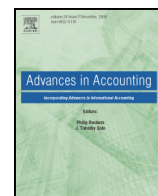




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The market's response to earnings surprises after first-time going-concern modifications ☆☆☆

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ABSTRACT

This study investigates the market's response to earnings surprises after first-time going-concern modifications (GCMs). Using a sample of 581 firms and an events-study research design, we document a significant decrease in earnings response coefficients (ERCs) in the quarters following the GCM. However, this result appears to be driven by firms for which the GCM is unexpected. Specifically, we find that firms with high Z-scores prior to the GCM experience an immediate and prolonged decline in ERCs over the four quarters after the GCM, but find no change in ERCs for those firms with low Z-scores. These results are consistent with the GCM potentially resolving investors' fundamental uncertainty about future cash flows, and/or signaling that the earnings numbers generated by the firm are noisier or less persistent than was previously assumed. Further, we find no change in ERCs for a propensity-score matched control sample that did not receive GCMs, suggesting that the decline in earnings informativeness is not a response to general economic conditions. Finally, we document that institutional investors incorporate the information in the GCM. The study makes an important contribution to the going-concern literature by documenting that GCMs influence the pricing of earnings.

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1. Introduction

Under federal securities laws and auditing standards, auditors have a responsibility to evaluate the going-concern status of a client and to include an explanatory paragraph in the standard audit report when substantial doubt arises about an entity's ability to continue in existence.¹ The going-concern modification (hereafter, GCM) augments the auditors' professional opinion on the accuracy and completeness of a firm's reporting and disclosure with additional information about the auditors' assessment of the perceived risk regarding the continued viability of the client. Despite the fact that regulators and auditing standard

setters have long mandated the disclosure, its usefulness to investors has been the subject of a long-standing debate.² Critics of the disclosure maintain that auditors have expertise in assurance audits and their ability to evaluate uncertainties is not necessarily superior to that of financial statement users (AICPA, 1978; Dopuch, Holthausen, Leftwich, Holthausen, & Leftwich, 1987; Menon & Williams, 2010; Mutchler, 1985).³ On the other hand, advocates of the disclosure such as bankers and analysts, contend that auditors' knowledge would likely lead to better evaluations than those of financial statement users, since auditors have access to information that is not publicly available to investors

☆ Data availability: The data are publicly available from the sources identified in the paper.

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¹ See Section 10A (a) (3) of the Securities Exchange Act of 1934 ("Exchange Act"), which requires that each audit include "an evaluation of whether there is substantial doubt about the ability of the issuer to continue as a going concern during the ensuing fiscal year," and paragraph .02 of AU sec. 341, *The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern* (SAS No. 59 (AICPA, 1988)).

² For example, the Statement of Auditing Standards (SAS) No. 2 was issued by the American Institute of Certified Public Accountants (AICPA) in 1974. In 1982, the AICPA's proposal to eliminate the requirement was met with strong public opposition (Mann, 1982). In 1988, in response to increasing public pressure, the AICPA in 1988 issued SAS No. 59, which increased the auditor's responsibility to evaluate and disclose going concern problems, relative to its predecessor, SAS No. 34. Under SAS No. 34 (AICPA, 1981, para. 3) an independent auditor was not required to search for evidential matter relating to continued existence. However, if during the course of the audit, information obtained raised uncertainty about the company's ability to continue, the auditor was required to evaluate the company's status and disclose any substantial doubts about continuity in the auditor's opinion (AICPA, para. 3). Under SAS No. 59 (AICPA, 1988, para. 3), an independent auditor is required to proactively assess the going concern status of a client.

³ Mutchler (1985) and Dopuch et al. (1987) posit that most GCMs are unlikely to convey new information to the market since they are simply confirmation of firms' financial deterioration and are predictable using publicly available information.

and analysts (Bell & Wright, 1995; Mann, 1982).⁴ Consistent with this perspective, regulators and standard setters such as the Public Company Accounting Oversight Board (PCAOB) and the Financial Accounting Standards Board (FASB) have been evaluating how to enhance the usefulness of the existing going-concern standard, particularly in the wake of the recent financial crisis (PCAOB, 2012a).⁵ The continued importance of going-concern disclosures to investors, regulators, and standard setters, suggests a need for research on whether GCMs affect the usefulness of firms' earnings for market participants, which is the purpose of this study.

The extant research assessing the usefulness of GCMs have focused primarily on the immediate stock price response to GCMs, and find mixed evidence that GCMs provide new information to investors (Chow & Rice, 1982; Dodd, Dopuch, Holthausen, & Leftwich, 1984; Dopuch, Holthausen, & Leftwich, 1986; Elliott, 1982; Fleak & Wilson, 1994; Herbohn, Ragunathan, & Garsden, 2007; Jones, 1996; Kausar, Taffler, & Tan, 2009; Menon & Williams, 2010; Taffler, Lu, & Kausar, 2004).⁶ Some recent studies have shifted away from the market reaction assessment of usefulness, to a focus on the asset valuation implication of GCMs. For example, Blay, Geiger, Geiger, and North (2011) find evidence that investors put more (less) weight on assets and liabilities directly related to abandonment (continuing) value, and Lennox (2013) finds evidence that auditors are more likely to issue GCMs when the book values of assets are high relative to their expected realizable values. In this study, we contend that since accounting recognition and measurement criteria under generally accepted accounting principles are premised on the going-concern assumption (where a return to profitability is the maintained hypothesis) (Joos & Plesko, 2005), evidence on whether GCMs alter the informativeness of earnings reports would be of interest to investors, regulators, and standard setters. Accordingly, we investigate the effect of first-time GCMs on the market's response to earnings surprises at subsequent earnings announcements.

Subramanyam and Wild (1996) document a negative relation between earnings informativeness and a *general* proxy for going-concern status, the Altman (Z-score). In this study we employ an events-study research design and focus on the relative informativeness of earnings before and after the receipt of a *specific* and unambiguous signal about firms' going-concern status—the auditors' GCM.⁷ We measure the market's responsiveness to an earnings announcement by the slope coefficient in the regression of unexpected returns on unexpected earnings—called an earnings response coefficient (Cho & Jung, 1991; Collins & DeAngelo, 1990; Elliott & Hanna, 1996; Hackenbrack & Hogan, 2002; Holthausen & Verrecchia, 1988; Lang, 1991; Subramanyam & Wild, 1996; Wilson, 2008). The earnings response coefficient (ERC) has been shown to be negatively related to the market's expectation about the amount of variability, or noise, in the firm's present and future earnings numbers (Cho & Jung, 1991; Collins & DeAngelo,

1990; Holthausen & Verrecchia, 1988; Lang, 1991; Wilson, 2008), negatively related to the precision of the pre-disclosure (non-earnings) information, and positively related to the fundamental uncertainty in investors' prior beliefs about firm value (Holthausen & Verrecchia, 1988) and the length of the earnings revision horizon (Subramanyam & Wild, 1996).

Using the predictions from the Holthausen and Verrecchia (1988) model and the results from extant research, we posit that the receipt of a GCM could lead to a decrease in ERCs for a number of reasons. First, we suggest that a GCM reduces investors' fundamental uncertainty about future cash flows, since it is a credible signal that auditors have substantial doubts about the viability of the firm.⁸ Second, by providing information about the likelihood of realizing future cash flows, the GCM effectively preempts some of the information in subsequent earnings announcements, thus reducing the informational relevance of earnings. Third, Elliott and Hanna (1996) find that the stock price response to earnings news is dampened in the presence of large write-offs because of the high level of noise in the accounting earnings numbers relative to the actual economic earnings. Similarly, Wilson (2008) documents a decline in ERCs after restatements due to the increased noise in post-restatement earnings. GCM firms are likely to have more transitory components in earnings due to the increased likelihood of write-offs, discontinued operations and/or restructuring charges, as management attempts to reduce costs and increase cash flows—implying that earnings are noisier (less informative) about the future cash flows of the firm. Finally, a GCM could also signal that the length of the future period for which earnings revisions are expected to persist is much shorter than was previously assumed.⁹ In summary, the GCM results in a smaller price response to unexpected earnings at subsequent earnings announcements.

Using quarterly data, we document a shift in the relative informativeness of earnings after firms receive first-time GCMs. Specifically we report a decrease in ERCs for the sample of 581 first-time GCMs. However the decrease is not observed until the second quarter after the GCM, consistent with Taffler et al.'s (2004) conclusion that the stock market appears to underreact to the bad news signal in GCMs. Further, we show that ERCs subsequently rebound to pre-GCM levels, suggesting that the decrease in earnings informativeness appears to be transitory.

However, prior studies such as Loudder et al. (1992); Fleak and Wilson (1994); Jones (1996) and Blay and Geiger (2001) suggest the need to partition the sample of GCM firms based on whether the GCM is expected, since they show that only firms with unexpected GCMs experience negative stock price reaction to the disclosure. We use Z-scores to proxy for investors' prediction of firms' going-concern status (Subramanyam & Wild, 1996), and partition the sample into expected and unexpected sub-samples based on the Z-score (Altman, 1968) measured at the beginning of the fiscal year of the GCM. We posit that for firms with low (high) Z-scores the GCM is expected (unexpected) and therefore less (more) likely to provide new information to investors about future earnings/cash flows.¹⁰ We find results consistent with our conjecture. In particular, we document a decrease in ERCs for the high Z-score (unexpected GCM) firms and no significant long-term change in ERCs for the low Z-score (expected GCM) firms. The decrease in ERCs is immediate and persists over the four quarters subsequent to

⁴ As recently as 2012, the Certified Financial Analysts (CFA) Institute and the Public Company Accounting Oversight Board (PCAOB) Investor Advisory Group (IAG) surveyed financial analysts and investors, respectively, on the importance of the going concern disclosure. The survey responses confirm that analysts and investors still consider (1) the going concern disclosure relevant in their analysis of firms' future cash flows, and (2) the auditor (as well as management) should be responsible for the disclosure (CFA, 2012; PCAOB, 2012b).

⁵ The Financial Accounting Standards Board (FASB) in 2008 issued the proposed statement *Going Concern*, which for the first time would have resulted in guidance on going-concern being included in the accounting literature. The proposed statement would have required management of an entity to assess whether that entity would be able to continue as a going-concern on a look-forward basis. As of January 11, 2012, the FASB has decided against issuing this statement (FASB, 2012). This decision has essentially maintained the status quo where only auditors are required to opine on the going-concern status of client companies. As recently as May of 2012, the Standing Advisory Group of the PCAOB met to discuss possible changes to the *Going Concern* standard.

⁶ See Carson et al. (2012) for a comprehensive discussion of the going-concern literature.

⁷ We use the terms "usefulness," "informativeness," "quality" and "information content" interchangeably in this paper.

⁸ For example, Chen and Church (1996) and Holder-Webb and Wilkins (2000) find that GCMs reduce the surprise associated with bankruptcy announcements, suggesting that investors incorporate the information in a GCM in assessing the likelihood of bankruptcy. Second, the receipt of a GCM may cause stock exchanges to question whether the firm should continue to be listed. The New York Stock Exchange listing rules indicate that receiving a GCM may provide cause for a company to be delisted (Menon and Williams (2010).

⁹ Subramanyam and Wild (1996) document that the ERC is positively related to the length of the future period for which earnings revisions are expected to persist.

¹⁰ Firms are classified as low Z-score (high Z-score) if their Z-score is below (above) the industry median (based on 2 digit SIC code) at the beginning of the fiscal year of the GCM.

the GCM, implying that investors now consider earnings reports for the unexpected GCM firms to be relatively less informative. These results are particularly interesting since in the period prior to the GCM we document that the ERCs of low Z-score firms are significantly lower than the ERCs for high Z-score firms, suggesting that investors had already incorporated the differences in the going-concern status of these firms in their response to earnings surprises in the pre-GCM period.¹¹

To control for the fact that any changes in ERCs that we observe may be due simply to the effect of general economic conditions that prevailed at the time of the GCM, we use a propensity-score matching technique to obtain a control group of firms. The control firms meet the same data requirements as the sample firms except for the receipt of a GCM.¹² We find no change in ERCs for the control group, suggesting that the decline in ERCs documented in our GCM sample is more likely a function of new information provided by the GCMs, rather than general economic conditions that prevailed at the time of the audit report.

Menon and Williams (2010) find that the market reaction to GCMs is primarily driven by sophisticated investors. We investigate whether the change in the informativeness of earnings after a GCM is a function of the level of investor sophistication, measured by the level of institutional holdings. Consistent with Menon and Williams (2010), we find that GCMs provide useful information to sophisticated investors. We document that ERCs decrease after GCMs for both low and high levels of institutional ownership firms, but that the decrease is more sustained for high institutional investor firms. Taken as a whole, these results provide some validation for the PCAOB and SEC's continued requirement for auditors' going-concern reporting.

This study contributes to the going-concern literature in several ways. First, while prior research documents that the GCM provides the market with useful information that affect price, the literature thus far has not addressed the question of whether GCMs affect the informativeness of earnings. Thus, the paper makes an important contribution to the going-concern literature by filling the gap on whether GCMs influence the pricing of earnings. Second, the evidence that GCMs are particularly informative in cases where investors may be unable to accurately predict the going-concern status of the firm based on publicly available data is important, since it offers insights into the debate over whether regulators should continue to require the auditors' disclosure. Third, we are able to provide evidence on the timing and duration of changes in the informativeness of earnings after GCMs, because of the event-study research design we employ. Finally, we add to the literature that shows that GCMs also provide useful information to sophisticated investors.

The remainder of the paper is organized as follows. The next section discusses the prior literature and develops our research hypotheses. Section 3 discusses our research design. Section 4 discusses our sample selection criteria and our descriptive statistics. Section 5 presents the discussion of our results, and Section 6 presents our research conclusions.

2. Are GCMs useful for evaluating earnings?

SAS No. 59 (AICPA, 1988) requires auditors to assess the going-concern status of a client and to include an explanatory paragraph in the standard audit report when substantial doubt arises about an entity's ability to continue in existence. The independent auditors' disclosures about the going-concern status of a client are potentially informative to investors since auditors presumably have access to information that is not publicly available to investors and analysts. For example, the standard suggest that in assessing going-concern status,

independent auditors should consider such problems as excessive reliance on a few customers, and such mitigating factors as the company's ability to obtain credit. In fact, the primary argument for the existence of the GCM is to provide additional information to financial statement users beyond other disclosures (Bell & Wright, 1995).

The vast majority of studies investigating the usefulness of GCMs have focused on the immediate market reaction and find mixed evidence (Carson et al., 2012; Chow & Rice, 1982; Dodd et al., 1984; Dopuch et al., 1986; Elliott, 1982; Fleak & Wilson, 1994; Herbohn et al., 2007; Jones, 1996; Kausar et al., 2009; Menon & Williams, 2010; Taffler et al., 2004).¹³ For example, Chow and Rice (1982) and Elliott (1982) find no significant stock market reaction at the 10-K filing date for audit modifications. Attempting a more precise specification of the event date, Dodd et al. (1984) also fail to find a significant reaction to audit modifications. In contrast to these results, Dopuch et al. (1986) find significant negative abnormal returns in a sample of firms receiving "subject to" opinions and attracting attention in the financial press. Jones (1996) documents negative abnormal returns for a small sample of audit reports with going-concern uncertainties, particularly for firms where the GCM was unexpected. Similarly, Fleak and Wilson (1994) document that distressed firms receiving GCMs experience negative abnormal returns relative to distressed controls not receiving GCMs. Analyzing stock market responses to GCMs, Taffler et al. (2004) and Kausar et al. (2009) document negative abnormal returns in both the UK and US markets respectively, while Herbohn et al. (2007) find no market reaction to GCMs in a sample of Australian firms. Most recently, Menon and Williams (2010) utilize a large homogeneous sample of US GCMs and document negative abnormal returns around the GCM disclosure dates, and that institutional investors use the information in audit reports. In summary, while the results from the earlier studies are mixed, the evidence from more recent studies is consistent with GCMs providing useful information to investors that affect price formation.

Some recent studies have shifted focus from a market reaction to the GCM filing, to a focus on the asset valuation implication of GCMs. For example, Blay et al. (2011) find evidence that first-time GCMs result in investors shifting from an income statement valuation focus to a balance sheet valuation focus, essentially putting more (less) weight on assets and liabilities directly related to abandonment (continuing) value. In a similar vein, Lennox (2013) finds evidence that auditors are more likely to issue GCMs when the book values of assets are high relative to their expected realizable values, and that for firms that enter bankruptcy, the issuance of a prior GCM has predictive information content with respect to the difference between the book values and the future realizable values of assets.

Prior studies focusing on the effect of GCMs on the pricing of firms' earnings is sparse. Choi and Jeter (1992) provide the only evidence on ERCs after the issuance of modified audit reports examining the effect of all types of modified audit reports (including "subject to" modified reports for going-concern uncertainty issues) on ERCs. However, Choi and Jeter (1992) find no change in ERCs from three quarters prior to and three quarters subsequent to the annual report release containing the audit report, for their small subsample of firms receiving GCMs. Thus, evidence on any change in the informativeness of earnings after GCMs will fill an important gap in the current literature, which is the purpose of this study.

We posit that even though investors are able to use information provided by the financial statements and other disclosures about the company to determine the level of financial distress and the probability of continued viability, the communication of a GCM from the company's external auditor provides considerable additional credible evidence about the future viability of the company and the realization of any future income, which potentially changes investors' beliefs (Blay et al.,

¹¹ The pre-GCM period is the five years prior to the fiscal year of the GCM.

¹² A control firm is selected by matching industry, size, year, and the closest propensity score (probability of receiving a first time going-concern) prior to the going-concern filing dates with a sample firm based on Defond et al. (2002). Industry matching is based on the same 2 or 1 digit Standard Industry Classification (SIC) code.

¹³ Some of these earlier do not restrict their sample to GCMs, but instead include all audit modifications.

2011; Menon & Williams, 2010). For example, Chen and Church (1996) and Holder-Webb and Wilkins (2000) find that GCM reduce the surprise associated with bankruptcy announcements, suggesting that investors incorporate the information in a GCM in assessing the likelihood of bankruptcy.

Previous studies (Cho & Jung, 1991; Collins & DeAngelo, 1990; Holthausen & Verrecchia, 1988; Lang, 1991; Wilson, 2008), have documented a negative relation between ERCs and the market's expectation about the amount of variability, or noise, in the firm's present and future earnings numbers, to the precision of the pre-disclosure (non-earnings) information, and a positive relation to the fundamental uncertainty in investors' prior beliefs about firm value (Holthausen & Verrecchia, 1988) and the length of the earnings revision horizon (Subramanyam & Wild, 1996).

Based on the theoretical predictions from the Holthausen and Verrecchia (1988) model and the empirical findings of the extant research, we suggest that the receipt of a first-time GCM could lead to a decrease in ERCs for a number of reasons. First, since the GCM is an unequivocal signal that auditors' have substantial doubts about the viability of the firm, this serves to reduce fundamental uncertainty about future cash flows and therefore decreases the informativeness of subsequent earnings information. Second, because the GCM provides information about the amounts and timing of future cash flows, it effectively preempts information in subsequent earnings announcements about those cash flows, effectively reducing the informational relevance of earnings. Third, Elliott and Hanna (1996) find that the stock price response to earnings news is dampened in the presence of large write-offs because of the high level of noise in the accounting earnings numbers relative to the actual economic earnings. GCM firms are likely to have more transitory components in earnings due to the increased likelihood of write-offs, discontinued operations and/or restructuring charges, as management attempts to reduce costs and increase cash flows. Finally, a GCM could also signal that the length of the future period for which earnings revisions are expected to persist is much shorter than was previously assumed. In summary, the GCM results in a smaller price response to unexpected earnings at subsequent earnings announcements. Accordingly, our first research hypothesis stated in alternative form is:

H1. The informativeness of earnings is lower after a first-time GCM.

The AICPA (1988) suggests that auditors use GCMs to signal firms' financial stress and to warn investors that liquidation of certain assets may be imminent. However, if investors are able to make their own assessment of whether a firm is financially stressed (Dopuch et al., 1987; Mutchler, 1985), and therefore likely to receive a GCM from the auditor, then the receipt of a GCM when it is expected should cause little, if any, shift in ERCs. Conversely, the receipt of a GCM when it is unexpected would be viewed as a negative signal, resulting in lower ERCs. Further, prior studies such as (Blay & Geiger, 2001; Fleak & Wilson, 1994; Jones, 1996; Loudder et al., 1992) have documented that the price response to GCMs is related to whether the GCM was unexpected. We posit that the change in ERCs will only be observed for firms for which the GCM is unexpected. We examine the following hypothesis (in alternative form):

H2. The decrease in earnings informativeness following first-time GCMs is more timely, larger, and/or more sustained for unexpected GCMs relative to expected GCMs.

Menon and Williams (2010) find evidence that institutional investors respond to the information in GCMs. For example, Menon and Williams (2010) provide evidence that market reaction to GCMs is more timely and negative for firms with higher institutional holdings. This is consistent with the argument that institutional investors possess more expertise and resources when making investment decisions (e.g., Walther, 1997). Following this argument, we posit that the decrease in

earnings informativeness will be larger for firms with higher level of institutional holders, and we express H3 accordingly.

H3. The decrease in the informativeness of earnings following a first-time GCM is more timely, larger, and/or more sustained for GCM firms with higher institutional holdings relative to GCM firms with lower institutional holdings.

3. Research design

Several prior studies have utilized ERCs as a proxy for earnings informativeness (Choi & Jeter, 1992; Elliott & Hanna, 1996; Hackenbrack & Hogan, 2002; Subramanyam & Wild, 1996; Wilson, 2008). However, we most closely utilize the research design in Wilson's (2008) study of changes in the information content of earnings following restatements. Following Wilson (2008), we measure the ERC over multiple-quarters surrounding the annual report/10-K with the first-time GCM to examine the duration of the change in the informativeness of earnings. We use the following equation:

$$UR_{it} = \alpha_1 + \sum_{t=1}^4 \alpha_{2,t} QTR_{it} + \beta_1 UE_{it} + \sum_{t=1}^4 \beta_{2,t} [UE_{it} * QTR_{it}] + \beta_3 NONLINEAR_{it} + \sum_{k=4}^{10} \beta_k CONTROLS_{it} + \sum_{k=11}^{17} \beta_k [UE_{it} * CONTROLS_{it}] + \varepsilon_{it} \quad (1)$$

where:

$$CONTROLS_{it} = \{PREDICT_{it} + PERSIST_{it} + BM_{it} + BETA_{it} + SIZE_{it} + LOSS_{it} + Q4_{it}\}.$$

The quarters prior to the GCM $t \in \{-20 \text{ through } 0\}$ represent the base period, $t = 0$ is the quarter immediately before the filing date of the annual report/10-K with the GCM, and the four quarters following the GCM are denoted $t \in \{1, 2, 3, 4\}$. The ERC for $t \in \{-20 \text{ through } 0\}$ is the comparative basis for values of the ERC in the post-GCM period, and is measured by the coefficient on UE_{it} (β_1). We expect the coefficient on UE to be positive based on the well-documented positive relation between earnings surprise and change in price. Coefficient estimates that

represent changes in the ERC following the GCM (e.g., $\sum_{t=1}^4 \beta_{2,t}$) are of interest in testing H1. If investors believe that earnings released following GCMs are noisier and/or less persistent representations of the firm's economic performance and are poor indicators of the firm's expected future cash flows, and/or that GCMs decrease fundamental uncertainty in investors' beliefs, then the ERC for the post-GCM quarterly earnings announcements will be relatively lower than the ERC for the announcements made prior to the GCM. We expect the coefficient on each of the post-GCM interaction terms (e.g., $\sum_{t=1}^4 \beta_{2,t}$) to be significantly negative if there is a long-lasting decline in the information content of earnings following GCMs. The ERC is estimated for 20 quarters before and 4 quarters after the GCM.¹⁴

UR_{it} is the cumulative abnormal return surrounding the earnings announcement for firm i at quarter t , measured over a three day window (i.e., $[-1, 0, +1]$), where the abnormal return is the firm's return less the CRSP value-weighted market return. QTR_{it} is an indicator variable equal to 1 if firm i 's earnings announcement belongs to quarter t , and 0 otherwise. UE_{it} is unexpected quarterly earnings for firm i at quarter t 's announcement date, scaled by price as of the beginning of the quarter for which earnings are announced. Expected earnings is defined as earnings per share for quarter $t - 4$ (i.e., a seasonal random-walk model). We collect firm-level data and earnings report dates from Compustat, and

¹⁴ We terminate the analysis of ERC in the post-GCM period with quarter $t + 4$ because there are companies that subsequently receive other GCMs. Sensitivity analysis suggests that results reported in Table 6 are robust to the number of quarters chosen in the base period (specifically, $t = -8, -12, \text{ and } -16$).

price and stock return data from CRSP. At a minimum, we require that firms have sufficient data to calculate the regression variables for the quarters immediately before and after the GCM to allow us to do pre- to post-GCM comparison of the ERC. Additional earnings announcements for each GCM observation are included when data are available.

The persistence of earnings and various firm-level characteristics (e.g., growth, risk, and size) systematically affect the relation between unexpected returns and unexpected earnings (Kothari, 2001). Therefore, $CONTROLS_{it}$ is a vector of seven control variables included in the regression to mitigate these influences on measurement of the ERC (e.g., as in Subramanyam & Wild, 1996; Raedy & Rock, 2003; Blouin, Raedy, & Shackelford, 2003; Wilson, 2008). All of the control variables are measured with respect to each quarterly earnings announcement, and thus vary for each firm-quarter observation.

$NONLINEAR$ is defined as $UE^2/|UE|$ and is a control for nonlinearity in the price-earnings relation (Freeman & Tse, 1989; Lipe, Bryant, & Widener, 1998; Subramanyam, 1996). Since more extreme values of unexpected earnings are less value-relevant, we expect the coefficient on this variable to be negative. $PREDICT$ is defined as the variance of the absolute values of unexpected earnings over the two-year period prior to the earnings announcement, where unexpected earnings are based on a seasonal random walk. Lipe (1990) documents a negative relation between unexpected returns and the predictability of earnings, therefore we expect the coefficient on $PREDICT$ when interacted with UE will be negative. $PERSIST$ is the autoregressive coefficient from Foster's (1977) model estimated over the two-year period prior to the earnings announcements. Prior research, (Easton & Zmijewski, 1989; Kormendi & Lipe, 1987) document a positive relation between ERCs and earnings persistence. Therefore, we predict a positive coefficient when $PERSIST$ is interacted with UE . BM is the book-to-market ratio as of the end of the quarter. We predict a negative coefficient on the interaction of UE and BM since Collins and Kothari (1989) find a positive relation between ERCs and growth. $BETA$ is the market-model beta estimated over the year prior to the earnings announcements. Based on research findings of a negative relation between ERCs and a security's level of systematic risk (Collins & Kothari, 1989; Easton & Zmijewski, 1989), we expect a negative coefficient on the interaction of $BETA$ and UE . $SIZE$ is the natural log of the market value of equity, in millions of dollars, measured at the beginning of the earnings announcement quarter. Since $SIZE$ is likely to be correlated with other firm-level characteristics, we make no predictions as to the direction of this control. $LOSS$ is an indicator variable equal to 1 if reported earnings per share is negative, and 0 otherwise. We expect the coefficient on the interaction of $LOSS$ with UE to be negative, given that Hayn (1995) finds that negative earnings have lower informativeness. Finally, Q_4 is an indicator variable equals to 1 if the earnings announcement is a fourth quarter earnings announcement, and 0 otherwise. We expect that the coefficient on this variable will be negative when interacted with UE because of the lower informativeness of fourth-quarter earnings reports (e.g., Mendenhall & Nichols, 1988; Salamon & Stober, 1994).

Table 1
Sample selection.

Firms receiving initial going-concern audit reports from 2000–2012, extracted from <i>Audit Analytics</i> without missing filing dates	1667
Less: firms with missing earnings announcement dates within 90 days prior to filing date	(213)
Firms' having multiple quarter 0 or quarter 1 with the same earnings announcement dates	(28)
Firms with missing 2-day (i.e., [0, +1]) stock return data surrounding filing date	(595)
Firms without necessary data from CRSP or COMPUSTAT to calculate regression variables for quarter 0 or quarter 1	(250)
Final sample	581

Table 2

Industry, fiscal year of GCM, and exchange distribution for a sample of 581 firms that received GCMs in their audit reports.

Panel A: Sample distribution by industry				
SIC code	Industry	Total	% of total	% of Compustat
13	Oil & gas extraction	13	2.2	3.7
15	Building construction	2	0.3	0.4
20	Food & beverage	8	1.4	1.9
22	Textile mill products	2	0.3	0.3
25	Furniture and fixtures	3	0.5	0.4
26	Paper & allied products	4	0.7	0.8
27	Printing & allied industries	2	0.3	1.0
28	Chemicals	86	14.8	8.3
29	Pete refining & related inds.	2	0.3	0.6
30	Rubber & plastics products	7	1.2	0.8
32	Stone & allied products	2	0.3	0.5
33	Primary metals	8	1.4	1.2
34	Fabr. Metals, Ex. Machinery	3	0.5	1.0
35	Machinery & computer	34	5.9	4.6
36	Electronic & electrical	61	10.5	7.0
37	Transportation equipment	12	2.1	1.8
38	Measuring equipment	51	8.8	5.3
39	Miscellaneous manufacturing	8	1.4	0.8
42	Motor freight transport	6	1.0	0.5
44	Water transportation	2	0.3	0.7
45	Transportation by air	6	1.0	0.6
48	Communications	23	4.0	3.9
49	Utility services	7	1.2	4.1
50	Wholesale durable goods	6	1.0	1.8
51	Wholesale non-durable goods	6	1.0	1.2
55	Automotive dealers	4	0.7	0.3
56	Apparel & accessory store	2	0.3	0.7
58	Eating and drinking places	4	0.7	1.2
59	Miscellaneous retail	12	2.1	1.6
60	Depository institutions	45	7.7	6.5
61	Non-depository credit institutions	5	0.9	1.3
63	Insurance carriers	4	0.7	2.5
65	Real estate	6	1.0	1.1
67	Holding & other investment	11	1.9	4.0
72	Personal services	2	0.3	0.2
73	Business services	72	12.4	12.0
78	Motion pictures	5	0.9	0.6
79	Recreation services	4	0.7	1.0
80	Health services	7	1.2	1.4
82	Educational services	3	0.5	0.4
83	Social services	6	1.0	0.2
87	Engineering & related services	15	2.6	1.8
	Other ^a	12	2.1	4.7
Total		581	100.0	

Panel B: Sample distribution by fiscal year of GCM

Year	Number of observations	% of total
1999	5	0.9
2000	101	17.4
2001	92	15.8
2002	83	14.3
2003	24	4.1
2004	33	5.7
2005	35	6.0
2006	19	3.3
2007	37	6.4
2008	72	12.4
2009	48	8.3
2010	20	3.4
2011	12	2.0
Total	581	100.0

Exchange	Number of observations	% of total
NYSE	35	6.0
AMEX	64	11.0
NASDAQ	482	83.0
Total	581	100.0

^a Twelve industries with only one observation.

Table 3
Comparison of 129 unexpected GCM firms with 334 expected GCM firms.

	Expected GCM firms N = 334	Mean	1-Sample Test p-value	Expected GCM firms N = 334	Median	Wilcoxon 1-Sample Test p-value
		Unexpected GCM firms N = 129			Unexpected GCM firms N = 129	
ASSET	433.30	319.98	0.314	38.71	32.13	0.080
MVE	76.13	86.98	0.386	21.17	31.83	0.000
LEV	0.915	0.532	0.000	0.746	0.467	0.000
BTM	1.041	− 2.51	0.098	0.352	0.491	0.003
INADJROA	− 0.649	− 0.762	0.139	− 0.437	− 0.422	0.350
LOSS	0.967	0.953	0.259	1.000	1.000	0.244
LOSS_SEQ	2.371	2.070	0.005	3.000	3.000	0.033
VIOLATION	0.405	0.421	0.780	0.000	0.000	0.780
DELIST	0.572	0.473	0.028	1.000	1.000	0.028
BANKRUPT	0.204	0.147	0.071	0.000	0.000	0.083
CAR	− 0.016	− 0.081	0.000	− 0.024	− 0.056	0.001

Notes to Table 3:

EXPECTED/ UNEXPECTED = A GCM is expected (unexpected) if the Altman Z-score (Altman, 1968) for the firm at the beginning of the fiscal year when a firm received GC modification is lower (equal to or greater than) the industry (at the two-digit SIC code level) median of the same fiscal year. The Altman Z-score is calculated as $1.2 (WC/TA) + 1.4 (RE/TA) + 3.3 (EBIT/TA) + 0.6 (ME/BD) + 1.0 (S/TA)$ where WC is working capital, TA is total assets, RE is retained earnings, EBIT is earnings before interest and taxes, ME is the market value of equity, BD is the total liabilities, and S is total sales.¹⁷

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The tenor of our results is unchanged if we define EXPECTED based on whether the Altman Z-score at the beginning of the fiscal year when the firm received the GCM is less than 1.8 and 0 otherwise. Only 80% of the sample has the required data for the calculation of the Altman Z-score.

MVE = total market value of equity (common stock outstanding multiplied by closing price at the end of the fiscal year) in millions of dollars;

ASSET = total assets in millions of dollars;

LEV = total liabilities divided by total assets;

BTM = book value of common equity divided by market value of equity;

INADJROA = return on assets for the firm minus the mean return on assets for the 2-digit SIC code industry;

LOSS = an indicator variable equal to 1 if the firm reported earnings less than zero, and 0 otherwise in the fiscal year of the GCM;

LOSS_SEQ = an ordinal variable that counts the number of sequential losses over the past three years before the fiscal year of the GCM;

VIOLATION = an indicator variable equal to 1 if the firm was in technical default or experienced a debt service default, and 0 otherwise;

DELIST = an indicator variable equal to 1 if the firm is delisted from its exchange within 3 years of the GCM filing date, and 0 otherwise;

BANKRUPT = an indicator variable equal to 1 if the firm files for bankruptcy within 3 years of the GCM filing date, and 0 otherwise;

CAR = market-adjusted abnormal returns for the 3 days centered on the GCM filing date based on value-weighted market index;

All variables are measured at the end of the fiscal year of the GCM, unless defined otherwise.

Test statistics that are in bold are significant at the 1 percent level.

4. Sample selection and descriptive statistics

The sample for the study consists of firms that receive a first-time GCM (that is, firms receiving a GCM that did not receive a GCM in the previous period) by searching the Audit Analytics database, and then confirming the existence of a first-time GCM by reading audit reports for the current and previous 10-K filings. We include only the first GCM received by the firm in our sample, since we believe market expectations and security price reactions will be different for firms receiving continuing GCMs. Consequently, each firm appears only once in our sample.

Our initial sample includes 1667 firm-year first-time GCMs for fiscal years 1999 through 2011. We exclude all American Depositary Receipts (ADRs), firms with missing filing dates, with missing earnings announcement dates within 90 days prior to the filing dates, with missing 2-day (i.e., [0, +1]) stock return data around the filing dates, or with missing data to calculate the regression variables for quarters 0 and 1. Our final sample consists of 581 unique firms with first-time GCMs. Our sample selection procedure is reported in Table 1.

Panel A Table 2 reports industry distribution for the sample of GCM firms. The data shows a wide industry distribution with the 581 firms representing fifty-four separate industries. There is some evidence of industry clustering with six industries chemicals, machinery and computer, electronics and electrical, measuring equipment, depository institutions, and business services, together accounting for 60% of the total sample. However, when we compare this to the industry distribution for the Compustat population, only three industries, chemicals, electronics and electrical and measuring equipment appear to be overly represented in the first-time GCM sample. Panel B of Table 2 reports the sample distribution by fiscal year. Approximately 50% of the sample firms received a first-time GCM between 1999 and 2002, perhaps

reflecting the economic downturn following the dot.com failures of the early 2000s. There is also some indication that the frequency of first-time GCMs increasing from 2007–2009, consistent with the global financial crisis over this period. Finally, panel C of Table 2 documents the exchange distribution for the sample and shows that the majority of the GCM firms are listed on the NASDAQ exchange.

We examine the sample of GCM firms to provide information on the distribution of the sample. Market prices and delisting data are obtained from CRSP, earnings data are obtained from Compustat, and bankruptcy data from New Generation Inc.'s Bankruptcy Datasource. Untabulated results for the full sample of 581 GCM firms document that, on average, sample firms receiving GCMs are relatively small based on total assets (mean of \$604 million), relative to the average Compustat firm measured over the same period (mean of \$8021 million). The frequency of reported losses is high, with an average of 96% of the sample reporting a loss in the fiscal year of the GCM. Further, 57% of the GCM sample firms become delisted from their exchange and 18% file for bankruptcy within three years of the first GCM. The three day cumulative abnormal returns around the GCM are significantly negative for the full sample of GCM firms, similar to Menon & Williams (2010).

Based on prior research such as Louder et al. (1992); Fleak and Wilson (1994); Jones (1996) and Blay and Geiger (2001), we partition the sample into expected and unexpected GCMs. We use Z-score (Altman, 1968) measured at the beginning of the fiscal year of the first-time GCM and determine that the GCM is expected (unexpected) if the firm has a Z-score below (above) the industry median.¹⁵ Only four hundred and sixty-three (80%) of the full sample of 581 GCM firms meet all the data requirements for the calculation of the Z-score.

¹⁵ Industry is measured at the two-digit SIC code level.

Of those meeting the data requirement, three hundred and thirty-four or 72% of these are classified as expected GCMs, while the remaining one hundred and twenty-nine or 28% are classified as unexpected GCMs. Table 3 provides a comparison of the expected and unexpected GCM firms. We find that the two groups of firms are significantly different on several variables that are likely to be highly correlated with the likelihood of receiving a GCM. We find that expected GCM firms have higher leverage, lower market value of equity, are more likely to become delisted from their stock exchange, and to file for bankruptcy, relative to unexpected GCM firms. Expected GCM firms are also more likely to report multiple losses in three years prior to the GCM. Further, we find that while the mean three day cumulative abnormal returns centered on the GCM filing is significantly negative for both group of firms, it is significantly more negative for the unexpected GCM firms. The difference in the stock market response is consistent with prior studies that document that the market response is related to the extent that the GCM was unexpected (Blay & Geiger 2001; Jones 1996), and provides some validation for the use of Z-score as a partitioning variable.

Table 4 provides descriptive statistics for the regression variables for full sample of 581 firms. Panel A provides data on the regression variables for the full sample for periods prior to the GCM, and Panel B reports the post-GCM values and comparisons with the pre-GCM values. Several of the control variables are statistically different in the post-GCM period. Specifically, in the post-GCM period unexpected earnings are higher, more extreme, and less predictable, there is a greater frequency of reported losses, and book-to-market and firm size are both lower relative to the pre-GCM period.

5. Discussion of results

We then examine changes in ERCs over the four quarters immediately following a GCM to determine whether earnings informativeness is affected by the auditor's report on the going-concern status of the firm. In Fig. 1 we provide a plot of the ERCs for the full sample of 581 firms over the four quarters subsequent to the GCM. The figure shows no significant change in ERCs in the first quarter after the GCM filing, but a sharp decline in ERCs in the second and third quarters after the GCM and a rebound in ERC in the fourth quarter relative to the previous quarter, suggesting that the decrease in ERC is delayed and transitory.

Table 5 reports the ERCs over a multiple-quarter period surrounding the first-time GCM, where individual coefficient estimates are reported in the left half of the table and summation of the individual coefficient estimates are reported on the right half of the table. The informativeness of earnings for the pre-GCM period is represented by the 0.1686 coefficient on $\beta_{1,t}$. ERCs in the pre-GCM represent the base period, which serves as a direct comparison for the pre-versus post-GCM analyses. Consistent with the story in Fig. 1, the results in Table 5 suggest that the decline in the informativeness of earnings following a GCM is delayed and transitory. Specifically, we find that the estimated coefficient for quarter $t + 1$ ($\beta_{2,t = 1}$) while lower than in the base period is not significantly different from the ERCs in the base period suggesting an underreaction to the GCM (Taffler et al., 2004). However, the coefficient estimates for quarters $t + 2$ ($\beta_{2,t = 2}$), $t + 3$ ($\beta_{2,t = 3}$), and $t + 4$ ($\beta_{2,t = 4}$) are significantly negative, implying a decrease in the informativeness of earnings surprises over these quarters. Further, the coefficient estimate for quarter $t + 4$ ($\beta_{2,t = 4}$) while significantly different from the base period (at the 10% level), is much larger than the coefficient estimate for quarter $t + 3$ ($\beta_{2,t = 3}$). Taken together these results suggest that the decrease in the informativeness of earnings after first-time GCMs may be relatively short-lived, as the ERC appears to rebound in quarter $t + 4$. These results are based on the full sample of 581 sample firms with 9944 firm-quarter observations, and are based on robust standard errors adjusted for firm-specific clustering (Rogers, 1993), for heteroskedasticity (White, 1980), and for industry and year clustering. We also exclude outliers identified using Cook's (1977) distance statistic.

Next, we estimate the change in ERCs conditioned on whether the GCM is expected or unexpected. Fig. 2 shows the plot of the ERCs for the sample partition. For the sample of unexpected GCM firms we document a significant and prolonged decline in ERCs over the four quarters following the GCM filing date. However, for the sample of expected GCM firms, the decline in ERCs is temporary and subsequently recovers to the level prior to the GCM. Table 6 presents the multivariate results based on our expected/unexpected partitioning. Consistent with this conjecture (H2), we find that the decline in the informativeness of earnings following GCMs is driven by the subset of unexpected GCM firms. Specifically, the decline in ERC is significant for all four quarters after the GCM. Contrary to the results in Table 5, we do not observe any delay in the decline in ERCs and there is no subsequent recovery. On the other hand, the results for the expected GCM firms do not reflect any long-term change in earnings informativeness. For these firms, the market appeared to have incorporated that information into their expectation of earnings prior to the GCM and so there was little adjustment to the ERCs around subsequent earnings release. Collectively, these results suggest that looking at ERCs in aggregate may lead to misleading conclusions that GCMs provide little information to investors in the pricing of subsequent earnings. (See Fig. 3.)

Table 4 Descriptive statistics for the sample of 581 GCM firms.

Regression variables			Standard		
Variable	Mean	Median	Deviation	Q1	Q3
Panel A: Pre-GCM Period (N = 8916)					
UR	-0.013	-0.012	0.118	-0.070	0.039
UE	-0.008	-0.002	0.288	-0.029	0.018
NONLINEAR	0.005	-0.000	0.444	-0.001	0.000
PREDICT	0.051	0.001	0.348	0.000	0.007
PERSIST	0.119	0.039	0.924	-0.219	0.418
BM	0.716	0.501	1.121	0.206	0.977
BETA	0.767	0.647	0.679	0.273	1.188
SIZE	4.173	4.151	1.496	3.091	5.143
LOSS	0.672	1.000	0.470	0.000	1.000
Q4	0.285	0.000	0.451	0.000	1.000
Panel B: Post-GCM Period (N = 1735)					
UR	-0.010	-0.011	0.148	-0.085	0.053
UE	0.160 ***	0.024 ***	0.656	-0.045	0.218
NONLINEAR	0.275 ***	0.001 ***	1.226	-0.002	0.047
PREDICT	0.277 ***	0.011 ***	0.771	0.001	0.104
PERSIST	0.132	0.024	1.030	-0.248	0.433
BM	0.541 ***	0.346 ***	1.933	0.018	1.068
BETA	0.733	0.618	0.715	0.260	1.127
SIZE	3.197 ***	3.055 ***	1.450	2.136	4.139
LOSS	0.826 ***	1.000 ***	0.379	1.000	1.000
Q4	0.161 ***	0.000 ***	0.367	0.000	0.000

Notes to Table 4:

*** Significantly different between pre- and post-GCM period at 0.01 level (two-tailed). Regression variables are: UR_{it} is the cumulative abnormal return surrounding the earnings announcement for firm i at quarter t , measured over a three day window (i.e., $[-1, 0, +1]$), where the abnormal return is the company's return less the CRSP value-weighted market return; UE_{it} is unexpected quarterly earnings for company i at quarter t 's announcement date, scaled by price as of the beginning of the quarter for which earnings are announced; Expected earnings is defined as earnings per share for quarter $t - 4$ (i.e., a seasonal random-walk model); $NONLINEAR$ is defined as $UE^2/|UE|$; $PREDICT$ is defined as the variance of the absolute values of unexpected earnings over the two-year period prior to the earnings announcement, where unexpected earnings are based on a seasonal random walk; $PERSIST$ is the autoregressive coefficient from Foster (1977) model estimated over the two-year period prior to the earnings announcements; BM is the book-to-market ratio as of the end of the quarter; $BETA$ is the market-model beta estimated over the year prior to the earnings announcements; $SIZE$ is the natural log of the market value of equity, in millions of dollars, measured at the beginning of the earnings announcement quarter; $LOSS$ is an indicator variable equal to 1 if reported earnings per share is negative, and 0 otherwise; $Q4$ is an indicator variable equal to 1 if the earnings announcement is a fourth quarter earnings announcement, and 0 otherwise.

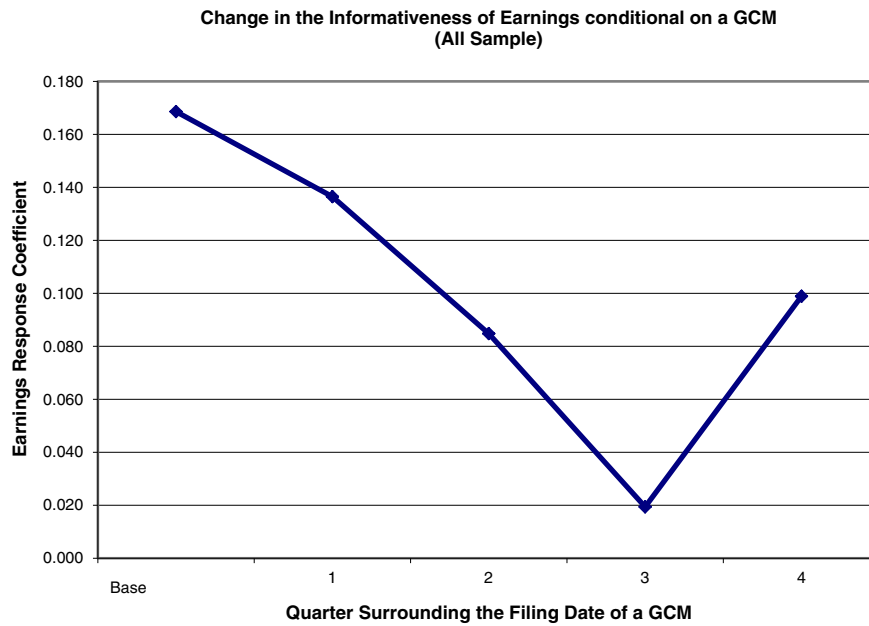


Fig. 1. Change in the Informativeness of Earnings conditional on a GCM (all sample).

Table 5

Change in the informativeness of earnings surrounding a GCM for the full sample of 581 firms.

$$UR_{it} = \alpha_1 + \sum_{t=1}^4 \alpha_{2,t} QTR_{it} + \beta_1 UE_{it} + \sum_{t=1}^4 \beta_{2,t} [UE_{it} * QTR_{it}] + \beta_3 NONLINEAR_{it} + \sum_{k=4}^{10} \beta_k CONTROLS_{it} + \sum_{k=11}^{17} \beta_k [UE_{it} * CONTROLS_{it}] + \varepsilon_{it}$$

	Individual estimates predicted sign	Coefficient value		QTR	Sum of estimates ERC coefficient	ERC	
β_1	+	0.1686	***	Base period	β_1	0.1686	***
$\beta_{2,t=1}$	-	-0.0321		1	$\beta_1 + \beta_{2,t=1}$	0.1365	***
$\beta_{2,t=2}$	-	-0.0838	**	2	$\beta_1 + \beta_{2,t=2}$	0.0848	***, ##
$\beta_{2,t=3}$	-	-0.1492	***	3	$\beta_1 + \beta_{2,t=3}$	0.0194	***, ###
$\beta_{2,t=4}$	-	-0.0697	*	4	$\beta_1 + \beta_{2,t=4}$	0.0989	***, #
Adj. R ²						0.0528	
Number of observations						9944	

Notes to Table 5:

*, **, *** Significantly different from zero at 0.1, 0.05, and 0.01 levels, respectively.

#, ##, ### Significantly lower than base period at 0.1, 0.05, and 0.01 levels, respectively.

OLS coefficient estimates are reported for UE and all significance tests reported in the study are two-tailed tests and are based on robust standard errors, which are adjusted for firm-specific clustering in our panel data (Rogers, 1993) and for heteroskedasticity (White, 1980). Industry and year dummies are also included as additional controls. All results reported in Table 5 are after excluding outliers identified using the Cook (1977) distance statistic. All variables are as defined in Table 4.

Johnson and Lys (1990) show that fundamental changes in a firm's operations can precede a GCM. Such adaptations reflect changing economic conditions that in turn likely affect determinants of the ERC. The GCM might capture, at least in part, unknown aspects of changing economic conditions. Consequently, to the extent that control variables in the returns-earnings regression are not sufficiently capturing the effect of firm-level economic conditions, the observed shifts in ERCs that we attribute to the GCM might be caused by unspecified fundamental economic changes in the firms that are, in turn, correlated with the GCM. We address this issue by using a propensity score matching approach. This approach involves modeling the probability or "propensity" of receiving a first-time GCM based on DeFond, Raghunandan, and Subramanyam (2002) (See Appendix 1). Each GCM firm is then matched to a non-GCM firm with the closest propensity score, industry (i.e., SIC 2-digit code), firm size and year. We then examine the changes in ERCs of these matched control

firms.¹⁶ Table 7 reports the ERCs over a multiple-quarter period surrounding the quarter of the matching, and indicate no change in ERCs for the control group. This result suggests that the shift in ERCs documented in our GCM sample is more likely a function of new information provided by the GCMs rather than general economic conditions that prevailed at the time of the audit report.

Finally, Menon and Williams (2010) document that the market reaction to GCMs is primarily driven by sophisticated investors. We investigate whether the change in the informativeness of earnings after a GCM is a function of the level of investor sophistication. Table 8 reports the results of these tests. We find decreases in ERCs for both

¹⁶ Only 334 of the 581 GCM firms have the requisite data for the calculation of the propensity score using the DeFond et al., 2002 model (see Appendix 1). We obtain a match firm for each of the 334 first-time GCM firms with available data for calculation of the going-concern probability.

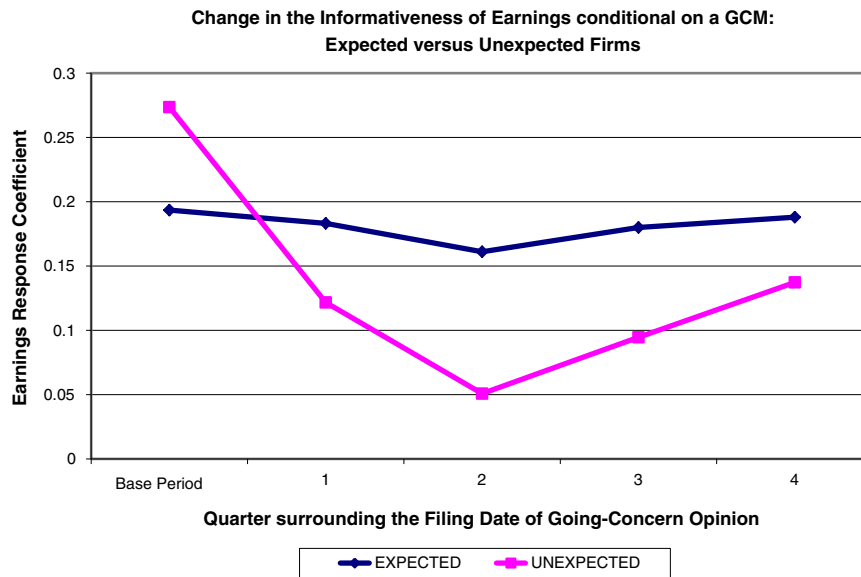


Fig. 2. Change in the informativeness of earnings conditional on a GCM: Expected versus Unexpected Firms.

low and high institutional ownership firms implying that across the board, GCMs provide useful information about earnings to investors. However, the decrease in ERCs is more persistent as the level of institutional holdings increases. These results only provide partial support for H3.

6. Conclusion

In this study we investigate the effect of auditors' first-time GCMs on the informativeness of earnings by assessing the market's responsiveness

to earnings surprises subsequent to GCMs. Using quarterly data we document a shift in ERCs after firms receive first-time GCMs. Our results for the full sample indicate a delayed and long-term (three quarter) decrease in ERCs, implying that while investors are slow to react to the unambiguous bad news signal in GCMs, the market appears to view subsequent earnings surprises to be of lower quality. However, the results appear to be driven by the sample of unexpected GCMs. Specifically, we document a significant decrease in ERCs for all four post-GCMs filing quarters, suggesting a timely and prolonged decrease in earnings informativeness for the unexpected GCM firms. On the

Table 6 Change in earnings informativeness surrounding a GCM conditioned on whether the GCM is expected or unexpected

$$UR_{it} = \alpha_1 + \sum_{t=1}^4 \alpha_{2t} QTR_{it} + \sum_{t=1}^4 \alpha_{3,t} [QTR_{it} * SUB_i] + \beta_1 UE_{it} + \sum_{t=1}^4 \beta_{2,t} [UE_{it} * QTR_{it}] + \beta_3 [UE_{it} * SUB_i] + \sum_{t=1}^4 \beta_{3,t} [UE_{it} * SUB_i * QTR_{it}] + \beta_5 SUB_i + \beta_6 NONLINEAR_{it} + \sum_{k=7}^{13} \beta_k CONTROLS_{it} + \sum_{k=14}^{20} \beta_k [UE_{it} * CONTROLS_{it}] + \varepsilon_{it}$$

	Individual estimates		Sum of estimates: (EXPECTED)				Sum of estimates: (UNEXPECTED)			
	Coefficient value	Qtr.	ERC coefficient		ERC	Qtr.	Coefficient	ERC		
β_1	0.2736	***				Base period	β_1	0.2736	***	
β_3	-0.0801	***	Base period	$\beta_1 + \beta_3$	0.1935	***, ††	Base period			
$\beta_{2,t=1}$	-0.1519	***	1	$\beta_1 + \beta_{2,t=1} + \beta_3 + \beta_{4,t=1}$	0.1832	***, †	1	$\beta_1 + \beta_{2,t=1}$	0.1217	***, ###
$\beta_{2,t=2}$	-0.1228	***	2	$\beta_1 + \beta_{2,t=2} + \beta_3 + \beta_{4,t=2}$	0.1611	***, ††, ##	2	$\beta_1 + \beta_{2,t=2}$	0.0508	*, ###
$\beta_{2,t=3}$	-0.1790	***	3	$\beta_1 + \beta_{2,t=3} + \beta_3 + \beta_{4,t=3}$	0.1800	***, †	3	$\beta_1 + \beta_{2,t=3}$	0.0946	**, ###
$\beta_{2,t=4}$	-0.1363	***	4	$\beta_1 + \beta_{2,t=4} + \beta_3 + \beta_{4,t=4}$	0.1880	***, ††	4	$\beta_1 + \beta_{2,t=4}$	0.1373	***, ###
$\beta_{4,t=1}$	0.1416	***								
$\beta_{4,t=2}$	0.1904	***								
$\beta_{4,t=3}$	0.1655	***								
$\beta_{4,t=4}$	0.1308	***								
Adj. R ²								0.0545		
Number of observations								7921		

Notes to Table 6:

SUB is an indicator variable = 1 if the GCM is expected and 0 if the GCM is unexpected. The GCM is expected (unexpected) if the Altman Z-score (Altman, 1968) at the beginning of the fiscal year when a firm received GCM is less (equal to or greater) than the industry (at the two-digit SIC code level) median of the same fiscal year. The Altman Z-score is calculated as 1.2 (WC/TA) + 1.4 (RE/TA) + 3.3 (EBIT/TA) + 0.6 (ME/BD) + 1.0 (S/TA) where WC is working capital, TA is total assets, RE is retained earnings, EBIT is earnings before interest and taxes, ME is the market value of equity, BD is the total liabilities, and S is total sales.

*, **, *** Significantly different from zero at 0.1, 0.05, and 0.01 levels, respectively

#, ##, ### Significantly lower than base period at 0.1, 0.05, and 0.01 levels, respectively

†, ††, ††† Significantly different between groups at 0.1, 0.05, and 0.01 levels, respectively

OLS coefficient estimates are reported for UE and all significance tests reported in the study are two-tailed tests and are based on robust standard errors, which are adjusted for firm-specific clustering in our panel data (Rogers, 1993), and for heteroskedasticity (White, 1980). Industry and year dummies are also included as additional controls. All results reported in Table 6 are after excluding outliers identified using the Cook's (1977) distance statistic. All other variables are as defined in Table 4.

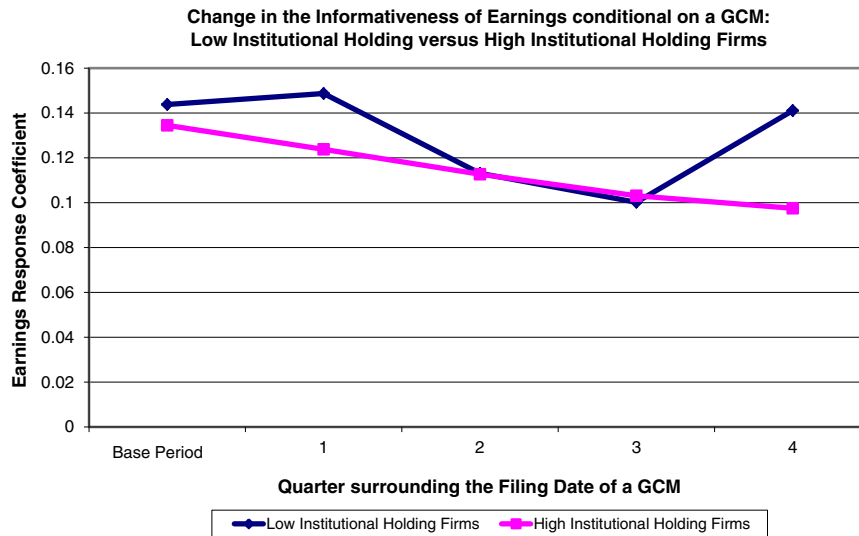


Fig. 3. Change in the Informativeness of Earnings conditional on a GCM: Low Institutional Holding versus High Institutional Holding Firms.

other hand, we find a short-term decrease in ERCs, delayed to the second post-GCM quarter, and a subsequent recovery to pre-GCM levels over quarters $t + 3$ and $t + 4$. Our results imply that the GCMs provide information to investors that potentially reduces ex ante uncertainty about firm value, signals that firms' earnings are noisier and/or are less persistent, and that the revision horizon is shorter than was previously assumed, particularly when investors may be unable to accurately predict the probability of receiving a first-time GCM based on publicly available information. We also document that the change in ERCs does not appear to be a function of general economic performance since we find no change in ERCs for a propensity-score matched set of control firms. Finally, similar to Menon and Williams (2010) we find that sophisticated investors act appear to incorporate the new information in GCMs in their responses to subsequent earnings surprises. Our study provides important evidence that investors appear to incorporate the information in GCM in revising earnings expectations, leading to a decrease in the informativeness of future earnings signals. Thus the study makes an important contribution to the going-concern literature by documenting that GCMs influence the pricing of subsequent earnings.

APPENDIX 1. Going-concern predictive probability model based on DeFond et al. (2002)

$$\begin{aligned}
 OPINION = & \beta_0 + \beta_1 (PROBANKZ) + \beta_2 (\log(ASSETS)) + \beta_3 (\log(AGE)) \\
 & + \beta_4 (BETA) + \beta_5 (RETURN) + \beta_6 (VOLATILITY) + \beta_7 (LEV) \\
 & + \beta_8 (CLEV) + \beta_9 (LLOSS) + \beta_{10} (INVESTMENTS) \\
 & + \beta_{11} (FUTURE FINANCE) + \beta_{12} (BIG 5) \\
 & + \beta_{13} (OP CASH FLOW) + \beta_{14} (REPORT LAG) + \varepsilon
 \end{aligned}$$

where:

- OPINION* an indicator variable equal to 1 for firms with first-time going-concern audit opinions during 2000–2008, and 0 otherwise
- PROBANKZ* probability of bankruptcy score (Zmijewski [1984])
- $\log(ASSETS)$ natural logarithm of total assets at the end of the year measured in millions of dollars
- $\log(AGE)$ natural logarithm of the number of years since the company was listed on a stock exchange

Table 7
Change in the informativeness of earnings for control firms.

$$UR_{it} = \alpha_1 + \sum_{t=1}^4 \alpha_{2,t} QTR_{it} + \beta_1 UE_{it} + \sum_{t=1}^4 \beta_{2,t} [UE_{it} * QTR_{it}] + \beta_3 NONLINEAR_{it} + \sum_{k=1}^{10} \beta_k CONTROLS_{it} + \sum_{k=11}^{17} \beta_k [UE_{it} * CONTROLS_{it}] + \varepsilon_{it}$$

Individual estimates predicted sign	Coefficient value		QTR	Sum of estimates	
		***		ERC coefficient	ERC
β_1	0.2400	***	Base period	β_1	0.2400 ***
$\beta_{2,t=1}$	-0.0179		1	$\beta_1 + \beta_{2,t=1}$	0.2221 ***
$\beta_{2,t=2}$	0.0128		2	$\beta_1 + \beta_{2,t=2}$	0.2528 ***
$\beta_{2,t=3}$	0.1721		3	$\beta_1 + \beta_{2,t=3}$	0.4121 ***
$\beta_{2,t=4}$	-0.0495		4	$\beta_1 + \beta_{2,t=4}$	0.1905 ***
Adj. R ²					0.0576
Number of observations					6052

Notes to Table 7:

*** Significantly different from zero at 0.05 level.

OLS coefficient estimates are reported for *UE* and all significance tests reported in the study are two-tailed tests and are based on robust standard errors, which are adjusted for firm-specific clustering in our panel data (Rogers, 1993), for heteroskedasticity (White, 1980), and for industry clustering. All results reported in Table 7 are after excluding outliers identified using the Cook (1977) distance statistic. All other variables are as defined in Table 4.

Table 8

Change in the informativeness of earnings surrounding a GCM conditioned on the level of institutional holdings:

$$UR_{it} = \alpha_1 + \sum_{t=1}^4 \alpha_{2t} QTR_{it} + \sum_{t=1}^4 \alpha_{3,t} [QTR_{it} * SUB_i] + \beta_1 UE_{it} + \sum_{t=1}^4 \beta_{2,t} [UE_{it} * QTR_{it}] + \beta_3 [UE_{it} * SUB_i] + \sum_{t=1}^4 \beta_{3,t} [UE_{it} * SUB_i * QTR_{it}] + \beta_5 SUB_i + \beta_6 NONLINEAR_{it} + \sum_{k=7}^{13} \beta_k CONTROLS_{it} + \sum_{k=14}^{20} \beta_k [UE_{it} * CONTROLS_{it}] + \varepsilon_{it}$$

	Individual estimates		Sum of estimates: (SUB = 1)			Sum of estimates: (SUB = 0)				
	Coefficient value		Qtr.	ERC coefficient	ERC	ERC	Qtr.	Coefficient	ERC	
β_1	0.1345	***								
β_3	0.0093		Base	$\beta_1 + \beta_3$	0.1438	***	Base	β_1	0.1345	***
			Period				Period			
$\beta_{2,t=1}$	-0.0107		1	$\beta_1 + \beta_{2,t=1} + \beta_3 + \beta_{4,t=1}$	0.1487	***	1	$\beta_1 + \beta_{2,t=1}$	0.1238	***
$\beta_{2,t=2}$	-0.0218	**	2	$\beta_1 + \beta_{2,t=2} + \beta_3 + \beta_{4,t=2}$	0.1131	***, ##	2	$\beta_1 + \beta_{2,t=2}$	0.1127	***, ##
$\beta_{2,t=3}$	-0.0314	***	3	$\beta_1 + \beta_{2,t=3} + \beta_3 + \beta_{4,t=3}$	0.1002	***, ###	3	$\beta_1 + \beta_{2,t=3}$	0.1031	***, ###
$\beta_{2,t=4}$	-0.0370	***	4	$\beta_1 + \beta_{2,t=4} + \beta_3 + \beta_{4,t=4}$	0.1411	***, †††	4	$\beta_1 + \beta_{2,t=4}$	0.0975	***, ###
$\beta_{4,t=1}$	0.0156									
$\beta_{4,t=2}$	-0.0089									
$\beta_{4,t=3}$	-0.0122									
$\beta_{4,t=4}$	0.0343	***								
Adj. R ²									0.0513	
Number of observations									10,032	

Notes to Table 8:

SUB is an indicator variable = 1 if a firm's institutional holding (winsorized to 100) at the end of the calendar quarter at or immediately preceding the fiscal quarter ending of quarter 0 is lower than that of the industry median in the same fiscal year quarter; 0 otherwise.

*, **, *** Significantly different from zero at 0.1, 0.05, and 0.01 levels, respectively

#, ##, ### Significantly lower than base period at 0.1, 0.05, and 0.01 levels, respectively

†, ††, ††† Significantly different between groups at 0.1, 0.05, and 0.01 levels, respectively

OLS coefficient estimates are reported for UE and all significance tests reported in the study are two-tailed tests and are based on robust standard errors, which are adjusted for firm-specific clustering in our panel data (Rogers, 1993), and for heteroskedasticity (White, 1980). Industry and year dummies are also included as additional controls. All results reported in Table 8 are after excluding outliers identified using the Cook's (1977) distance statistic. All other variables are as defined in Table 4.

BETA the company's beta estimated using a market model over the fiscal year

RETURN the company's stock return over the fiscal year

VOLATILITY the variance of the residual from the market model over the fiscal year

LEV total liabilities over total assets at the end of the fiscal year

CLEV change in LEV during the year

LLOSS an indicator variable equal to 1 when the company reports a bottom-line loss for the previous year, and 0 otherwise

INVESTMENTS short- and long-term investment securities (including cash and cash equivalents) deflated by total assets at year-end

FUTURE FINANCE an indicator variable equal to 1 when the company issues equity or debt in the subsequent year (through October 31, 2001)

BIG 5 an indicator variable equal to 1 when the auditor is a member of the Big 5, and 0 otherwise

OP CASH FLOW operating cash flows divided by total assets at fiscal year end

REPORT LAG number of days between fiscal year-end and earnings announcement date

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