08	0.26
	Total	176	85.50***	54.03***	183***	98***	0.32***	0.49***	0.27

*, **, *** Significant difference between GC and No GC subsets at p-value < 0.10, < 0.05, or < 0.01, respectively.

The authors then partition the data based on auditor type. Panels B and C present the descriptive statistics for the sub-sample of firms that are audited by a Big 4 or non-Big 4 firm, respectively. The data illustrates that Big 4 firms audit much larger companies in the sample (having average sales of $2,272.81 million, as noted in Panel B) than non-Big 4 firms (that audit companies with average sales of only $85.50 million, as noted in Panel C). The companies audited by Big 4 firms are far less financially distressed, with lower measures of *HOP*, *DEF*, and *PRIORGC* than those of non-Big 4 firms. In *TIME2* and *TIME4*, average sales were higher for companies receiving a GCO than a non-GCO from a Big 4 auditor, but that non-Big 4 firms consistently issued GCOs to the smaller client firms in all 4 time periods. Thus, the statistics in Panel A of Table 3 showing that larger firms received a GCO in *TIME2* and *TIME4* appears to be driven by the behavior of Big 4 audit firms.

The authors also examined the correlation matrix for the independent variables in the model. All correlations are less than 0.405 except for a 0.576 relationship between company size and auditor type and a 0.521 relationship between company size and receiving a prior GCO. Variance inflation factors (VIFs) were also calculated to assess possible multicollinearity with the variable SIZE having the highest VIF at 2.08. Prior research has identified multicollinearity to likely be a problem when the VIF is equal to 10.0 (Gujarathi, 1995) and since the VIF value for SIZE is far below this threshold, the authors do not believe multicollinearity will adversely affect the logistic regressions.

Results from the logistic regressions are presented in Table 4. All regressions have Chi-square measures that are significant at $p < 0.001$. This paper begins with discussing the results of Model 1 and Model 2 as they pertain to the full sample. With respect to the control variables, all coefficients are in the direction that has been documented in prior research (Geiger et al., 2014; Feldmann and Read, 2010) and the coefficients of *SIZE* (negative), *BKTLAG* (negative), *DEF* (positive)*, PRIORGC* (positive)*,* and *RISKY* (negative) are significantly associated with the likelihood of receiving a GCO in both models. Additionally, the control variable *BIG4* in both model 1 and model 2 for the full sample was positive and significant. This suggests that the GCO decisions of audit firms differ between the Big 4 and non-Big 4 firms.

Concerning this paper's time-based variables of interest, the authors find results that are consistent with Geiger et al. (2014). For model 1, the authors find a positive coefficient for *TIME2*, the time period associated with the GFC, that is significant at $p = .054$ indicating that there is a statistically significant increase in the overall probability of a subsequently bankrupt firm receiving a GCO during the GFC. For Model 2, the coefficients for all other time periods are negative and, similar to results obtained in Feldmann and Read (2010), the coefficient for *TIME4*, the time period farthest from the GFC, is significantly negative with $p=0.03$. Thus, there is a statistically significant decrease in the likelihood of receiving a GCO during the period farthest from the GFC relative to all other time periods. That said, there was NOT a statistically significant decrease in the likelihood of receiving a GCO during the two-year time period immediately following the GFC period, suggesting there was limited persistence of the GFC effect. With respect to H1 and RQ1, these findings support the argument that auditors behave more conservatively when their profession is likely to be under greater scrutiny (*TIME2*) and that this behavior persists through the two-year period immediately following the GFC period, but this conservatism subsequently wanes (in *TIME4*).

Table 4
Results of logistic regression

Going-Concern = b0 + b1SIZE + b2HOP + b3BKTLAG + b4AUDLAG + b5DEF + b6PRIORGC + b7RISKY + b8BIG4 + b9TIME2 (Model 1)

Going-Concern = b0 + b1SIZE + b2HOP + b3BKTLAG + b4AUDLAG + b5DEF + b6PRIORGC + b7RISKY + b8BIG4 + b9TIME1 + b10TIME3 + b11TIME4 (Model 2)

Variable	Model 1 Coefficient (Chi-Square)			Model 2 Coefficient (Chi-Square)		
	Full Sample	**Audited by Big4**	**Audited by Non-Big4**	**Full Sample**	**Audited by Big4**	**Audited by Non-Big4**
Constant	2.015 (0.760)	4.711 (1.949)	-0.259 (0.004)	2.506 (1.174)	5.573 (2.535)	0.177 (0.002)
SIZE	-0.469 (21.140)***	-0.317 (5.558)**	-0.747 (16.314)***	-0.471 (20.888)***	-0.354 (6.535)**	-0.778 (16.430)***
HOP	0.001 (0.028)	0.000 (0.942)	0.057 (3.994)**	0.001 (0.040)	0.000 (0.008)	0.058 (3.992)**
BKTLAG	-0.251 (25.395)***	-0.311 (17.007)***	-0.216 (7.105)***	-0.260 (25.457)***	-0.350 (17.851)***	-0.211 (6.742)***
AUDLAG	0.355 (2.796)*	0.113 (0.145)	0.639 (2.502)	0.390 (3.384)*	0.194 (0.398)	0.622 (2.243)
DEF	1.726 (8.530)***	2.538 (4.723)**	2.031 (6.691)**	1.802 (9.076)***	2.475 (4.574)**	1.948 (5.990)**
PRIORGC	2.000 (13.092)***	2.121 (5.584)**	1.329 (2.519)	1.955 (12.518)***	2.257 (6.076)**	1.452 (2.842)*
RISKY	-0.944 (4.442)**	-0.614 (0.819)	-1.342 (3.348)*	-0.921 (4.216)**	-0.539 (0.625)	-1.376 (3.480)*
BIG4	0.750 (3.385)*			0.783 (3.628)*		
TIME2	0.701 (3.718)*	0.852 (2.801)*	0.218 (0.136)			
TIME1				-0.655 (1.990)	-0.696 (1.053)	-0.404 (0.314)
TIME3				-0.427 (0.847)	-0.250 (0.141)	-0.380 (0.252)
TIME4				-1.132 (4.694)**	-1.913 (6.077)**	0.255 (0.092)
No. of Observations	305	129	176	305	129	176
Model Chi-Square	151.468***	62.312***	93.552***	153.006***	66.447***	94.192***
Cox and Snell R^2	39.1%	38.3%	41.2%	39.4%	40.3%	41.4%
Nagelkerke R^2	55.7%	51.7%	63.7%	56.1%	54.4%	64.0%

*, **, *** Significant difference between GC and No GC subsets at p-value < 0.10, < 0.05, or < 0.01, respectively (two-tailed tests).
Variable Definitions: SIZE = natural log of sales (in millions of dollars); BKTLAG = square root of the number of days from audit report date to bankruptcy date; AUDLAG = square root of the number of days from fiscal year end to audit report date. See TABLE 3 for definitions of all other variables.

With respect to RQ2, this paper partitions the data based on auditor type and re-run both models. The control variables *SIZE*, *BKTLAG*, and *DEF* are significant for both Big 4 and non-Big 4 sub-samples of firms and in the same direction as for the full sample analysis. However, *HOP* (*RISKY*) is positive (negative) and significantly associated at p < .05 (p < .10) with the likelihood of receiving a GCO from a non-Big 4 firm, and suggests that the GCO decisions of non-Big 4 firms may be influenced by a different set of company characteristics than Big 4 firms, a topic appropriate for future research.

This paper observes that the time-based variables of interest are significant only for the companies in the sample that are audited by Big 4 firms; in Model 1, the coefficient on *TIME2* is positive and significant at p < .10 and in Model 2, the coefficient on *TIME4* is negative and significant at p < .05. These findings suggest that Big 4 auditors behave more conservatively when their profession is likely to be under greater scrutiny (*TIME2*) and that this behavior persists through the two year period immediately following the GFC period, but this conservatism subsequently wanes (in *TIME4*).

None of the time periods are significant in either model with respect to the sample of firms that are audited by non-Big 4 auditors. This observation suggests that the primary findings for the full sample are driven by the reporting behavior of Big 4 audit firms, and that the reporting behavior of non-Big 4 audit firms does not significantly differ during the GFC or in *TIME4* relative to other time periods. Stated differently, the reporting behavior of non-Big 4 auditing firms did not significantly change during, or in the periods surrounding, the GFC, whereas the reporting behavior of Big 4 firms did and these results are in support of RQ2.

The authors collectively draw the following conclusions from Table 4: a subsequent bankrupt company in the sample was *more* likely to receive a GCO if they were smaller, had a higher bankruptcy probability score, a shorter lag time between audit opinion date and bankruptcy filing date, were in default on debts, had received a prior GCO, and did not operate in a risky industry. Additionally, with respect to the hypothesis and research questions, *during which period* the audit opinion was rendered had a significant effect on the likelihood of receiving a GCO, but only for companies audited by Big 4 firms. A company in the sample that received an opinion given during the GFC (*TIME2)* or the two-year time period thereafter (*TIME3)* was statistically more likely to receive a GCO relative to *TIME4*, but *only* from Big 4 auditors. Conservativism in GCO reporting appears to statistically wane in the period farthest from *TIME2* (i.e., *TIME4)*, but *only* for sample firms audited by Big 4 auditors.

V.   SENSIVITY AND ADDITIONAL ANALYSIS

A.   Robustness

First, this study changes the cut-off date for the GFC from June 30, 2010 to June 30, 2009 since this is the date that Geiger et al. (2014) report as the official end date to the GFC (per NBER 2010) and this study adjusts *TIME3* and *TIME4* variables accordingly[11]. Although the p-value for *TIME2* in model 1 falls just outside of significance (p=.111), results are very similar with respect to *TIME3* (not significant across all samples) and *TIME4* (significant for the full and Big 4 samples at p = .033 and .019, respectively). These results confirm those obtained in the primary analysis suggesting that the likelihood of receiving a GCO is less likely in the period farthest from the GFC relative

to other time periods and is not sensitive to the cut-off period this study selected for the primary analysis.

Second, following Feldmann and Read (2010), this study limits the sample to only those observations from *TIME2* and *TIME4* as a means of ensuring the robustness of the findings. The authors re-run model 2 and find the coefficient on *TIME4* remains significantly negative ($p = 0.05$), indicating that it is less likely to receive a GCO in *TIME4* relative to *TIME2*. This study also limits the sample to only those observations in *TIME1* and *TIME4* and re-run model 2. The authors find no significant difference between the likelihood of receiving a GCO between *TIME1* and *TIME4* ($p = 0.68$), which suggests that auditor reporting behavior does not significantly differ between *TIME4* and *TIME1*. Returning to the full sample, this paper also adds a dichotomous control variable coded 1 for companies that changed auditors. The variable is not significant in either model 1 or model 2 thus not changing the primary results.

B.   GFC Effects on Auditor Risk Assessments

Following Geiger et al. (2014), the authors include interaction terms in the main analyses to assess whether auditors weighted financial risk factors differently during the GFC in making the GCO decision. This paper includes both *TIME2*DEF* and *TIME2*HOP* in both models and re-run the analyses both on the full sample and after partitioning the full sample based on auditor firm size. Consistent with prior research, none of the interaction terms are significant in any of the regressions, providing no strong evidence that auditors, Big 4 or non-Big 4, weighted those financial risk factors differently during the GFC.

C.   Company Size

Geiger et al. (2014) suggest future research investigate client size effects on GCO reporting. In light of this, and to determine whether the results hold for both small and large companies, this paper partitions the sample based on the median value of *SIZE* and re-run the regressions in model 1 and model 2. The time variables of interest are not significant for the subset of smaller companies in both models, and neither is the Big 4 control variable. Hence, in smaller firms, neither the auditor type nor the time period is associated with the likelihood of receiving a GCO. However for larger clients, the Big 4 control variable is positive and significant at $p < .05$ in both models. Further, *TIME2* in model 1 is positive and significant ($p = 0.037$), *TIME1* in model 2 is negative and significant ($p = .023$) but *TIME4* in model 2 falls just outside of significance ($p=.100$). These results suggest that the findings in the main analysis may be significantly impacted by client size effects and, consistent with Francis and Krishnan (2002), it underscores different reporting behaviors of Big 4 firms possibly due to differences in firm reputation and clientele.

To further the investigation of an association among client size and auditor type, the authors include an interaction term *BIG4*SIZE* in models 1 and 2. The findings are presented in Table 5. The coefficient on *SIZE* is negative and significant at $p < .01$. Directional significance of all other control variables is in line with those obtained in the main analyses of the full sample and presented in Table 4, with the exception of *BIG4*. When including the interaction term *BIG4*SIZE*, the coefficient on *BIG4* becomes negative in both models and significant at $p < .10$ in model 1. The variables of interest

TIME2 and *TIME4* in model 1 and model 2, respectively, are significant in the directions obtained in main analyses. In both models, the interaction term is highly significant ($p <$ .001) and has a positive coefficient. Hence, and in addition to the conclusions drawn based on the data presented in Table 4, the likelihood of a Big 4 auditor issuing a GCO to a client firm in the sample is significantly dependent on company size.

Table 5
Results of logistic regression – Interacting Big 4 and size

$$Going\text{-}Concern = b_0 + b_1 SIZE + b_2 HOP + b_3 BKTLAG + b_4 AUDLAG + b_5 DEF$$
$$+ b_6 PRIORGC + b_7 RISKY + b_8 BIG4 + b_9 BIG4*SIZE + b_{10} TIME2 \quad \text{(Model 1)}$$

$$Going\text{-}Concern = b_0 + b_1 SIZE + b_2 HOP + b_3 BKTLAG + b_4 AUDLAG + b_5 DEF$$
$$+ b_6 PRIORGC + b_7 RISKY + b_8 BIG4 + b_9 BIG4*SIZE + b_{10} TIME1$$
$$+ b_{11} TIME3 + b_{12} TIME4 \qquad \text{(Model 2)}$$

Variable	Model 1 Coefficient (Chi-Square)	Model 2 Coefficient (Chi-Square)
Constant	3.063 (1.682)	3.496 (2.183)
SIZE	-0.808 (22.854)***	-0.801 (21.837)***
HOP	0.002 (0.167)	0.002 (0.165)
BKTLAG	-0.252 (23.875)***	-0.258 (23.495)***
AUDLAG	0.378 (3.202)*	0.402 (3.599)*
DEF	1.972 (10.054)***	2.018 (10.308)***
PRIORGC	1.633 (8.209)***	1.607 (7.934)***
RISKY	-0.775 (2.915)*	-0.762 (2.822)*
BIG4	-1.623 (3.154)*	-1.514 (2.682)
*BIG4*SIZE*	0.537 (7.950)***	0.519 (7.272)***
TIME2	0.613 (2.726)*	
TIME1		-0.624 (1.741)
TIME3		-0.384 (0.650)
TIME4		-0.899 (2.884)*
No. of Observations	305	305
Model Chi-Square	160.165***	160.949***
Cox and Snell R^2	40.9%	41.0%
Nagelkerke R^2	58.1%	58.3%

*, **, *** Significant with p-values of < 0.10, < 0.05, and < 0.01, respectively (two-tailed tests).
Variable Definitions: SIZE = natural log of sales (in millions of dollars); BKTLAG = square root of the number of days from audit report date to bankruptcy date; AUDLAG = square root of the number of days from fiscal year end to audit report date. See TABLE 3 for definitions of all other variables.

To identify whether the relationship between likelihood of receiving a GCO and the association of auditor type and client size was impacted by the GFC, the authors partition the data based on when the client received the audit opinion, either during the GFC (*TIME2*) or not, and the authors run the regression model presented in Table 6 without including the time-based variables of interest. During *TIME2*, this paper's proxy for the GFC, evidence suggests that neither auditor type (*BIG4*) or the interaction of auditor type and company size (*BIG4 * SIZE*) influenced the likelihood of receiving a GCO, nor did the control variables of *DEF* or *PRIORGC* as in the main analysis. However, *SIZE*, *HOP*, and *BKTLAG* were directionally significant as obtained in main analyses. Thus, it appears that conservativism in auditor reporting was not inherent to auditor type during the GFC.

Table 6
Results of logistic regression – Interacting Big 4 and size, based on time period

Going-Concern = b$_0$ + b$_1$SIZE + b$_2$HOP + b$_3$BKTLAG + b$_4$AUDLAG +b$_5$DEF + b$_6$PRIORGC+ b$_7$RISKY + b$_8$BIG4 + b$_9$BIG4*SIZE

Variable	TIME2 = 1 Coefficient (Chi-Square)	TIME2 = 0 Coefficient (Chi-Square)
Constant	4.576	2.691
	(0.944)	(0.799)
SIZE	-0.640	-0.984
	(4.688)**	(17.275)***
HOP	0.061	-0.008
	(3.495)*	(3.699)*
BKTLAG	-0.332	-0.221
	(10.219)***	(11.848)***
AUDLAG	0.247	0.480
	(0.289)	(3.432)*
DEF	20.114	0.974
	(0.000)	(1.806)
PRIORGC	1.282	2.128
	(1.530)	(8.361)***
RISKY	-1.318	-0.895
	(1.943)	(2.560)
BIG4	-0.983	-2.480
	(0.301)	(4.187)**
*BIG4*SIZE*	0.429	0.699
	(1.485)	(7.151)***
No. of Observations	121	184
Model Chi-Square	61.794***	106.706***
Cox and Snell R^2	40.0%	44.0%
Nagelkerke R^2	62.6%	60.5%

*, **, *** Significant with p-values of < 0.10, < 0.05, and < 0.01, respectively (two-tailed tests).

Variable Definitions: SIZE = natural log of sales (in millions of dollars); BKTLAG = square root of the number of days from audit report date to bankruptcy date; AUDLAG = square root of the number of days from fiscal year end to audit report date. See TABLE 3 for definitions of all other variable

However, for the sample of firms that subsequently went bankrupt and received an audit opinion either before or after the GFC, all control variables in the model except for *DEF* and *RISKY* are significantly associated with the dependent variable. This suggests that during the periods in the sample that are outside of the GFC, auditors relied more heavily on aspects of assessing going concern that have been well documented in associated literature. Similar to the results presented in Table 5, the coefficient on BIG4 is negative and significant at p < .05, yet the interaction term between *BIG4*SIZE* is again positive and significant at p < .01. It appears that, in periods other than the GFC, a marked difference in GCO reporting behavior exists between Big 4 and non-Big 4 firms and this difference is significantly attenuated by company size. As did Geiger et al. (2014) the authors suggest future research to further investigate the effects of company size on audit firms (Big 4 and non-Big 4) when making the GCO decision.

VI.   SUMMARY

Prior research suggests that the GFC had a significant impact on auditor GCO decisions. Specifically, auditors became more conservative, being more likely to issue a GCO to financially distressed pre-bankruptcy U.S. companies (Geiger et al., 2014) and a first-time GCO to financially distressed U.S. companies (Beams and Yan, 2015). Beams and Yan (2015) further studied a two-year post-GFC period and found that the conservatism exhibited during the GFC period did not persist once the GFC was over.

In this study, the authors examine auditors' GCO decisions for financially distressed companies that subsequently file bankruptcy before, during, and subsequent to the GFC. The study also analyzes whether reporting behavior and its persistence differed by audit firm size in the time periods. The sample consists of 305 financially distressed companies that filed for bankruptcy between 2008 and 2014. After controlling for variables that historically have impacted (or could potentially impact) the GCO decision, the authors find, consistent with prior research, that there is an overall significant increase in the probability of a firm receiving a GCO prior to filing for bankruptcy during the GFC, although this is driven by Big 4 firms. Further, the authors find that the "GFC effect" did persist for Big 4 firms in the two years immediately following the end of the GFC, but not in the period thereafter. In other words, increased conservatism by Big 4 firms during the GFC period (*TIME 2)* persisted in the time period immediately thereafter (*TIME 3) but* disappeared in the following period (*TIME 4)*, when Big 4 firms were *less* likely to issue a GCO. There was no significant "GFC effect" on non-Big 4 firms – these firms were no less likely to issue a GCO before or after the GFC than during the GFC. In summary, even a catastrophic series of events that broadly impacted the U.S. and the rest of the world in a variety of ways was not enough to have more than a temporary (e.g., two year) impact on Big 4 auditor conservatism and had no significant impact on the behavior of non-Big 4 firms.

Sensitivity testing of the time periods employed in the study and auditor weighting of risk factors yielded results that are consistent with the conclusion that the impact of the GFC on auditor conservatism was temporary. However, additional analysis of the

impact of company size yielded some interesting findings, particularly on the behavior of Big 4 auditors.

This paper contributes to the body of literature that examines the impact of legal, regulatory and economic events on auditor GCO decisions and the how these decisions vary by auditor type. Of note is that the GFC impacted the GCO decisions of Big 4 firms, but not of non-Big 4 firms. However, the GFC impact on Big 4 firms did not persist beyond the two-year time period immediately following the GFC. Through additional analysis, the authors find that company size impacted the GCO decisions of Big 4 firms and suggest there is an opportunity for further research.

Limitations of this study are consistent with similar prior studies. The sample excludes financial services firms. The authors lose a number of observations due to missing data or companies who did not receive an audit opinion within a year from the date in which they filed for bankruptcy. Finally, while sensitivity analysis suggests that the results were not driven by the time periods selected, the authors nonetheless acknowledge that the time periods, while supportable, are also debatable. While the start and end dates of the financial crisis have been estimated by many, including the U.S. Senate and the National Bureau of Economic Research, it is impossible to know when auditors perceived that the GFC had started and ended and when actual auditor GCO decisions were first influenced by the GFC.

ENDNOTES

1. Beam and Yan (2015) consider 2010 and 2011 to be the "post-crisis" years. Geiger et al. (2014) does not study the post-GFC period.
2. The sample included companies that went bankrupt during the period from 1991 to 1998.
3. H1 seeks to confirm that this paper's sample yields result similar to prior research, particularly Geiger et al. (2014). Research Question 1 is contingent on H1 being supported.
4. And at the same time, the GFC also resulted in downward pressure on audit fees (Whitehouse, 2010), presumably because audit clients were suffering declines in their financial health and profitability.
5. As further discussed in the "Research Method" section of the paper, the paper's time periods are as follows: pre-GFC (3/15/07 – 8/31/08); GFC (9/1/8 – 6/30/10); post-GFC I (7/1/10 – 6/30/12); and post-GFC II (7/1/12 – 5/5/14). Beams and Yan (2015) utilize 2005-2006 as the pre-GFC period, 2008-2009 as the GFC period, and 2010-2011 as the post-GFC period and exclude 2007 and periods after 2011 entirely.
6. See Feldmann and Read (2010) and Geiger et al. (2014) for background on the appropriateness of employing these limitations.
7. See Feldmann and Read (2010) for specifications for calculating the Hopwood score.
8. In the additional analysis, this study employs variations of this cut-off date.
9. Feldmann and Read (2010) analyze two time periods, each 2 years in length, following Enron's bankruptcy. This paper follows suit and also utilizes two time periods of approximately 2 years each following the end of the GFC period. May 5, 2014 is the latest audit report date in this paper's sample.

10. Consistent with Kasznik and Lev (1995) and Geiger et al. (2006), companies operating in a risky industry are classified in one of the following SIC codes: 2833-2836, 3570-3577, 3600-3674, 7372-7379 and 8731-8734.
11. Audit opinions dated July 1, 2009 through December 31, 2011 are included in *TIME3* and *TIME4* is comprised of the remainder, which are those opinions dated January 1, 2012 through May 5, 2014. Thus the sample distribution is: *TIME1*, N = 64; *TIME2*, N = 76; *TIME3*, N = 87; *TIME4*, N = 78. The authors also employed a GFC cut-off date of December 31, 2009 but since there are only 6 observations between June 30, 2009 and December 31, 2009, the results are qualitatively similar to those obtained in using the June 30, 2009 cut-off date.

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