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Auditor reporting under Section 404: The association between the internal control and going concern audit opinions

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Auditor Reporting under Section 404: The Association between the Internal Control and Going Concern Audit Opinions*

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1. Introduction

Section 404 of the Sarbanes-Oxley Act of 2002 (SOX) requires companies' independent auditors to provide an opinion on their clients' internal control over financial reporting (ICFR), in addition to the opinion on their clients' financial statements (U.S. Congress 2002). In 2004, the Public Company Accounting Oversight Board (PCAOB) issued *Auditing Standard No. 2* (AS2), *An Audit of Internal Control over Financial Reporting Performed in Conjunction with an Audit of Financial Statements*, which provided guidance to auditors for ICFR audits (PCAOB 2004). AS2 was subsequently replaced by *Auditing Standard No. 5* (AS5). [1] Unlike traditional audits of the financial statements, AS2 and AS5 require an "integrated audit of internal control and financial statements" because the "objectives of and work involved in performing both an attestation of management's assessment of internal control and an audit of the financial statements are closely interrelated" (PCAOB 2003a). Because, in effect, the internal control and the financial statement audit reports are *joint products* of the audit process, it is important to investigate the relation between the internal control and financial statement audit opinions.

In this paper, we explore the association between the two audit opinions by examining whether the issuance of an adverse internal control material weakness opinion (MWO) influences, other things equal, the issuance of a going concern audit opinion (GCO) for financially stressed companies.[2] Although the two opinions are the result of an integrated audit process, they serve different purposes. The GCO reflects the auditor's view of the financial condition of its client, indicating whether (in the auditor's opinion) the client will continue to be a going concern for a period of 12 months beyond the financial year end. The MWO reflects the auditor's opinion on whether there are material weaknesses in internal control and therefore the likelihood that material misstatements in the financial statements will not be detected or prevented.

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1. Auditing Standard No. 5, *An Audit of Internal Control over Financial Reporting That is Integrated with an Audit of Financial Statements*, became effective for fiscal years ending November 15, 2007 (PCAOB 2007). As we discuss later, the change in standards was effected in response to concerns that AS2 led to inefficient audits.
2. Technically, a reference to potential "going concern" problems in an audit *report* is a modification to the audit *opinion* of whether the financial statements are stated in accordance with generally accepted accounting principles (GAAP). We refer to such a modified audit report as a going concern *opinion*.

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Despite this difference, the two opinions could be connected. We posit that three factors determine whether a MWO will trigger a GCO, given that the firm is financially distressed. First, although the GCO refers to the client's financial viability, it is issued with the auditor *also* stating — in its opinion paragraph — that the client's financial statements are stated "fairly in accordance with GAAP". Reliable reporting is necessary for the auditor to be able to forecast cash flows and other aspects of the client's performance, in order to make the GCO decision.[3] The GCO decision is a difficult and ambiguous task (Chow, McNamee, and Plumlee 1987; Carcello and Neal 2000) with grey areas that require auditor judgment.[4] Previous work has argued that, other things equal, auditors can move their "threshold" (i.e., become more conservative) by issuing the GCO in response to factors such as uncertainties and litigation risk (Francis and Krishnan 1999, 2002; Rosner 2003). Thus, because the MWO indicates uncertainty about the potential reliability of the financial statements, it may also affect the ability to forecast the going concern status for a financially stressed client, thus triggering the GCO.[5]

Second, the negative consequences associated with the MWO can make it difficult for companies in financial distress to obtain new financing because it increases financing costs (Beneish, Billings, and Hodder 2008; Ashbaugh-Skaife, Collins, Kinney, and LaFond 2009; Dhaliwal, Hogan, Trezevant, and Wilkins 2011; Kim, Song, and Zhang 2011). If the auditor perceives such future difficulties, this would impact the GCO decision. Third, some responders to the AS2 proposal pointed out that both companies and their auditors may be subject to greater litigation risk when a MWO is issued.[6] If this increases the auditor's perceived litigation risk, the issuance of a MWO can further influence the auditor's GCO decision. Such perceptions can be further heightened by the requirement in AS2 (and now AS5) that the auditor explicitly state that it considered the effect of the MWO on the financial statement audit opinion.[7]

3. For example, in its 10-K filing for the year ended December 31, 2003, Sonus Network Inc. disclosed that it faced shareholder class action, the allegation being that "we lacked adequate internal controls and were therefore unable to ascertain our true financial condition."
4. Similarly, the MWO is also issued under situations of significant uncertainty (Earley, Hoffman, and Joe 2008; Hoitash, Hoitash, and Bedard 2008) and "criteria for judging misstatement likelihood and materiality are likely complex to apply in practice" (Bedard and Graham 2011).
5. In theory, the auditor must tailor audit procedures to offset the material weakness sufficiently to ensure reliable financial reporting before making the GCO decision. Therefore, the MWO need not impact the GCO as long as the auditor can "audit around" the material weakness and obtain reasonable assurance about the reliability (or fairness) of financial reporting. At the extreme, a complete inability to audit around the material weakness may result in a scope limitation opinion. In practice, less extreme situations are more likely.
6. Agilent Technologies argues that AS2 "will lead to disclosure of many significant deficiencies which may aggregate to a material weakness judgment and which may cause shareholders and third parties to consider the risk of material misstatement to be much greater than it actually is." Similarly, Health Insurance Plan of Greater New York states that the "auditor's attestation of management's assessment of internal control and the effectiveness of those controls is tantamount to a guarantee or warranty that the company's internal controls over financial reporting are effective and result in financial statements that are free of material misstatement." All comments on AS2 can be found at http://pcaobus.org/Rules/Rulemaking/Pages/Docket008Comments.aspx.
7. See paragraphs 193–96 of AS2 (PCAOB 2004). These paragraphs refer to the timing and content of tests that go into the formation of the audit *opinion* and not the going concern *modification*. However, to the extent that the audit report is viewed as a whole, the requirement for such a statement can heighten perceived litigation risk.

We examine the association between the MWO and the GCO, using a sample of 1,110 *financially stressed* firms that reported internal control and audit opinions under SOX Section 404 during the period 2004–2009.[8] We find that the issuance of a MWO increases the likelihood of a GCO significantly, after controlling for factors that prior studies have found to be associated with a GCO. This result holds when we control for potential endogeneity of the MWOs, to incorporate the possibility that our finding is driven by unobserved latent factors that drive both GCOs and MWOs. Hence, the empirical evidence suggests that auditors do respond to the uncertainty surrounding a MWO by issuing a GCO.

Further analyses corroborate this evidence. Although in theory the auditor can "audit around" the material weakness, and ensure that the financial statements are reliable enough to opine on, it is not clear it can always do so. Therefore, we expect that the strength of the association will differ according to the degree of uncertainty engendered by the MWO, and the degree to which the auditor can audit around the weakness to render its financial statement opinion. We compare the association between the MWO and the GCO for MWOs arising out of company-level weaknesses and account-specific weaknesses. We find that the former, which are more difficult to audit around (Ettredge, Li, and Sun 2006; Doyle, Ge, and McVay 2007a), but not the latter, are associated with GCOs.

Next, we examine whether the expectation that the material weaknesses will be remedied — which reduces the uncertainty surrounding the MWO — impacts the strength of the association between MWO and GCO. Using the removal of the MWO in the subsequent year as the measure of *expected* remediation in the year the opinion is issued, we find that the association between MWO and GCO holds only for those material weaknesses which are not subsequently remediated. We also examine whether the issuance of a MWO may hinder the ability of a firm to raise capital in the subsequent year, possibly inducing conservatism in the auditor's GCO. We find a significant negative association between MWOs and subsequent changes in current debt, and a negative but marginally significant association between MWOs and subsequent changes in common stock in the subsequent year, suggesting that the MWO is likely to adversely affect future financing, triggering a GCO in conjunction with the MWO.

Finally, we examine whether it is the auditor's material weakness *opinion* rather than the disclosure of material weakness that is associated with the GCO. Section 404 was preceded in 2002 by the introduction of a related internal control rule, Section 302 of SOX, which required management (but not auditor) reports on the effectiveness of disclosure controls. We estimate our model using data for the Section 302 regime to examine the association between GCO and material weakness disclosures. Interestingly, we do not document an association between the *existence* of material weaknesses, as reported by management, and the GCO. Taken together, our results suggest that the MWO issued under SOX Section 404 does increase the likelihood of a GCO, while the *existence* of material weaknesses in the Section 302 disclosures does not. Thus, auditors seem to respond to the uncertainties surrounding a material weakness by issuing a GCO only when they have to issue a MWO.

Our paper makes three primary contributions. First, unlike most previous research, we examine the impact of the internal control opinion on *auditors'* decisions. The vast majority of the attention on Sections 404 and 302 of SOX has focused on the causes of the internal control weaknesses revealed by the ICFR auditor and management reports,

8. Restricting the sample to financially stressed companies is important because financial distress — the key factor triggering the GCO — can also be one cause for the existence of material weaknesses. Consequently, in the absence of controls for financial distress, there could be a mechanical positive association between material weaknesses and GCOs. By confining the sample to distressed firms and further controlling for distress in our multivariate analyses, we are able to draw inferences about auditor behavior arising from uncertainties relating to the two opinion decisions.

and their consequences, measured by stock price reactions and cost of debt and equity (Ogneva, Subramanyam, and Raghunandan 2007; Ashbaugh-Skaife, Collins, Kinney, and LaFond 2009; Dhaliwal et al. 2011). We focus instead on the overall audit, which consists of both the internal control and financial statement audits. Second, whereas previous GCO studies have estimated empirical models based on the financial statement audit only, our study is the first to extend the analysis to an integrated audit of internal control and the financial statements. Thus, we argue, studies examining the cross-sectional variations in the incidence of the GCO must consider how the internal control audit affects the outcome. Third, we shed some light on the effects of the policies relating to internal control. The purpose of Sections 302 and 404 was primarily to provide information on the internal controls, thus enhancing investor understanding of the quality of firms' financial reporting. Although this was expected to enhance the quality of financial reporting, none of the policy statements suggest that policymakers envisaged an impact on the likelihood of the GCO. To the extent the increase in the GCO likelihood is a result of auditor conservatism, our finding suggests the need for a broader evaluation of the effects of SOX 404.

The remainder of the paper is organized as follows. Section 2 describes the research motivation and hypothesis. Section 3 describes our research design and sample selection. Sections 4 and 5 describe the empirical results. Section 6 concludes.

2. Motivation and hypothesis development

Background

SOX includes two sections relating to internal control reporting. Section 302, introduced in 2002, requires quarterly management to report on the effectiveness of the company's disclosure controls. Section 404, introduced in 2004, requires companies' independent auditors to provide an opinion on their clients' ICFR, in addition to the opinion on their clients' financial statements (U.S. Congress 2002). The intended effect of the rules is to improve the reliability of firms' financial reporting (PCAOB 2004; Donaldson 2005). However, Section 404 has been the subject of intense debate as critics maintain that the high costs of complying with it are not commensurate with its perceived benefits (Michaels 2003; DeFond and Francis 2005; Powell 2005; Romano 2005).

Guidance to auditors for ICFR audits was provided by AS2, which was effective for accelerated filers in November 2004 (PCAOB 2004).[9] AS2 introduced an integrated audit of internal control and financial statements. The standard includes extensive discussions of the relationship between the internal control audit procedures for the two audit opinions (see, e.g., paragraphs 145–58 in AS2). Particularly relevant to our study, the standard discusses the effect of a MWO on the financial statement opinion. Specifically, when the auditor issues a MWO and a clean audit opinion, it must state in its audit opinion that the material weakness "was considered in determining the nature, timing, and extent of audit tests applied in our audit of the 20X3 financial statements, and this report does not affect our report dated [*date of report*] on those financial statements" (paragraph 194, PCAOB 2004).[10] A similar disclosure is required when a MWO and a non-clean financial statement opinion are issued.

9. Accelerated filers are defined as companies (a) with public float (aggregate market value of voting and nonvoting common equity held by nonaffiliates) greater than $75 million, (b) that have been subject to Exchange Act reporting requirements for at least 12 calendar months, (c) that have filed at least one annual report, and (d) that are not eligible to use Forms 10-KSB and 10-QSB for their annual and quarterly reports. SOX Section 404 was initially applicable to accelerated filers. Nonaccelerated filers were eventually expected to comply, but the effective date for compliance was repeatedly postponed. However, the Dodd-Frank Wall Street Reform Act of 2010 has permanently exempted nonaccelerated filers from compliance with Section 404.

10. The wording is modified if a combined report is issued for the ICFR and financial statement opinions.

In 2007, the PCAOB issued *Auditing Standard No. 5* (PCAOB 2007) to replace AS2. AS5 emphasized a top-down, risk-based approach to ICFR audits, with the intent of eliminating the inefficiencies that had been identified in the operation of AS2. Like AS2, AS5 specifically connects the two opinions, stating that the auditor should "disclose whether his or her opinion on the financial statements was affected by the adverse opinion on internal control over financial reporting."

Thus, SOX Section 404 and the related auditing standards emphasize the integration of the audits of an entity's internal controls and its financial statements, and consequently the internal control and audit reports are *joint products* of the audit process. It is therefore important to investigate the relation between the two audit opinions.

Impact of the MWO on the GCO

The GCO expresses the auditor's view that there is substantial doubt about its client's ability to continue as a going concern for a period not exceeding one year beyond the financial statement date (*Statement of Auditing Standard No. 59*, AICPA 1988; *Auditing Standard No. 1*, PCAOB 2003b). Although a firm's financial condition is the underlying factor triggering a GCO, the decision requires considerable judgment (Chow et al. 1987; Carcello and Neal 2000). Auditing standards provide a list of circumstances, such as loan defaults, work stoppages, and legal proceedings, which could raise doubts about the entity's ability to continue as a going concern. *SAS No. 59* requires auditors to assess management's plans to overcome the problems causing the potential going concern problem and, if not satisfied with these plans, issue a GCO. Internal control problems are not mentioned on this list or indeed anywhere in the going concern standards. However, as discussed above, the ICFR audit standards state *that the internal control audit opinion (MWO) should be considered* when the auditor issues the financial statement opinion.

Given the inherent ambiguity of the going concern auditing standard, auditors likely develop a financial distress "range" over which a GCO can be issued and select a threshold within that range to actually issue a GCO. Previous studies have argued that auditors move this threshold down (i.e., become more conservative) in the face of uncertainties regarding, for example, future losses (Nelson and Kinney 1997), potential litigation (Krishnan and Krishnan 1996; Geiger and Raghunandan 2002), or accounting accruals (Francis and Krishnan 1999).

Can the issuance of a MWO be a factor that causes auditors to lower the threshold for the GCO? Consider a client whose financial condition indicates a potential going concern problem. Auditing standards for auditing financial statements require the auditor to acquire an understanding of internal control over financial reporting and conduct tests to assess control risk should the auditor decide to rely on controls. Assume that the auditor's understanding of the client's internal control has revealed a potential material weakness, indicating heightened control risk, requiring the auditor to design its audit to offset the risk. The standard audit risk model suggests that auditors adjust their substantive tests (e.g., choosing not to rely on controls) to maintain audit risk at acceptable levels. The auditor assesses control risk as high, designs substantive tests and, where necessary, requires clients to fix problems relating to the reliability of the financial statements. Then, based on the financial statements that have been judged (with reasonable assurance) as being reliable, the auditor must decide whether to issue a GCO.

Because the GCO decision is itself fraught with uncertainty, the outcome must depend partly on the extent to which the auditor can effectively audit around the material weaknesses. At one extreme, if the auditor is able to successfully offset the material weaknesses through audit procedures, and the financial statements are judged to be reliable, the GCO can be issued independent of whether a MWO is issued. At the other extreme, if the auditor is unable to audit around the material weaknesses and the reliability of the financial

statements cannot be ensured, it can disclaim an opinion (i.e., not issue a MWO) or withdraw from the engagement.[11] In practice, however, it is likely that the extent to which the auditor can audit around the material weakness, and therefore the uncertainty surrounding the existence of the material weakness, lies between the two extremes, causing the auditor to become conservative in the issuance of the GCO.

We posit that three factors can lead to auditor conservatism in the face of a MWO. First, the implication in the audit risk model that audit plans are adjusted adequately to offset variations in control risk is not supported by research evidence. Studies that use pre-SOX data (e.g., Mock and Wright 1999) do not find that auditors vary audit plans or audit effort based on control reliance. Likewise, studies that used audit fees as a proxy for effort (e.g., O'Keefe, Simunic, and Stein 1994; Felix, Gramling, and Maletta 2001) find no association for the pre-SOX period. However, based on data for the post-SOX years, Raghunandan and Rama (2006), Hoitash et al. (2008), and Hogan and Wilkins (2008) find a positive association between the presence of material weaknesses as disclosed in SOX 302/SOX 404 disclosures and audit fees. But, as Hogan and Wilkins (2008) point out, the increased fees could also reflect a risk premium rather than increased effort.

If in fact audit plans are not sufficiently risk-adjusted in the presence of material weaknesses, there is uncertainty regarding the extent of assurance of financial statement reliability. This could make it more difficult for the auditor to evaluate the future financial performance or cash flows of the firm and hence, the ability of the firm to operate as a going concern. For example, companies that face uncertainties about going concern present management plans — including details about intentions to increase cash flows by issuing more debt or equity, and/or reduce spending (Behn, Kaplan, and Krumwiede 2001) — to overcome financial stress. If the auditor's assessment of management plans leads to the conclusion that these are credible mitigating factors, the auditor may not issue a GCO. The credibility of these plans however depends on the perceived accuracy of future forecasts, which in turn depends on the reliability of financial reporting.[12] Consequently, the auditor may respond to the heightened uncertainty about mitigating factors and become more conservative (i.e., move its threshold) in the GCO decision.[13]

Second, the negative consequences associated with material weaknesses can make it more difficult for companies that are already in financial distress to obtain capital. Beneish et al. (2008) and Ashbaugh-Skaife et al. (2009) find that ineffective internal controls are associated with increased cost of equity, possibly reflecting increased information risk. Similarly, Dhaliwal et al. (2011) and Kim et al. (2011) provide evidence that MWOs are

11. AS2 (and later AS5) explains that the auditor can issue a disclaimer due to scope limitations if it cannot apply the necessary procedures to express an opinion on ICFR. If, however, the scope restrictions are imposed by management, the auditor should resign from the engagement.

12. For instance, Feng, Li, and McVay (2009) find a positive relation between internal control quality and the accuracy of management guidance, consistent with ineffective internal controls causing errors in internal management reports.

13. An example is provided in PHH Corporation's 10-K filing for the year ended Dec 31, 2005 (http://www.sec.gov/Archives/edgar/data/77776/000095012306014446/y26027e10vk.htm). The audit report states "As discussed in Note 28 to the consolidated financial statements, the uncertainty about the Company's ability to comply with certain of its financing agreement covenants . . . raises substantial doubt about its ability to continue as a going concern." Note 28 mentions the internal control issues: "Due to the existence of material weaknesses in the Company's internal control over financial reporting and delays in completing the 2005 audited financial statements, it is now uncertain whether the Company can issue its 2006 quarterly financial statements within this extended date . . . the uncertainty about the Company's ability to meet its financial statement delivery requirements raises substantial doubt about the Company's ability to continue as a going concern."

associated with increased cost of borrowing. In addition, Kim et al. (2011) find that borrowers with company-level weaknesses face stiffer loan conditions, in terms of borrowing rates and collateral requirements, than those with account-specific weaknesses. The increased costs and difficulties of raising capital for firms with MWOs can reduce their ability to overcome the financial distress they are facing, exacerbating the going concern problems. If the auditor anticipates these negative consequences to the issuance of a MWO, it is also likely to issue a GCO.

Third, some responders to the AS2 proposal pointed out that both companies and their auditors may be subject to greater litigation risk when a MWO is issued. As discussed, the internal control auditing standard explicitly requires the auditor to consider the *internal control* opinion when determining the *financial statement* audit opinion. Thus, any litigation concern regarding the MWO is likely to carry over to the GCO due to the jointness of the two opinions. Krishnan and Krishnan (1996) and Geiger and Raghunandan (2002) have provided evidence that auditors become conservative in the issuance of the GCO when faced with higher litigation risk. Thus, the issuance of a MWO can further induce conservatism in the auditor's GCO decision.

In sum, although in theory the GCO need not be impacted by a MWO, the issuance of a MWO can in practice cause the auditor to move their "threshold" for issuing the GCO, thus increasing the likelihood of a GCO. Therefore, we test the following null hypothesis:

HYPOTHESIS. *There is no difference in the propensity of auditors to issue GCOs to financially stressed companies to which they issue a MWO and to those to which they do not issue a MWO.*

In testing our hypothesis, we also extend it to distinguish between two types of material weaknesses, company-level and account-specific weaknesses. Company-level material weaknesses relate to fundamental problems such as the control environment or the overall financial reporting process, and account-specific weaknesses pertain to transactions and account balances. As Moody's Investor Services notes, some company-level material weaknesses cannot be audited around effectively because of the "pervasive nature" of the underlying internal control problems. Thus, although in theory auditors can deal with material weaknesses through substantive tests, it may be difficult in the case of a company-level weakness to determine exactly where substantive testing should occur (Doyle et al. 2007a). Further, Moody's suggests that company-level material weaknesses call into question not only management's ability to prepare accurate financial reports, but also its ability to control the business (Doss and Jonas 2004). It is likely therefore that the ambiguities in the GCO decision are heightened in the presence of a MWO pertaining to a company-level weakness. Therefore we extend our tests of our hypothesis to distinguish between company-level and account-specific material weaknesses.

3. Model and sample selection

Regression model

We use the following logistic regression model to test our hypothesis:

$$\begin{aligned} GCO = {} & \alpha_0 + \alpha_1 MWO + \alpha_2 PROBANKZ + \alpha_3 SIZE + \alpha_4 AGE + \alpha_5 BETA \\ & + \alpha_6 VOLATILITY + \alpha_7 RETURN + \alpha_8 LEV + \alpha_9 CLEV \\ & + \alpha_{10} DLOSS + \alpha_{11} INVESTMENT + \alpha_{12} BIG4 + \alpha_{13} OCF \\ & + \alpha_{14} REPORTLAG + \alpha_{15} PRIORGCO \\ & + \alpha_{16} SEGMENTS + \alpha_{17} RESTRUCTURING + \varepsilon \end{aligned} \quad (1)$$

GCO is an indicator variable that equals one if the auditor issues a GCO, and zero otherwise. The model includes *MWO,* an indicator variable that equals one if the auditor issues an adverse MWO on the client's internal control, and zero otherwise, and control variables based on previous work. If the auditor's GCO decision is influenced by the issuance of a Section 404 adverse internal control opinion, then the coefficient on *MWO* will be positive.

Control variables

Our choice of control variables is based on previous work (e.g., Reynolds and Francis 2001; DeFond, Raghunandan, and Subramanyam 2002; Li 2009). Two variables proxy for the degree of financial distress. *PROBANKZ* measures the probability of bankruptcy based on Zmijewski 1984, and *DLOSS* is a dummy variable indicating a loss in the prior year. Firm size (*SIZE*) is included to capture a number of factors, such as financial stress and client bargaining power vis-à-vis auditors (Krishnan and Krishnan 1996; Willenborg and McKeown 2001). Firm age (*AGE*) is included because younger firms are more susceptible to failure (Dopuch, Holthausen, and Leftwich 1987).

Following Dopuch et al. 1987 and DeFond et al. 2002, we include the following three market-based measures: *BETA*, the systematic risk of the firm's daily stock returns over the fiscal year; *RETURN*, the market-adjusted stock return over the fiscal year; and *VOLATILITY*, the standard deviation (return volatility) of the residuals from the market return model. Two variables, firm leverage (*LEV*) and change in leverage (*CLEV*) capture the proximity to debt covenant violations, and therefore the likelihood of failure. *INVESTMENT* is a liquidity measure that captures the company's ability to quickly raise cash. *BIG4*, indicating the Big 4 auditors, captures the difference in the propensity of the big audit firms to issue GCOs compared with the non–Big 4 audit firms (Francis and Krishnan 1999; Kim, Chung, and Firth 2003). *OCF* is cash flow from operations deflated by assets.

We include *REPORTLAG*, the number of days between the fiscal year end and the earnings announcement date, because previous studies find that the issuance of a GCO is associated with longer reporting delays (Carcello, Hermanson, and Huss 1995; Raghunandan and Rama 1995). We also include *PRIORGCO* (indicating a GCO in the prior year) because GCO in the current period is known to be correlated with prior year GCO (Carcello and Neal 2000; Gul, Sami, and Zhou 2009).

Although the above variables are expected to impact the GCO, we note that some variables, for example firm size and financial distress, may also be related to the existence of material weaknesses. In addition, we include two variables that prior research (Krishnan 2005; Ashbaugh-Skaife, Collins, and Kinney 2007; Doyle, Ge, and McVay 2007b) has identified as determinants of material weaknesses in internal control, and may also affect the GCO: the complexity of the firm's operations measured by number of segments (*SEGMENTS*), and restructuring (*RESTRUCTURING*).

Sample selection

Table 1, panel A shows the sample selection procedure. Because the going concern modified audit opinion is generally issued for financially stressed companies (Reynolds and Francis 2001), we restrict our initial sample to stressed companies. Section 404 of SOX became effective for fiscal years ending on or after November 15, 2004. Hence, our sample period covers the years 2004 to 2009. We start with all public firms on COMPUSTAT with year-ends from 2004 to 2009, for which we could compute the Altman financial

TABLE 1
Sample selection and composition

Panel A: Sample selection

Procedures	Observations
Firms with available data to compute Altman Z-score in 2004–2009	39,749
Less:	
Non-stressed firms	(31,802)
Firms with missing SOX 404 audit opinions or going concern opinions in the Audit Analytics database	(6,644)
Firms with missing data in the COMPUSTAT and/or CRSP databases	(185)
Firms in the financial industry	(8)
Final Sample	1,110

Panel B: Sample industry composition

Industry Name	Observations (%)	GCO = 1 (%)	MWO = 1 (%)
Agriculture, Forestry, Fishing, Mining, Construction (SIC 1–1999)	75 (6.8%)	16 (10.5%)	10 (6.7%)
Manufacturing (SIC 2000–3999)	618 (55.7%)	104 (68.4%)	68 (45.6%)
Transportation, Communications, Electric, Gas, and Sanitary Services (SIC 4000-–4999)	131 (11.8%)	6 (4.0%)	16 (10.7%)
Trade (SIC 5000–5999)	17 (1.5%)	0 (0%)	3 (2.0%)
Services (SIC 7000–8999)	268 (24.1%)	26 (17.1%)	51 (34.3%)
Public Administration (SIC 9000–9999)	1 (0.1%)	0 (0%)	1 (0.7%)
Total	1,110 (100%)	152 (100%)	149 (100%)

distress Z-Score (Altman 1968).[14] Then, we rank the sample firms by their Z-Score, and retain firms in the lowest quintile, that is, firms with the most severe financial distress problems. This procedure results in an initial sample of 7,947 firm-year observations. We eliminate 6,644 firm-year observations for which the internal control or GCOs were not available on the Audit Analytics database. We then eliminate 185 firm-year observations with missing data (for the control variables) on the COMPUSTAT and/or Center for Research in Security Prices (CRSP) databases. Finally, we eliminate eight firm-year observations in the financial services industry because, as noted by prior research (e.g., Carcello and Neal 2000; Gassen and Ashbaugh-Skaife 2009), the financial distress models do not predict distress for these industries. The final sample consists of 1,110 firm-year observations. In Table 1, panel B we present the industry distribution for the sample. Manufacturing forms the largest group, accounting for 68.4 percent of the GCOs and 45.6 percent of the MWOs. The service industry is the second largest group, accounting for 17.1 percent of the GCOs and 34.3 percent of the MWOs.

14. As a sensitivity test, we also measure financial distress using the Zmijewski 1984 bankruptcy model to select the sample. The results are qualitatively similar to those reported in the paper.

TABLE 2
Incidence of going concern opinion (GCO) and material weakness opinion (MWO)

	MWO = 0	*MWO* = 1	Total
GCO = 0	845 (88.2%)	113 (11.8%)	958 (100%)
GCO = 1	116 (76.3%)	36 (23.7%)	152 (100%)
Total	961	149	1,110
Chi-Square (*p*-value)	15.96 (<0.01)		

Notes:

GCO = indicator variable that equals 1 if the firm has a going concern audit opinion, and 0 otherwise. *MWO* = indicator variable that equals 1 if the firm has a material weakness internal control opinion under Section 404, and 0 otherwise.

4. Empirical results

Univariate differences

Table 2 shows that 14 percent (i.e., 152/1,110) of our firm-year observations have GCOs and 13 percent (i.e., 149/1,110) have MWOs.[15] Based on a chi-square test, there is a significant difference in the incidence of MWOs between the GCO firms and the non-GCO firms. About 24 percent of the GCO firms have a MWO, and about 12 percent of the non-GCO firms have a MWO.

Table 3, panel A presents descriptive statistics. In columns 1–3, we present comparisons between the GCO and non-GCO firms. Consistent with previous research (e.g., Carcello and Neal 2000), GCO firms are smaller (*SIZE*), more stressed (based on both *PROBANKZ* and *DLOSS*), more highly leveraged (*LEV*), and more likely to have received a GCO in the prior period (*PRIORGCO*) than the non-GCO firms. They also have lower operating cash flows (*OCF*), lower investments (*INVESTMENT*), fewer operating segments (*SEGMENTS*), longer reporting delays (*REPORTLAG*), and are less likely to engage in restructuring activities (*RESTRUCTURING*) than the non-GCO firms. Further, GCO firms have greater stock return volatility (*VOLATILITY*) and lower market-adjusted returns (*RETURN*) than non-GCO firms.

Columns 4–6 present the comparisons between the MWO firms and the non-MWO firms. Consistent with prior studies (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007b), we find that the MWO firms have higher leverage (*LEV*) than firms without a MWO. In addition, the MWO firms have longer reporting lags (*REPORTLAG*), larger BETA (*BETA*), lower investments (*INVESTMENT*), and are more likely to engage in restructuring activities (*RESTRUCTURING*) than the non-MWO firms. Finally, the MWO firms are less likely to have Big 4 auditors than the non-MWO firms (*BIG4*).[16]

15. Myers, Schmidt, and Wilkins (2008) report a 24 percent going concern rate for their financially distressed sample in 2002–2005. One reason our sample has a lower going concern rate is that it includes only accelerated filers, (which are subject to the Section 404 requirements, and for which the ICFR opinion is available) that are larger and tend to have a lower incidence of the GCO. Further, the financial distress definition is different in the two studies. If we do not impose the Section 404 audit opinion restriction, and use the same definition of financial distress as Myers et al. 2008, the going concern rate is 24.9 percent for the period 2004–2009.

16. By contrast, Doyle et al. (2007b) and Ashbaugh-Skaife et al. (2007) document a positive association between Big 4 auditors and the likelihood of disclosing internal control problems. We attribute the difference to the fact that our sample is restricted to financially distressed firms, which are smaller and tend to be audited by the smaller audit firms.

TABLE 3
Descriptive statistics and variable correlations

Panel A: Descriptive statistics for GCO vs. non-GCO firms and MWO vs. non-MWO firms

	Mean (Median)[a]					
Variables	*GCO* = 0 (*n* = 958) (1)	*GCO* = 1 (*n* = 152) (2)	*t*-statistic (Wilcoxon *Z*) (3) (1) vs. (2)	*MWO* = 0 (*n* = 961) (4)	*MWO* = 1 (*n* = 149) (5)	*t*-statistic (Wilcoxon *Z*) (6) (4) vs. (5)
PROBANKZ	0.46 (0.35)	0.74 (0.99)	−8.78*** (−9.26)***	0.50 (0.49)	0.50 (0.47)	−0.08 (0.76)
SIZE	5.20 (5.03)	3.88 (3.80)	10.78*** (9.69)***	5.03 (4.80)	4.99 (4.95)	0.31 (−0.35)
AGE	2.16 (2.30)	2.18 (2.35)	−0.19 (−1.20)	2.15 (2.30)	2.24 (2.30)	−1.34 (1.01)
BETA	1.98 (1.79)	2.05 (1.76)	−0.37 (0.03)	1.95 (1.74)	2.23 (2.25)	−1.55 (−2.08)**
VOLATILITY	0.17 (0.15)	0.24 (0.20)	−5.59*** (−8.27)***	0.17 (0.15)	0.19 (0.16)	−1.43 (−1.25)
RETURN	−0.01 (−0.01)	−0.03 (−0.04)	3.23*** (5.08)***	−0.01 (−0.01)	−0.01 (−0.02)	0.34 (0.51)
LEV	0.74 (0.63)	1.19 (0.78)	−2.75*** (−3.16)***	0.79 (0.64)	0.92 (0.64)	−1.77* (−1.67)*
CLEV	0.10 (0.07)	−0.08 (0.18)	0.50 (−5.63)***	0.06 (0.07)	0.17 (0.12)	−1.64 (−1.55)
DLOSS	0.85 (1.00)	0.96 (1.00)	−5.46***	0.87 (1.00)	0.86 (1.00)	0.36
INVESTMENT	0.44 (0.43)	0.39 (0.34)	2.03** (2.06)**	0.45 (0.45)	0.33 (0.28)	5.11*** (4.46)***
BIG4	0.77 (1.00)	0.72 (1.00)	1.31	0.79 (1.00)	0.64 (1.00)	3.43***
OCF	−0.19 (−0.09)	−1.04 (−0.56)	4.64*** (10.89)***	−0.32 (−0.14)	−0.25 (−0.08)	−1.19 (−1.63)
REPORTLAG	4.30 (4.31)	4.42 (4.35)	−5.94*** (−9.50)***	4.26 (4.30)	4.64 (4.51)	−10.07*** (−14.12)***
PRIORGCO	0.02 (0.00)	0.36 (0.00)	−8.57***	0.07 (0.00)	0.09 (0.00)	−1.08
SEGMENTS	2.08 (1.00)	1.81 (1.00)	2.22** (−0.83)	1.98 (1.00)	2.45 (2.00)	−2.66*** (3.40)***
RESTRUCTURING	0.52 (1.00)	0.36 (0.00)	3.64***	0.48 (0.00)	0.59 (1.00)	−2.55**

Panel B: Pearson correlations (top) and Spearman correlations (bottom)[b]

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1. GCO	1.00	**0.12**	**0.23**	**−0.29**	0.01	0.01	**0.25**	**−0.13**	**0.17**	−0.04	**0.11**	**−0.06**	−0.04	**−0.31**	**0.17**	**0.45**	**−0.05**	**−0.11**
2. MWO	**0.12**	1.00	0.00	−0.01	0.04	**0.05**	0.04	−0.01	**0.05**	0.02	−0.01	**−0.14**	**−0.11**	0.03	**0.51**	0.04	**0.09**	**0.08**
3. PROBANKZ	**0.28**	0.02	1.00	**−0.08**	0.00	**−0.06**	**0.21**	−0.02	**0.44**	**0.05**	**0.14**	−0.04	**0.05**	**−0.22**	0.03	**0.14**	**−0.19**	**−0.08**
4. SIZE	**−0.29**	0.01	**−0.11**	1.00	**0.09**	−0.02	**−0.25**	**0.06**	−0.02	0.04	**−0.26**	**−0.47**	**0.26**	**0.39**	**−0.17**	**−0.23**	0.03	**0.23**
5. AGE	0.04	0.03	0.03	0.04	1.00	−0.01	**−0.06**	**0.08**	**0.06**	−0.02	**−0.09**	−0.09	−0.01	**0.10**	**−0.05**	**0.09**	**0.06**	0.03

(The table is continued on the next page.)

TABLE 3 (Continued)

Panel B: Pearson correlations (top) and Spearman correlations (bottom)[b]

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
6. BETA	0.00	**0.06**	**−0.06**	0.02	−0.03	1.00	**0.13**	**0.13**	0.00	0.00	0.01	0.03	0.03	**−0.07**	**0.09**	0.01	0.05	0.02
7. VOLATILITY	**0.25**	0.04	**0.21**	**−0.31**	−0.03	**0.10**	1.00	**0.34**	**0.10**	0.02	**0.11**	0.02	**−0.09**	**−0.31**	**0.08**	**0.25**	**−0.06**	−0.01
8. RETURN	**−0.15**	−0.02	**−0.05**	**0.11**	**0.05**	**0.12**	**0.09**	1.00	**0.09**	**−0.07**	−0.02	**0.05**	0.05	0.00	**−0.09**	**0.06**	0.01	**0.09**
9. LEV	**0.09**	**0.05**	**0.80**	**0.23**	**0.12**	−0.04	0.05	**0.11**	1.00	**−0.64**	0.03	**−0.08**	0.03	**−0.22**	**0.06**	**0.16**	**−0.08**	−0.03
10. CLEV	**0.17**	0.05	**0.56**	**−0.11**	**−0.06**	−0.05	**0.11**	**−0.18**	**0.40**	1.00	0.00	−0.03	0.00	−0.02	0.01	**−0.11**	0.00	0.01
11. DLOSS	**0.11**	−0.01	**0.19**	**−0.24**	**−0.12**	0.00	**0.15**	−0.04	0.05	**0.13**	1.00	**0.19**	0.04	**−0.15**	0.02	**0.09**	−0.04	**−0.10**
12. INVESTMENT	**−0.06**	**−0.13**	−0.04	**−0.46**	**−0.09**	0.03	**0.05**	0.04	**−0.21**	**0.05**	**0.19**	1.00	**0.12**	**−0.19**	**−0.05**	−0.01	**−0.10**	−0.04
13. BIG4	−0.04	**−0.11**	0.04	**0.26**	−0.02	0.03	**−0.09**	**0.08**	**0.07**	0.04	0.04	**0.12**	1.00	0.00	**−0.11**	−0.05	**−0.03**	0.08
14. OCF	**−0.33**	**0.05**	**−0.31**	**0.62**	**0.09**	0.00	**−0.25**	**0.18**	**0.05**	**−0.25**	**−0.38**	**−0.49**	−0.05	1.00	−0.04	**−0.20**	**0.09**	**0.12**
15. REPORTLAG	**0.29**	**0.42**	0.03	**−0.27**	**−0.08**	**0.11**	**0.12**	**−0.17**	**−0.06**	**0.10**	**0.07**	**−0.06**	**−0.16**	**−0.16**	1.00	**0.07**	0.03	0.00
16. PRIORGCO	**0.45**	0.04	**0.17**	**−0.23**	**0.10**	−0.02	**0.19**	0.02	**0.09**	0.02	**0.09**	−0.01	**−0.05**	**−0.22**	**0.14**	1.00	−0.04	**−0.09**
17. SEGMENTS	−0.02	**0.10**	**−0.20**	**0.07**	0.04	0.04	**−0.07**	0.02	**−0.12**	**−0.11**	**−0.05**	**−0.10**	−0.01	**0.15**	0.02	−0.01	1.00	**0.21**
18. RESTRUCTURING	**−0.11**	**0.08**	**−0.09**	**0.22**	0.01	0.02	−0.04	**0.10**	0.01	**−0.09**	**−0.10**	−0.03	**0.08**	**0.17**	−0.05	**−0.09**	**0.22**	1.00

Notes:

[a] Differences in means (medians) are assessed using a *t*-test (Wilcoxon rank sum test). Wilcoxon test statistics are not presented for indicator variables. ***, **, and * denote, respectively, statistical significance at the 1, 5, and 10 percent levels, based on two-tailed tests.

[b] Pearson and Spearman correlations are shown, respectively, above and below the diagonal. Bold text in panel B indicates that correlations are significantly different from 0 at *p*-value $\leq$ 0.10 (two-tailed). *GCO* = 1 if the firm has a going concern audit opinion, and 0 otherwise. *MWO* = 1 if the firm has a material weakness internal control opinion under Section 404, and 0 otherwise. *PROBANKZ* = probability of bankruptcy calculated using the Zmijewski 1984 model. *SIZE* = natural logarithm of total assets of the company at the fiscal year end. *AGE* = natural logarithm of the number of years the firm has CRSP data. *BETA* = firm's beta estimated using the market model over the fiscal year. *VOLATILITY* = standard deviation of the residual from the market model over the fiscal year. *RETURN* = market-adjusted return over the fiscal year. *LEV* = total liabilities over total assets at the end of the fiscal year. *CLEV* = Change in *LEV* during the year. *DLOSS* = 1 if the firm reports a bottom-line loss for the previous year, and 0 otherwise. *INVESTMENT* = short-term and long-term investment securities, including cash and cash equivalents scaled by total assets. *BIG4* = 1 if the auditor is a Big 4 auditor, and 0 otherwise. *OCF* = operating cash flows scaled by total assets. *REPORTLAG* = number of days between the fiscal year-end and the earnings announcement date. PRIORGCO = 1 for firms with going concern audit opinions in the prior year, and 0 otherwise. *SEGMENTS* = the natural logarithm of the number of operating and geographic segments reported by the COMPUSTAT segments database for the firm over the fiscal year. *RESTRUCTURING* = 1 if the firm reports restructuring activity in the prior or current fiscal year, and 0 otherwise.

Table 3, panel B reports the pairwise correlations among the variables. The upper-right-hand portion of this table displays the Pearson product-moment correlations, and the lower-left-hand portion displays the Spearman rank-order correlations. We discuss the Pearson correlations, but note that the Spearman correlations are generally consistent with the Pearson correlations. We do not find any unusual correlations that can raise concerns about multicollinearity.[17] The MWO indicator variable is positively correlated with the GCO indicator variable, providing some initial evidence that the presence of a MWO may increase the likelihood of a GCO.

Logistic regression results for the association between MWO and GCO

Table 4 presents the logistic regression results for (1). Our main variable of interest is *MWO*, which tests the association between the incidence of a MWO and the likelihood of a GCO. The coefficient on *MWO* is 0.72, and is statistically significant (p-value = 0.04), indicating that the issuance of a MWO increases the likelihood of the issuance of a GCO. As discussed, auditors can move their "threshold" (i.e. become more conservative) for issuing the GCO in response to uncertainties and heightened litigation risk (Francis and Krishnan 1999, 2002; Rosner 2003). We conjecture that the issuance of a MWO likely indicates increased uncertainty and litigation risk, making the auditor more conservative in its GCO decision.[18]

Results for the control variables are generally in line with previous work. Smaller firms (*SIZE*), firms with greater financial distress (*PROBANKZ*), higher stock volatility (*VOLATILITY*), lower operating cash flows (*OCF*), lower stock returns (*RETURN*), and lower investments (*INVESTMENT*) are more likely to receive a GCO. Also, firms with longer financial reporting lags (*REPORTLAG*), firms audited by Big 4 auditors (*BIG4*), and firms with GCOs in the prior year (*PRIORGCO*) are more likely to receive a GCO.[19,20]

Potential endogeneity of MWO

Although our results above indicate that the MWO is positively associated with the GCO, it is possible that, despite the fairly comprehensive set of control variables included in the model, there are other underlying latent factors that drive both opinions. Alternatively, it is possible that, because the two opinions are jointly produced, the relation between GCO and MWO is simultaneously determined. To examine these possibilities, we conduct supplementary tests that allow for endogeneity.

First, we use the Heckman 1979 two-stage procedure. In the first stage, we estimate a probit regression of *MWO* on its determinants (see the appendix), which are based on

17. *PROBANKZ* and *LEV* have a high Spearman correlation. Our results do not change when we drop either one of these variables from the model.

18. To check if our results are sensitive to sample industry composition, we reran the logistic regression in Table 4 (a) after deleting the service industry and (b) confining the sample to manufacturing firms only. In both cases, *MWO* has a positive and significant coefficient, with p-values of 0.08 and 0.06 for (a) and (b), respectively. The reduced significance can be attributed to smaller sample sizes.

19. About 76.8 percent of our sample consists of Big 4 clients. We estimated our model for Big 4 clients only. The coefficient on *MWO* is positive and significant (p-value = 0.03) for Big 4 clients. We also partitioned our sample into large and small clients (using the sample median assets as the cutoff), and reran our model for the two groups. *MWO* has a positive significant coefficient for both groups, although with reduced statistical significance (p-value = 0.07 and 0.1 for large and small clients, respectively).

20. Our results are not sensitive to the inclusion of firms with prior year GCOs. When we drop the observations (n = 68) with prior GCOs and rerun the model, we find that *MWO* continues to have a positive, significant coefficient (p-value = 0.07).

TABLE 4
Logistic regression for the association between GCO and MWO

Independent variables	Dependent variable : *GCO*		
	Coefficient estimates	Wald chi-square	*p*-value
Intercept	−5.55**	5.58	0.02
MWO	0.72**	4.11	0.04
PROBANKZ	0.61*	2.65	0.10
SIZE	−0.53***	14.86	<0.01
AGE	0.09	0.33	0.57
BETA	0.02	0.08	0.78
VOLATILITY	5.22***	22.26	<0.01
RETURN	−11.07***	31.65	<0.01
LEV	0.01	0.00	0.97
CLEV	−0.11	0.10	0.75
DLOSS	0.45	0.77	0.38
INVESTMENT	−2.79***	26.40	<0.01
BIG4	0.86***	8.13	<0.01
OCF	−1.28***	12.28	<0.01
REPORTLAG	0.83*	2.96	0.09
PRIORGCO	2.39***	47.14	<0.01
SEGMENTS	−0.05	0.34	0.56
RESTRUCTURING	−0.22	0.72	0.40
N		1,110	
Likelihood Ratio		366.16	
(*p*-value)		(<0.01)	
Pseudo R^2 (%)		28	

Notes:

All variables are defined in Table 3. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.

previous work (Krishnan 2005; Doyle et al. 2007b; Ashbaugh-Skaife et al. 2007).[21] The probit estimates are presented in the appendix. From this regression, we calculate the inverse Mills ratio, *LAMBDA* (see Heckman 1979; Leuz and Verrecchia 2000). In the second stage of this procedure, we include *LAMBDA* in (1) to control for the likelihood of self-selection into the *MWO* group. Table 5, panel A, columns 1–3 presents the second-

21. The models include several variables that proxy for firm complexity: firm size (*MARKETCAP*), the number of business segments (*SEGMENTS*), the presence of foreign operations (*FOREIGNOP*), the presence of merger/acquisition activity (*MA*) and the presence of restructuring activities (*RESTRUCTURING*). *AGGREGATELOSS*, a dummy variable indicating combined losses over two years, proxies for financial stress. We include firm age (*AGE*) because younger firms have generally been found to be vulnerable to internal control failures. Rapid growth is another factor that can cause firms to struggle to maintain the quality of internal control (Krishnan 2005). Consequently, we include *EXTREMEGROWTH* as an additional control. We include *BIG4* and *AUDITORCHANGE* to capture differences in the likelihood of MWOs across auditor types and *RESTATEMENT*, indicating financial restatements, which have been found to be related to internal control deficiencies (Ashbaugh-Skaife et al. 2007). Finally, we include industry affiliation to control for industry-specific factors that might affect internal control quality. The results in the appendix show that financial health (*AGGREGATELOSS*), merger and acquisition activities (*MA*), restructuring activities (*RESTRUCTURING*), audit quality (*BIG4*), the occurrence of a restatement (*RESTATEMENT*), and the occurrence of an auditor change (*AUDITORCHANGE)* are significantly associated with the presence of MWs.

stage regression results of the Heckman two-stage procedure, after controlling for *LAMBDA*. For brevity, we present the coefficients only for the test variable. We find that the coefficient on *MWO* remains positive and significant (p-value = 0.01), confirming our findings in Table 4.

Second, we use a propensity score matching technique (LaLonde 1986) to create a matched control sample of non-MWO firms, based on the predicted probabilities from the probit regression described above. This matching process identifies control firms with the same predicted probabilities (thus incorporating the combined effect of the predictive variables) of having a MWO as the test firms. Thus we have a combined sample of 264 observations, consisting of 132 MWO firms and 132 non-MWO (matched on propensity score) firms. We estimate (1) for this sample. The results, shown in Table 5, panel A, columns 4–6, indicate that the coefficient on *MWO* remains positive and significant (p-value < 0.01), again confirming the findings in Table 4.

Third, we consider whether the results in Table 4 reflect possible simultaneity between GCOs and MWOs. Although our focus is on whether the issuance of a MWO is more likely to induce the issuance of a GCO, it is possible that the auditor is also more likely to issue a MWO, given the existence of material weaknesses, when there is uncertainty regarding a going concern. There are two reasons why auditors may consider doing so at the margin. First, substantial doubts about a company's ability to continue as a going concern are indicative of extreme financial distress, often accompanied by cash flow problems and recurring losses. If there are weaknesses in internal control, the company is unlikely to invest in fixing these weaknesses as it is more focused on its going concern status. Then, the auditor is less likely to expect the material weakness to be remedied and therefore, more willing to issue a MWO. Second, a GCO brings with it the probability of bankruptcy, along with additional scrutiny from regulators and other investigators. Because such scrutiny will include the weaknesses in internal controls (as it did for example, when the financial conditions at Enron and Rite Aid were investigated following revelations of financial distress), the auditor can, at the margin, become conservative with respect to issuing a MWO.[22]

In Table 5, panel B, we present estimates of a simultaneous-equations model of MWO and GCO. The control variables for the GCO equation follow those in Table 4, and the control variables for the MWO equation follow those in the Appendix. For brevity, we present only the coefficients for the test variables. The results indicate that, after controlling for simultaneity, MWO is still positively associated with the likelihood of a GCO. However, there is also evidence of simultaneity between the two opinions.

5. Additional analysis

We present several additional tests to support the results above. As discussed, we expect that the auditor's threshold for issuing the GCO to a financially stressed firm with potential internal control problems depends on the degree of uncertainty engendered by the material weaknesses, and the auditor's ability to offset the uncertainty with audit procedures sufficient to ensure reliability of financial reporting. In the first two subsections below, we examine situations where the uncertainty of, and/or the ability to audit around, the material weakness can vary. Then, we test whether the issuance of a MWO is associated with lower future financing which, we conjecture, may be a reason why the auditor may decide to also issue a GCO. We also test whether the association between MWO and GCO varies across high- and low-litigation industries. Finally, we use disclosures from

22. Companies with going concern problems often look for mergers or are acquired. Such transactions also result in closer scrutiny of the financial statements and can engender conservatism in the auditor's MWO.

TABLE 5
Regression results after controlling for endogeneity of MWO

Panel A: Heckman two-stage estimation and propensity score matching[a]

	Heckman second-stage regression			Propensity score matching		
Independent variables	Coeff est. (1)	Wald chi-square (2)	*p*-value (3)	Coeff est. (4)	Wald chi-square (5)	*p*-value (6)
Intercept	−7.00***	7.60	0.01	−1.46	0.12	0.72
MWO	0.92***	6.05	0.01	1.88***	6.93	<0.01
Control variables	Included			Included		
LAMBDA	0.51*	2.65	0.10			
N		1,110			264	
Likelihood ratio (*p*-value)		368.91 (<0.01)			95.98 (<0.01)	
Pseudo R^2 (%)		28			36	

Panel B: Simultaneity between GCO and MWO[b]

	Going concern opinion (GCO) equation			Material weakness opinion (MWO) equation		
Independent variables	Coeff est. (1)	Wald chi-square (2)	*p*-value (3)	Coeff est. (4)	Wald chi-square (5)	*p*-value (6)
Intercept	−25.99***	15.58	<0.01	12.06	0.0005	0.98
MWO	1.10**	4.41	0.04			
GCO				1.51***	10.04	<0.01
Control variables	Included			Included		
N		1,110			1,110	
Likelihood ratio (*p*-value)		375.20 (<0.01)			179.61 (<0.01)	
Pseudo R^2 (%)		29			15	

Notes:

[a] The dependent variable in panel A is *GCO*. The results in columns 1–3 in panel A are from the second-stage regression of the Heckman 1979 two-stage procedure, after controlling for *LAMBDA*. *LAMBDA* is the inverse Mills ratio calculated from the first-stage regression in which we regress *MWO* on its determinants. The results of the first stage are provided in the appendix. The results in columns 4–6 are based on a propensity-scoring matching technique, using the probit estimates from the appendix to generate a matching sample of non-GCO observations. See text for further details. The model for *GCO* (*MWO*) includes all control variables listed in Table 4 (the appendix). Only the test variables are shown for brevity.

[b] Panel B reports estimates for a simultaneous equations model for *MWO* and *GCO*. The models include all control variables listed in Table 4. Only the test variables are shown for brevity.

Variable definitions are provided in Table 3 and the appendix. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.

SOX Section 302 to examine the association between the *existence* of material weaknesses and the GCO. The purpose of this test is to examine whether it is the existence of material weaknesses, rather than the MWO (as hypothesized above), that drives the association.

Company-level versus account-specific material weaknesses

As discussed in section 2, material weaknesses relating to company-level problems are more difficult to audit around than account-specific weaknesses. This can increase the uncertainty regarding the reliability of the financial statements, making the auditor more conservative in its GCO decision. If so, we would expect MWOs resulting from company-level weaknesses to have a stronger association with GCO, than MWOs resulting from account-specific material weaknesses.

We classify the MWO observations in our sample into those relating to company-level and account-specific material weaknesses.[23] Fifty-six percent of the material weaknesses are classified as company-level weaknesses. Table 6, panel A presents regression results replacing MWO with *MW Company-Level* and *MW Account-Specific,* which are indicator variables that equal one if the firm has a MWO pertaining to company-level and account-specific material weaknesses, respectively, and zero otherwise. For brevity, we only report coefficients for the test variables.

We find that the coefficient on *MW Company-Level* is positive and significant (p-value < 0.01) and the coefficient on *MW Account-Specific* is negative and insignificant (p-value = 0.73), suggesting that MWOs pertaining to company-level weaknesses, but not account-specific weaknesses, increase the likelihood of a GCO. Moreover, an F-test reveals that the coefficient on *MW Company-Level* is significantly larger than that on *MW Account-Specific* (p-value = 0.02). It seems likely that the relatively greater inability to audit around company-level weaknesses (than account-specific weaknesses) creates more uncertainty about the reliability of client financial reporting. This in turn can make it more difficult for the auditor to assess the future financial performance or cash flows of the firm. Consequently, the auditor becomes more conservative in the *GCO decision*.

Remediation of material weaknesses

The discovery of a material weakness by the auditor or management may trigger action on the part of management to remediate the weakness, thus reducing the uncertainty about its effect on the reliability of future financial reporting (and therefore the reliability of the auditor's current forecasts for the future), and/or the ability of the firm to raise capital in the subsequent year. Therefore, if an auditor is aware that the client is in the process of remediating the weakness, it is less likely to issue a GCO. To proxy for the *future* remediation status of the client at the time of issuance of the GCO, we examine the subsequent annual filing for each firm with a MWO (Ashbaugh-Skaife et al. 2008; Goh 2009). If the subsequent filing reveals the absence of a MWO, we assume that the firm had put a remediation plan in place at the time of the previous 10-K filing and that the auditor is aware of the firm's remediation plans.[24] The proportion of MWOs in our sample (untabulated) that were remediated in the subsequent year is about 40 percent.

Table 6, panel B presents a regression model in which we test whether remediation of material weaknesses has a differential effect on the issuance of the GCO. *MW Sub-Remed*

23. We follow prior work (e.g., Doyle et al. 2007a) in performing these classifications. Thus company-level material weaknesses include problems relating to the control environment, management override, the financial reporting process, the audit committee, the internal audit function, or the risk assessment function. Account-specific material weaknesses include problems relating to individual accounts/transactions, such as accounts receivable, inventories, and accrued liabilities. Following Doyle et al. 2007a, we classify observations with both company-level and account-specific weaknesses as having company-level weaknesses.

24. Note that if the client is already remediating the material weakness at the time of issuance of the GCO, the MWO may not be issued. We use our remediation proxy to capture situations where the auditor issues a MWO but anticipates remediation in the near future.

TABLE 6
Material weaknesses type, remediation, and the going concern opinion

Panel A: Regression results for material weakness types

	Dependent variable: *GCO*		
Independent variables	Coefficient estimates	Wald chi-square	*p*-value
Intercept	−5.58**	5.66	0.02
MW Company-Level	1.17***	8.58	<0.01
MW Account-Specific	−0.20	0.12	0.73
Control variables	Included		
N		1,110	
Likelihood ratio		372.01	
(*p*-value)		(<0.01)	
Pseudo R^2 (%)		28	

Panel B: Regression results for MW remediation status

	Dependent variable: *GCO*		
Independent variables	Coefficient estimates	Wald chi-square	*p*-value
Intercept	−6.21***	6.71	0.01
MW Sub-Remed	0.46	1.15	0.28
MW No-Sub-Remed	0.93**	3.88	0.05
Control variables	Included		
N[a]		1,106	
Likelihood ratio		361.09	
(*p*-value)		(<0.01)	
Pseudo R^2 (%)		28	

Notes:

[a] For four firms, we could not determine the remediation status of the material weaknesses because they were delisted by the SEC.

MW Company-Level (MW Account-Specific) is an indicator variable that equals 1 if the firm disclosed a company-level (account-specific) material weakness and 0 otherwise. *MW Sub-Remed (MW No-Sub-Remed)* is an indicator variable that equals 1 if the MW firms remediate (do not remediate) MWs in the subsequent year, and 0 otherwise. All other variables are defined in Table 3. *, **, *** Denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.

(*MW No-Sub-Remed*) is an indicator variable that equals one if the material weakness firms remediate (do not remediate) their weaknesses in the subsequent year, and zero otherwise. As in panel A, we only report the results for the test variables. The coefficient on *MW Sub-Remed* is positive and insignificant (*p*-value = 0.28) and the coefficient on *MW No-Sub-Remed* is positive and significant (*p*-value = 0.05). An *F*-test reveals that the coefficient on *MW No-Sub-Remed* is significantly larger than that on *MW Sub-Remed* (*p*-value = 0.10). These results indicate that the auditor considers the remediation plans/process of the material weaknesses when it decides whether to issue a GCO.[25]

25. An alternative explanation for this result is that the auditor may perceive higher litigation risk if it fails to issue a GCO to a financially stressed company when the company does not have clear plans of remediating material weaknesses.

The MWO and the firm's ability to raise capital

As explained in section 2, one reason why the MWO can impact the GCO is that the negative consequences associated with a material weakness can make it difficult for firms that are already in financial distress to borrow capital. This could exacerbate the financial distress of the firm and increase the auditor's uncertainty about the ability of the firm to operate as a going concern. To examine this possibility, we investigate whether the MWO impairs the firm's ability to raise capital in the subsequent financial year. In separate regressions, we regress the change in short-term debt, change in long-term debt, and change in common stock on *MWO*, while controlling for factors that can influence a firm's ability to raise capital. The change in short-term debt (long-term debt, common stock) is defined as short-term debt (long-term debt, common stock) in year $t + 1$ minus the current debt (long-term debt, common stock) in year t.

We estimate the three regressions for our sample, as well as for a broader sample of all firms with available SOX 404 opinions in the period 2004 –2009. Untabulated results reveal that, for our sample, the issuance of a MWO (*MWO*) is significantly and negatively associated with the subsequent change in short-term debt (p-value = 0.04), and also negatively associated with the change in common stock, although with weak statistical significance (p-value = 0.109). For the broader sample, MWO is negatively associated with the change in short-term debt (p-value = 0.08), the change in long-term debt (p-value = 0.01), and the change in common stock (again with marginal statistical significance, p-value = 0.105). Thus, MWO has a negative effect on subsequent financing, even for a sample that is not confined to financially stressed companies.

Taken together, these results suggest that firms with MWOs raise less capital in the subsequent financial year than firms without MWOs, providing some evidence that the issuance of a MWO does impair the firm's ability to raise capital. This can raise the auditor's concern about the client's ability to overcome financial distress, engendering increased conservatism in the GCO decision.

Litigation risk and the association between MWO and GCO

As discussed, one possible explanation for a positive association between the MWO and the GCO is that the issuance of a MWO causes increased scrutiny and potential concern about litigation, inducing conservatism in the auditor's GCO decision. If so, we would expect the association between MWO and GCO to be stronger for more litigious industries. In order to test this expectation, we partition our sample into high litigation–risk and low litigation–risk groups, and estimate our model for each group.[26] We find that, for high litigation–risk industries, the MWO has a positive and significant association (untabulated) with the GCO (p-value = 0.06). However, there is no significant association between the MWO and the GCO for low litigation–risk industries (p-value = 0.27). Thus, heightened concerns about litigation may be driving auditors to issue the GCO when they also issue a MWO.

SOX Section 302 material weaknesses and the GCO

In this section, we examine whether there is an association between the *existence* of material weaknesses, as reported in Section 302 disclosures about material weaknesses, and the GCO. Material weakness disclosures under Section 302 are not audited, and therefore do not reflect the auditor's opinion on the status of internal controls. As discussed, the

26. Consistent with Francis, Philbrick, and Schipper 1994, the high litigation–risk group consists of firms in the following industries: Biotechnology (SIC 2833–2836), Computer Hardware (SIC 3570–3577), Electronics (SIC 3600–3674), Retailing (SIC 5200–5961), Computer Software (SIC 7371–7379), and R&D services (8731–8734).

existence of a material weakness creates uncertainty about the reliability of financial reporting. However, we conjecture that, in addition to the uncertainties that arise from the *existence* of material weaknesses, a material weakness *opinion* under SOX 404 may further induce conservatism in the auditor's GCO decision because (a) the MWO makes it more difficult to raise financing and (b) litigation fears for auditors are likely greater under Section 404 than under Section 302. The auditor is not responsible for the material weakness disclosures under Section 302, and the guidelines for management discovery and disclosure of the weaknesses were relatively vague (Hoitash, Hoitash, and Bedard 2009).[27] By contrast, the MWO is the result of an audit that is conducted as part of an integrated audit. Hence, we compare our results above, which linked the MWO to the GCO, with that obtained in a model linking material weaknesses disclosures with the GCO.[28]

In Table 7, we present the analysis for two different samples, both of which were not subject to the requirements of Section 404. In columns 1 and 2, we include material weaknesses disclosed under SOX 302 for the period January 2003–October 2004, which is the period preceding SOX 404 reporting. In columns 3 and 4, we include SOX 302 disclosed material weaknesses for our test period (i.e., November 2004–December 2009) for a sample of nonaccelerated filers that were not subject to the requirements of Section 404. We estimate models similar to those reported in Table 4, except that the variable *MWO* is replaced by *MW302*, which is an indicator variable coded one if there are Section 302 disclosures of material weaknesses in any quarterly (10-Q) filing, and zero otherwise.[29]

The results in Table 7 are different from those reported in Table 4, which is based on the SOX 404 sample. Specifically, the coefficient on *MW302* is insignificant in Table 7, columns 1 and 2 (p-value = 0.17) and columns 3 and 4 (p-value = 0.36), indicating that management disclosure of material weaknesses does not impact the GCO. This finding, together with the finding in Table 4, is consistent with the expectation that auditors respond to the uncertainties surrounding a material weakness by issuing a GCO only when they have to issue a MWO, and not due to the *existence* of material weaknesses per se.

6. Conclusions

Section 404 of SOX and *Auditing Standard No. 2* (which was subsequently replaced by *Auditing Standard No. 5*) introduced integrated audits of internal control and the financial statements. The ICFR report provides information about internal control, and is expected to engender an improvement in financial reporting quality by forcing managers to assess their internal control. The new auditing standards describe how the internal control audit can be integrated into the financial statement audit. Considerable discussion has surrounded the new auditing standards. However, all of this attention has centered on the

27. Research results on stock market reaction — which can possibly be used to infer litigation concerns — to Section 302 and Section 404 disclosures of material weaknesses yield mixed results. Beneish et al. (2008) report negative stock market reactions to Section 404 but not to Section 302 disclosures of material weaknesses. However, other studies show negative reactions to material weakness disclosures under both Sections 302 and 404 (e.g., Hammersley, Myers, and Shakespeare 2008; Ashbaugh-Skaife et al. 2009). See Schneider, Gramling, Hermanson, and Ye 2009 for a review of studies.

28. Admittedly, this comparison between the Section 302 and 404 regimes assumes implicitly that the material weaknesses identified are similar, and that the two regimes differ only in the issuance of an ICFR audit report under Section 404. This may not be true, because Section 302 weaknesses are identified by management. Moreover, the vague guidelines allowed discretion on the part of management (Hoitash et al. 2009). Therefore the lack of association between material weaknesses under Section 302 and the GCO that we document may be due to noise in the material weakness disclosures.

29. The samples in Table 7 were generated in the same way as those in the previous tables. We started with stressed firms, and eliminated firms with missing data, or in the financial services industry. About 4.2 percent (18.4 percent) of the sample in columns 1and 2 (columns 3 and 4) have disclosures of material weaknesses (i.e., have *MW302* = 1).

TABLE 7
Material weakness disclosures under section 302 and the going concern opinion

	Dependent variable : *GCO*			
	Section 302 sample (January 2003–October 2004)		Section 302 sample (November 2004–December 2009)	
Independent variables	Coefficient estimates (1)	*p*-value (2)	Coefficient estimates (3)	*p*-value (4)
Intercept	−16.97***	0.01	−12.00***	<0.01
MW302	−1.55	0.17	0.25	0.36
PROBANKZ	0.69	0.30	1.71***	<0.01
SIZE	0.13	0.50	−0.29***	0.01
AGE	−0.39	0.21	0.07	0.51
BETA	0.04	0.50	0.06**	0.05
VOLATILITY	2.30	0.11	1.91**	0.02
RETURN	−4.44*	0.09	−5.45***	<0.01
LEV	−0.10	0.81	0.20	0.33
CLEV	0.82*	0.06	−0.06	0.78
DLOSS	−0.15	0.90	0.40	0.31
INVESTMENT	−1.76*	0.06	−1.07***	0.01
BIG4	−1.12**	0.03	0.15	0.53
OCF	−0.78	0.10	−0.48**	0.03
REPORTLAG	3.42**	0.02	2.08***	<0.01
PRIORGCO	2.64***	<0.01	2.32***	<0.01
SEGMENTS	−0.15	0.35	0.01	0.85
RESTRUCTURING	−0.16	0.71	−0.02	0.95
N	332		728	
Likelihood Ratio	160.23		375.35	
(*p*-value)	(<0.01)		(<0.01)	
Pseudo R^2 (%)	39		40	

Notes:

All variables are defined in Table 3. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.

internal control disclosures and their consequences, and what has been alleged to be high compliance costs imposed by these rules.

Little attention has been given to the impact of the new rules on the audit of the financial statements, which after all is the primary goal of the independent auditor. There is apparently no expectation that the integrated audit, which in effect now produces two products, will affect the "output" of the financial statement audit, the audit opinion. We examine whether, other things equal, the issuance of a MWO increases the likelihood of a GCO for financially stressed companies. In theory, the MWO need not impact the GCO as long as the auditor can audit around the material weaknesses. However, we argue that the uncertainties surrounding material weaknesses, the difficulty of auditing around some types of weaknesses, and the fact that the auditor must explain why it issued a clean report on the financial statements when it had issued a MWO, may cause the auditor to become conservative in its GCO decision, which is fairly ambiguous to start with.

Using a sample of financially distressed firms, we find that a MWO increases the likelihood that the auditor issues a GCO. Further, the association holds for MWOs associated with company-level material weaknesses and not account-specific weaknesses, suggesting that the difficulty with auditing around the former may induce conservatism in the GCO decision. Also, the association holds for industries that are relatively more litigation-prone, but not for less litigious industries, suggesting that the MWO makes auditors more conservative in their GCO decisions when litigation concerns are paramount. To examine whether it is the material weakness *opinion* rather than the *presence* of the material weakness that drives auditor behavior, we examine whether Section 302 material weakness disclosures are similarly associated with the GCO, but find no association. Overall, we interpret our results as suggesting that, while the existence of material weaknesses increases the auditor's uncertainty of the firm's going concern, the act of issuing a MWO engenders conservatism in issuing the GCO.

The results of this study have relevance for policymakers. The objective of Sections 302 and 404 of SOX was to provide information on the internal controls of entities thus enhancing investors' understanding of their financial statements. Although this was expected to enhance the quality of financial reporting, there has been little discussion on how the new policies would impact the likelihood of the GCO. To the extent that the increase in the GCO likelihood is a result of auditor conservatism, our finding suggests the need for a broader evaluation of the effects of SOX 404.

Appendix

Determinants of material weaknesses

Independent variables	Coefficient estimates	Wald chi-square	*p*-value
Intercept	4.00	0.00	0.98
MARKETCAP	−0.04	0.81	0.37
AGE	0.06	0.70	0.40
AGGREGATELOSS	0.67**	5.48	0.02
SEGMENTS	0.04	1.88	0.17
FOREIGNOP	0.00	0.00	0.97
MA	−0.38*	3.44	0.06
EXTREMESALESGROWTH	0.02	0.03	0.87
RESTRUCTURING	0.26**	4.69	0.03
BIG4	−0.23*	3.15	0.08
RESTATEMENT	1.13***	62.80	<0.01
AUDITORCHANGE	0.57***	11.52	<0.01
Industry Dummies	Included		
N		1,110	
Likelihood ratio		179.14	
(*p*-value)		(<0.01)	

Notes:

This table reports the first stage results of the Heckman 1979 two-stage procedure to control for the self-selection of MWO. The dependent variable is *MWO*, which is an indicator variable that equals 1 if the firm has a MWO, and 0 otherwise. *MARKETCAP*, market capitalization, equals log of share price multiplied by number of shares outstanding. *AGE* is firm age, the number of years since the firm appears in CRSP database. *AGGREGATELOSS* is an indicator variable that equals 1 if net income before extraordinary items in years t and $t - 1$ sum to less than zero, and 0 otherwise. *SEGMENTS* is the log of the sum of the number of operating and geographic segments reported by the COMPUSTAT segments database for the firm in year t. *FOREIGNOP* is an indicator variable that

equals 1 if the firm has a nonzero foreign currency translation, and 0 otherwise. *MA* is an indicator variable that equals 1 if the firm has a nonzero merger and acquisition activity. *EXTREMESALESGROWTH* is an indicator variable that equals 1 if year-over-year industry-adjusted sales growth falls into the top quintile, and 0 otherwise. *RESTRUCTURING* is an indicator variable that equals 1 if the firm reports restructuring activity in the prior or current fiscal year, and 0 otherwise. *BIG4* is an indicator variable that equals 1 if the firm engaged one of the largest four audit firms, and 0 otherwise. Largest four audit firms include PWC, Deloitte, Ernst & Young, and KPMG. *RESTATEMENT* is an indicator variable that equals 1 if the firm had a restatement in the twelve months period before the disclosure of MWs, and 0 otherwise. *AUDITORCHANGE* is an indicator variable that equals 1 if the firm changed auditor during the twelve month period before the disclosure of MWs, and 0 otherwise. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively, based on two-tailed tests.

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