

A Synthesis of Research on Auditor Reporting on Going-Concern Uncertainty: An Update and Extension

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1 INTRODUCTION

Reporting on going-concern-related uncertainties remains one of the most challenging issues faced by external auditors. Even though professional standards do not hold external auditors responsible for predicting future events, such as the subsequent viability of audit clients, if an auditor refrains from issuing a going concern modified audit opinion (hereafter GCO) and the client company subsequently fails (referred to in the academic literature as a “type II” reporting error¹), the costs to the auditor in terms of increased litigation costs and loss of reputation are often substantial (Carcello and Palmrose 1994). At the same time, companies usually do not welcome a GCO from their auditor. For example, if an auditor renders a GCO to a financially distressed client, there is often concern that the GCO itself may precipitate, or at least accelerate, the financial distress of the already troubled company resulting in a self-fulfilling prophecy. Further, if an auditor renders a GCO to a client that subsequently survives (referred to in the academic literature as a “type I” reporting error), these clients are significantly more likely to switch to another auditor for their next audit (Geiger, Raghunandan and Rama 1998). It is not surprising, then, that audit

¹ Professional auditing standards across the globe require an auditor to assess whether, in their professional judgement, they believe there is “significant” or “substantial” doubt about the client company’s ability to continue as a going concern for a reasonable period beyond the date of the financial statements. If the auditor maintains “significant” or “substantial” doubt about the client company’s ability to continue as a going concern, then professional standards require them to communicate such doubt as part of their audit report (i.e., render a GCO). Professional auditing standards have never required external auditors to predict the future viability of a financially or operationally distressed client. Nonetheless, academic research has referred to instances where an auditor issues a GCO and the company remains viable as a “type I” reporting error, and cases where a company is no longer viable but the auditor did not previously issue a GCO as a “type II” reporting error. To be consistent with the research included in our review, we use the type I error and type II error terminology, even though these instances are not a reporting “error” on the part of auditors.

practitioners, regulators and standard-setters around the world continue to grapple with this complex issue.²

As requested by the Foundation for Audit Research (FAR), the primary purpose of this research synthesis is to review and discuss the recent academic literature pertinent to the auditor's decision to issue, or not issue, a GCO. Our review begins with research available after the going-concern research synthesis provided in Carson, Fargher, Geiger, Lennox, Raghunandan and Willekens (2013). We attempt to minimize the gap and the overlap in the research discussed in Carson et al. (2013) and our work. Further, in an attempt to be as comprehensive as possible, we do not limit our coverage to only published research, but also include well-developed working papers in the public domain, particularly if we determine they add significant contribution to the literature. In order for our review to provide a consistent categorization of the main issues explored in the recent literature, we adopt the GCO reporting framework presented by Carson et al. (2013) and reproduced in Figure 1. Accordingly, our review categorizes research into studies that: (1) examine the determinants of GCOs, (2) assess the accuracy of GCO reporting decisions, and (3) examine the consequences of GCOs. In our review, we attempt to minimize multiple categorizations of studies by discussing them in the section reflecting the primary focus of the research, as determined by the respective authors' framing of the issues, events and associations

² In fact, the International Auditing and Assurance Standards Board (IAASB) and Financial Reporting Council (FRC) have recently updated their standards concerning going concern and the Public Company Accounting Oversight Board (PCAOB) has a project on their current standard-setting agenda to address auditor responsibilities for assessing and reporting on going concern uncertainties. Additionally, an ongoing issue will be how auditors utilize the newly expanded auditor's report to communicate issues relating to going concern uncertainties and the GCO itself, and whether any differences are driven by professional standards, firm practices or cultural norms. We address these issues in the Future Research section.

examined.³ Nevertheless, there remain studies discussed in multiple sections of our review.

Insert Figure 1 Here

We examine the literature on GCOs beginning with some of the studies in 2012 that were not included in the Carson et al. (2013) review, and conclude with studies that were published or included in the public domain through 30 June 2018. Specifically, we search accounting and auditing journals (see Appendix 1 for the list of journals) and SSRN for research published or posted from 1 January 2012 to 30 June 2018 for articles having the search terms “going concern or “going-concern” anywhere in the article. We find that the number of studies addressing GCOs issues has increased substantially since the Carson et al. (2013) review as we initially identify over 170 articles and well-developed working papers that examined or used GCOs in some manner. We then excluded studies that do not focus their analysis on GCOs in a meaningful way, or use GCOs merely as a control factor without providing any additional discussion or analysis. After this exclusion, 147 research papers remain and are included in our review. Table 1 summarizes the research papers included in our review by year and research method.

Insert Table 1 Here

The remainder of the study proceeds as follows. After reviewing the recent GCO research, we present a section on future research that includes a discussion of methodological issues identified from our review, along with avenues for future

³ For example, we discuss the study by Ettredge, Fuerherm, Guo and Li (2017) regarding the pressure by clients to receive reductions in audit fees during the global financial crisis in the section on auditor-client relations and not in the section on environmental factors.

research. In order to broaden our perspective regarding GCOs and the practical issues faced by auditors making GCO decisions, we held a focus group discussion regarding issues related to GCOs and some recent research findings with representatives of the largest auditing firms in the Netherlands. We provide a summary of this focus group discussion, along with the research issues raised, in the next section. We then present a brief conclusion of our study.

2 DETERMINANTS OF GCOS

As noted above, in order to be consistent with prior work, we generally follow the structure of Carson et al.'s (2013) review, in which they categorize research on the determinants of GCOs into the four broad categories of client characteristics, auditor characteristics, auditor-client relationship characteristics and environmental factors.

2.1 Client Characteristics

The issuance of a GCO is primarily determined by characteristics of the audited client company. Prior research has examined a variety of such factors. We follow the structure of Carson et al.'s (2013) review in which they organize client-related characteristics into (1) measures that are publicly available from the financial statements, (2) variables that are not published in the financial statements, (3) factors related to financial reporting quality, (4) characteristics related to a client's corporate governance, and (5) book values and liquidation values. Table 2 summarizes the reviewed research on client company characteristics and GCOs.

Insert Table 2 Here

2.1.1 Measures of Financial Distress Obtained from the Financial Statements

Prior research reviewed by Carson et al. (2013) has consistently established that companies are more likely to receive a GCO by their auditor when they are less profitable, have higher leverage, have lower liquidity, are smaller, if they have had debt defaults, and when they already received a GCO in the previous year. Carson et al. (2013) also reviewed studies that examine the financial determinants of bankruptcy that auditors rely on in practice, such as the top three financial ratios found by LaSalle

and Anandarajan (1996): net worth/total liability, cash flows from operations/total liabilities, and current assets/current liabilities.

More recent research confirms most of these earlier findings but also adds new, interesting insights. For instance, most GCO research that we have reviewed either selects financially distressed clients when examining the effect of various determinants, or controls for client financial distress in their analyses. Berglund, Eshleman and Guo (2018) raise questions about the manner in which prior research has measured financial health of client companies and suggest that failure to properly control for financial distress may explain inconsistent findings. They propose and test a more adequate way of controlling for client financial health, and demonstrate that doing so helps explain inconsistent findings in prior research with respect to GCO determinants such as auditor size.

Hallman (2017) finds that while the client's financial health (as measured by its Z-score) predicts the likelihood of a GCO, this relationship is also influenced by risk levels of the auditor's other clients. In other words, auditors perceive a client as riskier (resulting in greater GCO likelihood) when the auditor's other clients are relatively less risky and as "safer" when the auditor's other clients are relatively risky. This is the first study to incorporate peers' risk levels in the prediction of the auditor's GCO decision.

Krishnan and Sengupta (2011) focus on certain financial statement factors that auditors consider when making their GCO determination. Specifically, they examine whether auditors incorporate the level of commonly used on- and off-balance sheet obligations in their audit risk assessment. They find that off-balance, but not on-balance, sheet leases are associated with the issuance of going concern opinions, suggesting that auditors view off-balance sheet lease obligations as real liabilities.

Their findings may have implications for ongoing and future financial reporting standard changes regarding accounting for leases.

A couple of recent GCO studies have focused on debt covenants. In some cases, debt agreements include a covenant that restricts the borrower from receiving a going-concern report from their auditor (a so-called GCAR covenant). Menon and Williams (2016) find that firms with a GCO covenant are more likely to receive a GCO report, suggesting that auditors incorporate this information when making their risk assessments. Bhaskar, Krishnan, and Yu (2017) find that firms with debt covenant violations have a greater likelihood of receiving a GCO; this effect is stronger for non-distressed firms than for distressed firms. The findings suggest that auditors consider such client violations as important in their evaluation of a client's going concern.

A growing body of accounting research is concerned with the consequences of filing delays of financial statements. Cao, Chen, and Higgs (2016) observe that such delays are associated with a higher likelihood of GCO issuance. These findings suggest that filing delays also indicate financial distress to a company's auditor.

Desai, Kim, Srivastava, and Desai (2017) provide systematic archival evidence on the relationship between three major financial distress factors (negative cash flows, recurring losses, and negative working capital) and auditors' propensity to issue GCOs. They find that the average likelihood of companies that received GCOs is highest, at 78 percent, when all three distress factors are present. The comparable value for companies with only negative cash flows is 50 percent, for companies with only recurring losses is 71 percent, and for companies with only negative working capital is 58 percent. While these general insights are not new, the authors contribute to the literature by analyzing each distress signal separately and by corroborating prior

findings using an innovative search engine and text mining technique, allowing them to go beyond traditionally used archival data.

It is reasonable to assume that auditors may incorporate managements' earnings forecasts in their GCO reporting decisions. Interestingly, Feng and Li (2014) find that auditors exhibit professional skepticism when doing so, such that the propensity of issuing a GCO increases with the extent to which forecasts are overly optimistic. Further, Krishnan and Wang (2015) investigate whether auditors' reporting decisions are influenced by the client's managerial ability in transforming corporate resources into revenues. Indeed, they find that managerial ability reduced the likelihood of a GCO.

While most GCO studies focus on publicly listed firms, we identified two studies that examined financial statement characteristics with a focus on non-public firms and municipalities. First, Foster and Shastri (2016) focus on U.S. startup entities and find that the following variables are significant in predicting the likelihood of receiving a GCO: assets size, negative working capital, and presence of a prior-year GCO. Second, Paananen (2016) focuses on municipalities in Finland. These entities cannot go bankrupt, so the author instead considers determinants of audit report modifications instead of going concern opinions. Paananen (2016) finds that a modified audit opinion is more likely in the case of a long audit report lag, a large audit firm, large client, poor leverage, and a male principal auditor, suggesting some similarities with private markets.

Currently, most GCO research has been conducted using U.S. data, and multi-country GCO studies are relatively rare. However, some studies examine whether the influence of client-related determinants on auditors' reporting behavior holds for

countries other than the U.S. For example, Sormunen, Jeppesen, Sundgren, and Svanström (2013) focus on the Nordic countries (Denmark, Finland, Norway, and Sweden) and find that, while there are inter-country differences, overall, going-concern reporting is significantly associated with probability of bankruptcy, loss, and client size for all countries, which is similar to earlier, predominantly U.S.-based, findings. Vichitsarawong and Pornupatham (2015) examine whether the auditor's opinion is associated with earnings persistence in Thailand, where the reporting requirements differ from other countries. They find that firms with lower earnings persistence are more likely to receive modified opinions. In analyses replacing modified opinions with GCOs, the findings hold, but to a weaker extent. Finally, Carson, Fargher, and Zhang (2016) confirm that the likelihood of a GCO is higher for smaller companies amongst Australian listed companies for the period 2005 to 2013, consistent with prior findings in other countries.

2.1.1.1 Research on Bankruptcy Probability

An abundance of prior research has examined under which bankruptcy probability values (using models by Altman (1968) and Zmijewski (1984)) auditors are more likely to issue going concern opinions. More recently, Lennox and Kausar (2017) find that auditors are sensitive to estimation risk when they form beliefs about their client's bankruptcy likelihood. Bankruptcy is an uncertain future event, and estimation risk captures the degree of imprecision in the point estimates of bankruptcy. Lennox and Kausar (2017) demonstrate that auditors become more likely to issue GCOs as estimation risk increases, confirming auditors' conservatism particularly in the presence of heightened uncertainties. The study also contributes to research and practice by demonstrating a relatively simple way to compute estimation risk.

According to prior research, bankruptcy probability values used by auditors to trigger a GCO range from 0.4 to 0.6 (e.g., Asare 1992, Davis and Ashton 2002; Ponemon and Rahghunandan 1994). In other words, auditors start viewing their clients as being in substantial doubt when the likelihood of bankruptcy is about 50 percent. Ittonen, Tronnes, and Wong (2017) use the concept of Shannon entropy from information theory, and find that the information value of auditors' reports can be maximized by using a 0.08 probability of bankruptcy as the cut-off for substantial doubt. In other words, their findings suggest that auditors should consider using a much lower substantial doubt threshold than the conventional 50 percent cut-off, which would result in greater overall informational value for financial statement users.

2.1.2 Measures Obtained from Outside the Financial Statements

According to Carson et al.'s (2013) review, client-related factors outside the financial statements associated with auditors' GCO reporting can be divided in two categories. First, market variables (such as industry-adjusted returns and return volatility) are negatively associated with GCO issuance; however, it is unclear whether auditors in fact use this information in their decision-making or whether the variables simply correlate with the auditor's opinion. Second, prior research reviewed by Carson et al. (2013) has examined the impact of contrary factors and mitigating client information, such as management plans, debtor-in-possession financing, and management turnaround activities. Overall, auditors appear to consider these information sets in their GCO decision.

Our review of the more recent literature has revealed extensive research effort into the impact of management choices and activities on the auditor's GCO decision. In one of the few experimental studies on auditors' GCO issuance behavior,

Bruynseels, Knechel, and Willekens (2013) examine whether management turnaround initiatives affect auditors' evaluation of financial evidence and, ultimately their going-concern judgment. They find that *operating* turnaround initiatives lead to lower auditor recall of positive financial evidence and, as a result, a higher likelihood of issuing a GCO, suggesting that such initiatives geared toward operating strategies are mainly seen as risk factors. However, *strategic* turnaround initiatives had no effect on the auditors' GCO decision.

In accordance with the assumption that auditors follow the principles of the risk-based audit approach, and hence consider their client's strategy when identifying business risks, Chen, Eshleman, and Soileau (2017) find that auditors seem to be aware of the higher risks associated with certain strategies, such that 'prospector' firms (innovative firms with an often-fluctuating product mix, rapid and sporadic growth patterns) are more likely to receive a GCO than 'defenders' (cost leaders with a narrow and constant mix of product, and cautious, incremental growth patterns). However, it also seems to be more difficult to accurately predict bankruptcy for prospector clients, as prospector firms that subsequently went bankrupt were less likely to receive a GCO (i.e., more likely facing a "type II error").

Another strategic choice that companies make is forming alliances with other firms. Demirkan and Zhou (2016) demonstrate that auditors view such strategic alliances favorably, as going concern rates decrease as a result. This could be due to greater chances of attracting investors or carry-over effects of the alliance partners' reputation, helping firms gaining access to credit. Additionally, the choice to make political contributions is another way firms can form outside alliances. Unlike business alliances, however, Heflin and Wallace (2015) find that GCO decisions are not

associated with political contributions in the US. Further, although they do not examine GCO reports separately, He, Pan and Tian (2017b) examine auditors' modified reports in China for firms that formerly had ties to corrupt bureaucrats. They find that in the period after the corrupt bureaucrat is removed from office, the formerly connected state-owned enterprises (SOEs) receive more favorable audit opinions than their non-connected counterparts, whereas connected non-SOEs obtain less favorable opinions. Their findings suggest that Chinese auditors perceived the termination of political connections to increase audit risk for non-SOEs, resulting in more (more serious) report modifications, while the audit risk for connected SOEs appears lower, resulting in more favorable audit opinions.

Fargher, Jiang, and Yu (2014) examine whether auditors incorporate a client firm's compensation structure in their GCO reporting decision. They find that CEO equity incentives indeed affect the propensity of issuing a GCO, such that CEO portfolio deltas (i.e., the sensitivity of CEOs' wealth to stock prices) reduces the likelihood of issuing a GCO, suggesting that auditors' reporting decisions are sensitive to compensation structures which may mitigate management risk-taking.

Investing in information technology is another strategic choice that companies make. Han, Rezaee, Xue, and Zhang (2016) find that IT investments are positively associated with auditors' GCO issuance, suggesting that such investments are seen as risky by auditors. They also find that auditors are more likely to make type II GCO reporting errors as a result of greater IT investments. Conversely, Pincus, Tian, Wellmeyer, and Xu (2017) demonstrate beneficial effects of enterprise systems (ES), such that ES implementation results in a greater likelihood of auditors issuing GCOs to firms that go bankrupt (i.e., fewer type II errors). However, they also find that in

the presence of ES, auditors exhibit excessive type I errors, so are overly conservative in their GCO decisions.

Further, auditors are more likely to issue a GCO for clients engaging in controversial activities (related to consumers, employees, the community, or the environment), suggesting that auditors have a broad view when making their GCO assessment (Koh and Tong 2013).

Burke, Convery, and Skaife (2015) find that firms that earn more revenues from the government are less likely to receive GCOs, suggesting that auditors perceive public revenue sources as a sign of stability or financial health. The finding that the loss of government contracts in a subsequent year is associated with higher GCO likelihood in the current year further strengthens this conclusion.

We identified two studies that examine whether auditors' GCO decisions are associated with changes in the senior management. First, Zaher (2015) finds that the likelihood of a GCO is higher when a new CFO was appointed, suggesting that the client's negotiation power may be restrained before a relationship with the auditor has been established. Beams, Yan, Boonyanet, and Chartraphorn (2016) similarly examine CFO and CEO resignations. They find a positive relationship between CFO, but not CEO, resignations and the likelihood of a GCO, suggesting that auditors perceive the departure of a CFO as a red flag.

The expected future performance by a company may be expressed in external credit ratings, such as those of Moody's and Standard & Poor's (S&P). Feldman and Read (2013) and Strickett and Hay (2015) examine distressed bankrupt companies in the U.S. and find that prior to bankruptcy filing, a GCO is significantly associated with the credit rating of the company issued by S&P or Moody's in the period immediately

preceding the audit report date. They also find that after issuance of a GCO, S&P tends to downgrade the company credit rating, which is also consistent with the argument that the auditor's opinion has informational value to the market, including credit rating agencies.

Finally, an auditors' decision to issue a GCO is sensitive to their client's workplace climate and tone at the top. According to research by Huang, Masli, Meschke, and Guthrie (2017), the probability of receiving a GCO is lower for financially distressed clients when they offer employees a better workplace for their employees. In addition, Kim (2017) measured client management's overconfidence (as part of a company's tone at the top) and found that clients with overconfident managers are more likely to receive a GCO. Hence, auditors view manager overconfidence as a red flag.

2.1.3 Financial Reporting Quality

Several studies reviewed by Carson et al. (2013) find that the auditor's GCO propensity is negatively influenced by the client's financial reporting quality. The premise is that low financial reporting quality prompts auditors to issue GCOs; however, this premise has been disputed, and the relationship seems to hold only for large negative accruals, which also reflect a poor financial condition of GCO companies. We identified one study, DeFond, Lim, and Zang (2016), which finds evidence that auditors view client reporting conservatism as an important risk determinant in their reporting decisions, such that conservatism is indeed associated with fewer GCOs. The authors further maintain that this relationship is mediated not only by inherent risk, but also indirectly by reducing audit business risk.

Another stream of literature related to financial reporting quality examines the relationship between a client's internal control weaknesses and their auditor's GCO decision. Arguably, internal control weaknesses are a proxy, or at least a determinant, of financial reporting quality. Since SOX, U.S. listed companies must report on the effectiveness of their internal controls over financial reporting and auditors must provide an opinion on this matter. Goh, Krishnan, and Li (2013) find that auditors' issuance of a report indicating a material weakness in internal controls on a financially distressed client serves as a trigger to also issue a GCO to these firms. The authors suggest that the uncertainty about the reliability of the financial statements might result in (1) a spill-over on auditors' ability to forecast the firm's going concern status, (2) financing difficulties for the firm, and/or (3) greater litigation risk. Interestingly, a *clients'* reporting of material weaknesses in internal control doesn't have the same effect as the auditors' reporting of material weaknesses in the Goh et al. (2013) study, but Hammersley, Myers, and Zhou (2012) find that companies that fail to remediate existing material weaknesses are more likely to receive GCOs.

When looking at the overall quality of a firm's information environment, Abad, Sanchez-Ballesta, and Yague (2017) find that information asymmetry measures are highest for Spanish firms getting a GCO qualification compared to firms receiving unmodified opinions or qualifications other than GCOs. Their results suggest that GCOs are positively associated with the highest levels of future uncertainty and firm information asymmetry.

2.1.4 Corporate Governance

Consistent with prior (pre-SOX) research which finds that auditors' GCO reporting is conditional on the client's corporate governance, Bruynseels and

Cardinaels (2014) find that, post-SOX, the likelihood of a GCO is lower when friendship ties are present between the client's CEO and its audit committee. The authors argue that these social connections lead to a weaker audit committee, ultimately resulting in lower audit quality, as proxied by GCO issuance. Further, Dhaliwal, Lamoreaux, Lennox, and Mauler (2015) find that even higher quality audit committees fail to mitigate the adversely negative effect of clients hiring affiliated auditors on the propensity to issue a GCO.

In the context of UK failed firms, Wu, Hsu, and Haslam (2016) find that non-audit services reduce the likelihood of a GCO but only when the client's audit committee is relatively more independent and has a greater proportion of financial experts. They also find that failed UK firms with higher proportions of independent non-executive directors and with financial experts on the audit committee are more likely to receive GCOs prior to bankruptcy (i.e., fewer type I errors).

2.1.5 Book Values and Liquidation Values

Prior research suggests that auditors are more likely to issue GCOs when the book values are high relative to their expected realizable values. Continuing that line of research, Kausar and Lennox (2017) examine whether auditors use GCO reporting in order to compensate for financially distressed clients' lack of reporting conservatism in the balance sheet. Consistent with earlier studies, they find that auditors are more likely to issue GCOs for clients with large differences between book values and the liquidation value of assets.

2.2 Auditor Characteristics

The issuance of a GCO is undoubtedly influenced by the characteristics of the auditors making the GCO decision. Prior research has examined a variety of such

characteristics. We generally follow the structure of Carson et al.'s (2013) review, in which they categorize research on auditor-related characteristics into (1) auditor judgements, (2) economic dependence, (3) auditor size, (4) industry specialization, (5) auditor compensation arrangements, and (6) auditor's organizational forms. However, in our review we have repositioned the discussion of the economic bonding literature to the auditor-client relationship section and have added sub-sections on audit firm workload effects, audit firm office effects, and characteristics of audit personnel to discuss these growing research areas. Additionally, we do not include the section on auditor compensation arrangements due to lack of focused research in this area during our review period. Prior research has consistently established that individual auditor and audit firm characteristics play a significant role in GCO reporting decisions, and studies in our review continue to refine this area to focus more acutely on which individual and firm characteristics are most salient to the GCO decision. Table 3 summarizes the research on auditor characteristics and GCOs.

Insert Table 3 Here

2.2.1 Auditor Judgment

Experimental evidence specifically addressing GCO reporting decisions and judgement processes has been relatively sparse in the past, but has increased in the more recent years. For example, an experiment by Lambert and Peytcheva (2017) finds evidence that auditors are prone to the fallacy of evidence averaging when performing a GCO assessment. That is, auditors tend to average the diagnosticity of all the available evidence jointly at the end of a task. Accordingly, when strong negative GCO evidence is averaged with milder negative evidence, or with positive evidence, it may lead to more positive overall GCO assessments than if the strong

negative evidence was evaluated in isolation. This could be a problem if, for example, strong negative GCO evidence when evaluated by itself would cause the auditor to issue a GCO but when aggregated with other less negative information, it may result in not rendering a GCO. Lambert and Peytcheva's (2017) results suggest caution in particular because going-concern related evidence at the end of the audit is typically evaluated in a summative causal configuration (as opposed to a typical structured workpaper order or randomly ordered).⁴ Compiling and then evaluating all evidence simultaneously regarding the client company's ability to remain a going concern may result in less optimal GCO decisions than assessing individual pieces of diagnostic evidence.

Additionally, Duh, Kuo, and Yan (2018) find that the type of workpaper review (i.e., face-to-face or via email) affects the quality of auditors' GCO decision documentation. In their experiment with Taiwanese auditors, they find that auditors in the face-to-face review format group performed better on the evaluation task, and generally had higher workpaper quality, especially for a low complexity task, than those in the email review format group. Further, Kim and Harding (2017) find that the perceived expertise of superiors causes subordinate auditors to distort predecisional information in favor of the superior's initial GCO decision preference. Specifically, they find both auditors from Australia and South Korea exhibit greater levels of predecisional distortion of evidence toward a preference held by a superior with a relatively high level of expertise than toward a preference held by a superior with a relatively lower level of expertise. The authors argue that the implications of their

⁴ See also Grossman and Welker's (2011) experimental evidence regarding auditor susceptibility to memory conjunction errors.

findings for audit quality depend, in part on the accuracy with which auditors perceive their superior's expertise, which remains an unresolved empirical question.

Experimental work by Guiral, Rodgers, Ruiz and Gonzalo-Angulo (2015) finds that Spanish auditors with higher levels of GCO task knowledge and experience were less influenced by ethical conflicts of interest (i.e., perceptions of the self-fulfilling prophecy) and more likely to issue a GCO to a highly stressed client. Hence, experience can help mitigate unconscious bias in some GCO decision-making contexts.

In a unique experiment in the auditing literature, Junior, Cornacchione, Rocha and Rocha (2017) examine brain waves of 12 auditors and 13 accountants in Brazil on a going-concern assessment task to examine the extent to which brain-mapping patterns were different between the two groups and whether they reflected the individual's behavioral patterns of judgments. During the decision process, auditors exhibited fairly homogeneous brain processing patterns, while accountants' patterns were more disbursed and revealed more cognitive conflicts and the use of greater cognitive effort. Both groups had similar final assessments of the probability of the experimental company to continue as a going concern; however, auditors would have issued more GCOs than the accountant group. For both groups, the occurrence of maximization (minimization) of judgments occurred in the area of the brain associated with identification of needs and motivations linked to individuals' relations with their social group. The authors conclude that concerns with the going concern judgments' social repercussions lead to some degree of "conservatism" in their decisions. Their results suggest that auditors (and accountants) subconsciously factor in social aspects of their going concern decisions even when assessing only financial information related to the company.

Ahn and Jensen (2017) use archival office-level data to assess whether auditors use information about *prior* type I and type II error rates to improve audit quality and future GCO decisions. They find that auditors systematically decrease (increase) their office-wide conservatism levels (as measured by changes in client's reported levels of abnormal accruals) subsequent to increases (decreases) in type I errors, and that auditors systematically increase (decrease) their office-wide conservatism levels subsequent to increases (decreases) in type II errors. In the context of changed GCO decisions, auditors who experience an increase (decrease) in type I errors in a given period systematically decrease (increase) their propensity to issue GCOs in the subsequent period. In contrast, they find no evidence that auditors who experience an increase (decrease) in type II errors in a given period systematically increase (decrease) their propensity to issue GCOs in the subsequent period. However, in *ex-post* analyses, they find that changes in type I (type II) errors in a given period are negatively associated with changes in type I (type II) errors in the subsequent period. Collectively, their results suggest auditors systematically adjust their GCO reporting thresholds after observing changes in their office's type I and type II error rates.

2.2.2 Audit Firm Size

2.2.2.1 GCO Issuance and Error Rates

Myers, Schmidt and Wilkins (2014) examine the period 2000-2006 and find that non-Big N auditors in the U.S. reduced their type II misclassifications at the expense of increased type I misclassifications after 2001, while Big N auditors decreased their type I misclassifications with no corresponding increase in type II misclassifications. In contrast, when examining a longer time period of 2001 to 2013, Foster and Shastri (2016) find no significant differences in GCO reporting decisions between Big N and

non-Big N auditors for start-up/development stage enterprises. In his meta study on determinants of GCOs, Habib (2013) concludes that, in general, Big N auditors are generally more likely to issue GCOs than non-Big N auditors.

Examining the effect of the Global Financial Crisis (GFC) on GCO reporting in Australia, Xu, Carson, Fargher and Jiang (2013) find that while overall GCO rates increased during the 2007-2008 period of the crisis, Big N auditors in Australia responded faster to the crisis and increased their GCO rates earlier than the non-Big N auditors. In addition, the survey article by Carson et al. (2016) documents a trend in Australia between 2005 and 2013 of Big N auditors, in general, issuing fewer GCOs than non-Big N firms, confirming Habib's (2013) conclusion. Ratzinger-Sakel (2013) finds similar evidence that Big N audit firms in Germany are less likely than non-Big N firms to issue a GCO, but largely only for engagements characterized by both relatively high levels of NAS fees and client financial stress.

In contrast, Berglund, Eshleman and Guo (2018) argue that after providing better control for client financial stress than prior research, Big N firms in the U.S. render more GCOs and have fewer type I errors compared to non-Big N firms, while there is no difference in type II errors between Big N and non-Big N firms.

Mo, Rui and Wu (2015) find evidence that the effect of regulation depends on audit firm size. They examine Chinese GCO reporting before and after the first Chinese bankruptcy law in 2006 and find that while GCO reporting tendencies for the Big N affiliate firms did not significantly change, the Big N affiliate firms issued more GCOs than non-Big N affiliate firms both before and after the adoption of the new law. They also find that the 10 largest local firms issued more GCOs compared to the remaining smaller audit firms in the post-law period, but not in the pre-law period. Additionally,

GCO propensities were similar for the Big N affiliate firms and the top 10 local firms in the post-law period, but not in the pre-law period.

Similarly, the association between audit firm tenure and type II errors appears to depend on audit firm size. Read and Yezegel (2016) find no significant association between auditor tenure and type II errors for Big N audit firms in the US. However, for non-Big N audit firms, they find auditor tenure appears to adversely influence GCO decisions in the initial years of an audit engagement, but has no discernible effect in the later years.

Harris, Omer and Wang (2015) provide one of the few examinations of consecutive GCOs. Their analysis finds that larger audit firms (i.e., Big N and second-tier) issue fewer consecutive GCOs, and smaller audit firms issue consecutive GCOs to a greater proportion of clients at higher risk of bankruptcy and misstatements.

2.2.2.2 Studies on Big N Audit Firm Mergers and Closings

In a study examining auditor GCO reporting decisions on former Arthur Andersen (AA) clients, Lai (2013) finds that Big N audit firms were more likely to render GCOs to former AA clients than non-Big N auditors. He also finds that Big N auditors reported more conservatively (i.e., were more likely to render a GCO) while non-Big N auditors reported less conservatively on ex-AA clients compared to their non-ex-AA clients in their initial audits. In addition, Kumar and Lim (2015) find that prior to their closing, AA was less likely to issue GCOs in 1999 compared to the other Big N firms, but that AA had similar GCO rates to other Big N firms in the years prior to 1999.

In a study of the Price Waterhouse Coopers and Lybrand merger, Choi, Kim and Raman (2017) find that the merged PricewaterhouseCoopers firm, compared to

the other Big N firms, exhibited a greater propensity to issue GCOs in the immediate post-merger period. They also find evidence at the office level that, compared to the individual firm's offices in the pre-merger period, the merged offices were more likely to issue GCOs, suggesting audit quality increased after the merger both at the overall firm level and the office level.

2.2.2.3 Other Factors

Beck, Francis and Gunn (2018) conclude that the overall quality of the city's labor market is positively associated with GCO accuracy of the local practice office, and that this association is stronger for non-Big N offices as they are more reliant on local labor markets compared to the Big N offices.

2.2.3 Industry Specialization

Several studies have examined if auditor industry specialization is associated with GCO reporting decisions and accuracy. Bills, Jeter and Stein (2015) find that industry-specialized auditors are more likely to issue GCOs than non-specialists, and that specialists in homogenous and complex industries report similarly to other industry specialists. In contrast, studies by Basioudis, Gul and Ng (2012), Minutti-Meza (2013) and Sundgren and Svanstrom (2014) find no significant differences in GCO decisions between industry specialists and non-specialist auditors. Further, Dunn, Tan and Venuti (2012) find no difference in type II errors rates between specialist and non-specialist Big N auditors and Harris et al. (2015) find that industry specialization is not significantly associated with issuing consecutive GCOs in their multivariate analyses.

2.2.4 Auditor Organizational Forms

He, Pan and Tian (2017a) examine the Chinese mandate in 2010 for auditors to switch legal forms from limited liability companies (LLC) to limited liability partnerships (LLP), removing the liability cap on negligent auditors. They find that auditors in LLP firms are more likely to issue GCOs than auditors in LLC firms. Their analysis also provides some evidence that the increase in GCO probability is greater for local auditors of state-owned enterprises, but not for local auditors in general.

2.2.5 Firm Workload

Lopez and Peters (2012) examine whether audit firm busy season (proxied as clients with December fiscal year-ends) and workload compression (proxied as the relative concentration of companies with the same fiscal year-end date in an auditor firm's client portfolio) affect U.S. audit quality, including issuance of GCOs. While they find some evidence of reduced audit quality in other areas, they find no association between either firm busy season or workload compression on the probability of issuing a GCO. As noted in subsequent sections, the issue of workload effects on audit quality and reporting are addressed at the office and partner level as well.

2.2.6 Audit Office Effects

In recent years, researchers have used the specific office of an audit firm as the unit of analysis and examined the effects of numerous factors on specific practice offices, usually within large audit firms. For example, Hallman (2017) finds that GCOs are issued more frequently to clients with greater differences in Z-scores (a measure of bankruptcy probability) compared to the audit *offices'* average client Z-score, but not compared to the *firm's* average client Z-score. His results highlight the importance of using the audit office as the unit of analysis instead of the audit firm. Additionally,

Beck et al. (2018) find that the overall quality of the local office city's labor market is positively associated with GCO accuracy (i.e., type I and type II error rates). Choi et al. (2017) find that the increased propensity to issue a GCO after the PricewaterhouseCoopers merger was driven by the merging of former Price Waterhouse and Coopers & Lybrand practice offices in the same city and not from the non-overlapping offices where the merger did not involve blending two practice offices together.

2.2.7 Characteristics of Audit Firm Personnel

2.2.7.1 Partner Characteristics

Research examining the association of individual audit partner characteristics and GCOs has accelerated over the past few years. For example, Cameran, Campa and Francis (2017) study the effect of UK individual audit partners on audit outcomes, including GCOs. They find that individual partner differences account for more explained variance in audit outcomes than the combined effects of audit firm type (Big 4 vs non-Big 4) and individual audit office effects, suggesting a substantial difference in GCO decisions across individual partners. They also examine individual partner characteristics and find some support that partners from higher ranked universities, those with more years of experience and those with LinkedIn accounts are more likely to issue GCOs, and busy partners and partners from Big 4 firms are less likely to issue GCOs. However, they conclude that the variance explained by specific individual characteristics is small, suggesting that other (unknown) individual characteristics drive the inter-partner differences in GCO decisions and other audit outcomes.

Unlike Cameran et al. (2017) who find no gender effect on GCO decisions, Hardies, Breesch and Branson (2016) find that female engagement partners in

Belgium are more likely to issue GCOs compared to male engagement partners, suggesting more conservatism among female partners. Yet, Hossain, Chapple and Monroe (2018) find female Australian audit partners are less likely to issue a GCO and to have a type I reporting error, but partner gender had no significant association with type II errors in their study. Thus, the effect of gender on GCO decisions and the accuracy of those decisions is an unsettled issue.

Knechel, Vanstraelen and Zerni (2015) examine Swedish engagement partner GCO rates over multiple years and find that aggressive and conservative reporting persists for individual partners over time. They also find that for audit partners who exhibit a history of high GCO reporting errors, their clients' current accruals are less predictive of future cash flows, suggesting lower financial reporting quality. Second, they conclude that the market recognizes and prices differences in engagement partner reporting styles, in that companies audited by partners with a history of aggressive GCO reporting are charged higher implicit interest rates, have lower credit ratings, and higher assessed insolvency risk. Sundgren and Svanström (2014) find that older auditors are less likely to issue GCOs prior to bankruptcy in Sweden. In Australia, Goodwin and Wu (2016) find that after controlling for partner fixed-effects, older auditors are less likely to issue GCOs (both first-time and continuing GCOs) and are less likely to issue accurate GCOs when assessing client viability up to two years out.

Kallunki, Kallunki, Niemi and Nilsson (2018) examine the association of Swedish male⁵ audit partner IQ and GCO reporting and find that audit partners' IQ scores are positively associated with GCO accuracy. Their results hold for type I, type II and the combined total of GCO reporting errors. Similarly, Che, Langli and Svanström (2018)

⁵ They examine only male partners as their IQ data is obtained from a military database kept for all males that must register with the Swedish military. Females in Sweden are not mandated to register with the military.

find that Norwegian audit partners with more education, that take more CPE courses, that have more years of experience, and more industry specialized experience issue more accurate GCOs. They assess a combined GCO accuracy measure for both type I and type II error rates. These two recent studies demonstrate that the cognitive ability of audit partners, along with increased training and experience are important determinants in delivering high-quality audit services, including accurate GCOs.

Goodwin and Wu (2016) examine Australian audit partner busyness, proxied by the number of audits performed during the year, and find busyness is not significantly associated with overall GCO rates, issuance of first-time GCOs or with type II GCO reporting error rates. Conversely, Gul, Ma and Lai (2017) find that busy Chinese partners are less likely to issue a GCO, consistent with the presence of a busyness effect. However, the effect is only present when partner tenure is short (3 years or less), consistent with Geiger and Raghunandan's (2002) earlier finding with respect to U.S. audit firms. Additionally, Sundgren and Svanstrom (2014) find that busy Swedish auditors are less likely to issue GCOs prior to bankruptcy, but that the association is found only in the Big N firms and not the smaller audit firms.

Using proprietary PCAOB data, Gipper, Hail and Leuz (2017) find that Big N audit partner tenure is not associated with the probability of issuing a GCO in the U.S. Similarly, Chi, Myers, Omer and Xie (2017) examine Taiwanese audit partners and find that audit partner tenure is not significantly associated with the probability of issuing a GCO in Taiwan.

2.2.7.2 Audit Staff Characteristics

Hossain, Yazawa and Monroe (2017) find that, overall, GCOs are positively related to the total number of auditors and number of seniors on an engagement.

However, *first-time* GCOs are only positively related to the total number of auditors. Unfortunately, they do not assess the association of partners, or number of senior managers and specialists with GCO decisions.

As noted in a previous section, Beck et al. (2018) conclude that the overall quality of the city's labor market is positively associated with GCO reporting accuracy of the local practice office. While they find that this association is stronger for non-Big N offices, as these firms may be more reliant on local labor markets, they find it for Big N practice offices as well.

Finally, using a unique dataset on individual auditor performance ratings for positions below partner from one Big N audit firm, Stice, Stice and White (2017) create a measure of auditor quality at the office level for seniors, managers and senior managers. They find that audit offices with high performing seniors are three times more likely to issue GCOs than audit offices with low performing seniors. They find no similar association for high/low performing managers or senior managers. Their results suggest that high quality seniors are an important contributor to high quality audits, leading to more GCOs.

2.3 Auditor-Client Relationship Characteristics

An auditor's GCO decision is influenced by the interaction between the auditor and their client. Prior research has examined a variety of such auditor-client interactions. We generally follow the structure of Carson et al.'s (2013) review, in which they categorize research on auditor-client relationships into (1) auditor switching and opinion shopping, (2) auditor-client tenure, (3) personnel relationships between auditors and clients, and (4) audit reporting lag. However, as noted previously, we also present our review of the research on auditor-client economic

bonding in this section. In addition, we add an “other factors” sub-section to discuss related research not readily categorized in the other sections.

Prior research reviewed by Carson et al. (2013) has established that auditor-client interactions can have a significant effect on GCO decisions. For example, prior research has found that hiring personnel from the company’s auditor tends to reduce the likelihood of the company receiving a GCO (Lennox 2005). However, prior research generally does not find a negative association of long auditor-client tenures and GCO decisions (Geiger and Raghunandan 2002; Knechel and Vanstraelen 2007). Studies in our review continue to refine research in this area to focus more acutely on which auditor-client interactions, and under what conditions, affect auditor’s GCO decisions. Table 4 summarizes the research on audit-client interactions and GCOs.

Insert Table 4 Here

2.3.1 Economic Bonding

Research has examined the potential detrimental impact of economic bonding of auditors to their audit clients through direct payment of fees, and the effect this might have on GCO decisions. Continuing prior research, a few recent studies have examined U.S. listed firms in the pre-SOX period or have included the immediate post-SOX period of 2002-2003, and find no association between the levels of current non-audit service (NAS) fees or measures of future NAS fees and GCO reporting decisions (Causholli, Chambers and Payne 2013; Read 2015). In fact, in his meta study on GCO determinants, Habib (2013) concludes that, in general, there is a negative relationship between NAS fees and GCO decisions globally, but that this effect is not found in studies of U.S. auditors. However, more recent research not included in Habib’s (2013)

meta-analysis call the lack of association between NAS fees and GCOs in the U.S. into question.

For example, Blay and Geiger (2013) examine the period 2004-2006 and find a significant negative association between NAS fees and the probability of auditors issuing a GCO in the U.S., suggesting that, similar to other countries, NAS fees may impair auditor GCO reporting decisions in the U.S. in these later years. Blay and Geiger (2013) also find that auditors issue significantly fewer GCO opinions in the current fiscal year to clients that pay higher total fees in the *subsequent* year. Their evidence is consistent with studies in other countries, as well as with DeAngelo's (1981) argument that auditors will appease clients in the current period in order to maintain future revenue streams from incumbency. The working paper by Basioudis et al. (2012) provides some additional support for this. They examine GCO reporting in the U.S. and find a negative association between NAS and GCOs for companies that pay high NAS fees, but only when auditor tenure is long (defined as four or more years). Their analyses also show that this effect is found for both Big N and non-Big N auditors and industry specialists and non-specialists.

In contrast to earlier studies on NAS fees, Wu et al. (2016) introduce controls for the effects of audit committee members and find no significant overall relationship between NAS fees and the likelihood of receiving a GCO prior to failure for U.K. firms in the period 1997-2010. Their results suggest that the association between NAS and auditors' reporting decisions is mitigated by audit committee characteristics. Specifically, they find that when the audit committee is more independent and includes a greater proportion of financial experts, auditors providing NAS are more likely to issue a GCO prior to company failure.

Geiger and Van der Laan Smith (2017) study GCO decision-making for both public and private financially distressed firms in the U.K. and find a negative association between NAS and GCOs for public company audits by Big N and non-Big N auditors, and for private company audits by non-Big N audit firms. However, for private companies audited by Big N auditors, they find a *positive* association between NAS and the probability of receiving a GCO, indicating Big N auditors are more likely to issue a GCO to a private company when NAS fees are high. These contrasting results for Big N auditors in the private firm market suggest differences in GCO decision-making in the private company market compared to public companies and between Big N and non-Big N auditors. Additionally, they examine the recently imposed IAASB NAS fee restriction and find significant reductions in the likelihood of a GCM when NAS fees exceed 70 percent of audit fees, regardless of listing status or audit firm size.

Ratzinger-Sakel (2013) analyze a sample of financially stressed manufacturing companies in Germany during the period 2005–2009, and find no overall association between NAS and GCOs. However, they find some evidence that Big N audit firms are less likely than non-Big N auditors to issue a going concern opinion for engagements characterized by both relatively high levels of NAS fees and financial stress.

In a unique study of fee networks, Hossain, Monroe, Wilson and Jubb (2016) examine the effect of audit partners auditing companies with interlocked audit committee members on GCO decisions in Australia. The authors argue that an audit partner may be hesitant to issue a GCO to a distressed company if that company has an audit committee member that serves on an audit committee of another company audited by the same partner. They argue that there is a strengthening of the overall

economic bond between the audit partner and the company as a consequence of the network of companies served by the audit committee member. Empirically, Hossain et al. (2016) measure the impact of the interlocked audit committee member's other firms as the sum of audit fees received from clients who share a common audit committee member and audit partner (excluding audit fees from the focal company) divided by the total audit fees of all clients of the audit partner in a given year. Examining the period 2003 to 2011, and using both propensity score matched and total samples, they find a significant negative association between first-time GCOs and the audit partner's proportion of network revenues to total revenues. Their results suggest that the increased economic bonding of company networks served by the same audit committee member negatively influences audit partner GCO decision-making.

Kao, Li and Zhang (2014) re-examine Li's (2009) finding that audit clients contributing a large portion of the audit office's total fees, their proxy for audit firm fee dependence, was not associated with GCOs in the pre-SOX year of 2001, but then turned negative in 2003 after SOX. Kao et al. (2014) re-perform the analyses on an extended post-SOX period of 2001 to 2011 (excluding 2002). The results of their yearly regressions generally confirm Li's (2009) results for 2001 and 2003, but, importantly, find no significant association between fee dependence and GCO decisions for any of the subsequent years 2004 to 2011. Taken together, their results indicate that the year right after SOX (i.e., 2003) was not a typical reporting year in the U.S. and that the regulatory spotlight directed on the profession at the time of SOX had a differential effect on the way auditors dealt with and reported on their economically influential clients.

2.3.1.1 Fee Concessions

Ettredge, Fuerheim, Guo and Li (2017) investigate whether U.S. auditors' independence was compromised by client audit fee pressures during the Global Financial Crisis (GFC) of 2007-2009. They find that auditors were less likely to issue first-time GCOs to clients that received fee concessions in 2008, except those that received fee concessions in other GFC years, or in the years before and after the GFC. Hence, the economic environment of the GFC may have impaired auditor independence for clients capable of exerting audit fee pressure, but the effect was restricted to 2008, the heart of the GFC. Similar to Blay and Geiger (2013) they also find that expected total fee increases or high current-year NAS fees from clients receiving audit fee concessions strengthen the negative association between fee reductions and GCOs. Additionally, Chen, Krishnan and Yu (2018) extend the Ettredge et al. (2017) study by examining multiple measures of the client's financial reporting quality and audit quality, including issuing a GCO. They find no association between fee reductions and the auditor's propensity to issue a GCO in the GFC, or in the years preceding the GFC.

2.3.2 Audit Firm Switching and Opinion Shopping

Interestingly, unlike earlier periods, over the time of our literature review we find no new published studies that examine client companies switching audit firms after receiving a GCO. However, a working paper by Kim (2017), also discussed in the Client Characteristics section, examines the association between overconfident managers and auditor dismissals following GCOs. She finds that companies with overconfident managers are more likely to get a GCO and once they get a GCO are more likely to dismiss their auditor. Consistent with Carcello and Neal (2003), Kim

(2017) finds that auditor dismissals following a GCO are greater when managers are more powerful than the audit committee.

A large-sample study by Kaplan and Williams (2012) examines audit firm client portfolios and GCO reporting over the 22-year period 1989 to 2010 in the U.S. These researchers find that over this time financially stressed public companies appear to shift from having a Big N auditor to having a regional audit firm, representing what they refer to as ex-ante conservatism on the part of Big N auditors. That is, Big N auditors actively selecting clients based, in part, on the company's financial strength. They then show that over time regional audit firms are increasingly more likely, and Big N audit firms are increasingly less likely, to issue GCOs, a form of ex-post conservatism. Finally, and consistent with the overall trends, they conclude that in the most recent years, regional audit firms are more likely than Big N and national audit firms to issue a GCO to their financially stressed public clients.

2.3.3 Audit Firm Tenure

Ratzinger-Sakel (2013) find that GCOs are not associated with long audit firm tenure in Germany, when long tenure is defined as longer than three years. Similarly, Garcia-Blandon and Argiles (2015) find no association of audit firm tenure with GCOs in Spain, but they observe that audit firm tenure is negatively associated with modified opinions other than GCOs. Yet, Chi et al. (2017) examine Taiwanese audits and find that audit firm tenure is positively associated with the probability of a GCO, providing evidence on the benefit of longer firm tenure.

Read and Yezegel (2016) examine the association between audit firm tenure and type II errors in the U.S. Using a quadratic model to control for potential nonlinearity in the relationship between auditor tenure and audit reporting, they find

no significant association between auditor tenure and type II errors for Big N audit firms. In contrast, for non-Big N audit firms they find auditor tenure appears to adversely influence GCO decisions in the initial years of an audit engagement, but has no discernible effect in the later years. In sum, they provide evidence that long auditor tenure, of itself, is not associated with type II reporting errors.

2.3.4 Personal Relationships between Auditors and Clients

As part of a broad study of U.S. management influence on audit committees, Dhaliwal et al. (2015) examine how management influence over auditor selection affects the selected auditor's GCO decisions. They define management influence as the audit committee appointing a former employer Big N audit firm, an "affiliate" auditor, or someone in top management (CEO, CFO, V.P. Finance, etc.). While companies that hired affiliate auditors during the post-SOX period appear less likely to receive a GCO compared with companies that hired "unaffiliated" auditors, they find no evidence that affiliate auditors are less likely to constrain earnings management. In addition, similar to the finding of Wu et al. (2016), they find that the lower propensity of affiliate auditors to issue GCOs is mitigated by audit committees that are larger and audit committees with accounting expertise. In sum, they conclude there is no consistent evidence that management influence over auditor selection leads to impaired auditor independence during the post-SOX period.

Guan, Su, Wu, and Yang (2016) examine whether social ties through university affiliations effect audit quality and GCO reporting decisions in China. They find that there is a significantly lower probability of a GCO when one of the client firm's top executives has a common university alma mater with any of the signing auditors.

Taking a behavioral approach, Bauer (2015) conducts an experiment with Canadian auditors and their perceptions of connectedness with their audit clients. He finds that when the auditor identifies more with the client, they have higher agreement with the client's going concern assessment, unless the auditor receives a prompt to remind them of their professional responsibility. When auditors received the prompt, there was no significant difference between those that identified with their client and those that did not.

2.3.5 Audit Report Lag

In his meta study on determinants of GCOs, Habib (2013) finds that, consistent with prior research, audit report lag is generally positively associated with GCOs.

2.3.6 Other Factors

When examining the association between auditors and their clients, Chen, Martin and Wang (2013) argue that to reduce the risk of additional scrutiny and litigation in the U.S., managers want to avoid receiving GCOs after they engage in significant sales of their firms' shares. They argue managers accomplish this by pressuring their auditors for clean audit opinions in the years they have significant sales of personal equity holdings. Examining the period 2000-2007, they find a significant negative association between probability of GCO and level of insider selling. They find that the association is more pronounced for firms that are economically significant to the auditor but less pronounced (1) when auditors have concerns about litigation exposure and reputation loss, (2) when audit committees are more independent, and (3) in the post-SOX period.

Barnes and Renart (2013) examine relative bargaining power between auditors and clients and GCO reporting errors in Spain. They define auditor bargaining power

in three ways using ratios of auditor-to-client number of employees, total firm assets, and net sales. Their analyses provide mixed results for both type I and type II errors. In sum, however, they find modest support for increased type I errors being positively associated with auditor bargaining power, reflecting auditor reporting conservatism. They find no consistent association of bargaining power with type II errors.

2.4 Environmental Factors

In this section, we review recent research that addresses the overall environment in which the auditor makes their GCO decision. Prior research has examined a variety of environmental factors. We generally follow Carson et al.'s (2013) structure, in which they categorize research on the GCO reporting environment into (1) litigation, (2) auditing standards, (3) regulatory oversight, and (4) market structure and competition. However, we also include a sub-section on the effect of the Global Financial Crisis and discuss that research first. Prior research has noted that the reporting environment, particularly the litigation environment, has a significant impact on auditor's GCO decisions. Table 5 summarizes the research on environmental factors and GCOs.

Insert Table 5 Here

2.4.1 Global Financial Crisis

Auditors and their GCO reporting practices came under heavy scrutiny and public criticism during the Global Financial Crisis (GFC) of 2007-2009. Auditors were accused of not providing adequate early warnings regarding the unprecedented onslaught of business failures and bankruptcies occurring at the time (Sikka 2009; McTague 2011). In order to substantiate these general claims, Carson et al. (2013) called for empirical research on the effects of the GFC on GCO reporting in their earlier

literature review. Thus, addressing this need for research, Xu et al. (2013) and Geiger, Raghunandan and Riccardi (2014) examine Australian and U.S. auditor GCO reporting, respectively, on distressed companies surrounding the GFC. Xu et al. (2013) find that while overall GCO rates increased during the 2007-2008 period of the crisis, Big N auditors in Australia responded more quickly to the crisis and increased their GCO rates earlier than the non-Big N auditors. Geiger et al. (2014) find that the probability of an auditor issuing a GCO before bankruptcy significantly increased during the GFC (i.e., reducing type II error rates), and that the increase was found for both Big N and non-Big N firms.

In a follow-up examination of GCO reporting in Australia, Carson, Fargher and Zhang (2017) find that the probability of a GCO was actually higher in the post-GFC period (2012–2014) than during either the pre-GFC or GFC period. Additional tests indicate that the increase in GCO probability is not explained by changes in client risk during the post-GFC period. They also find type I errors increase and type II errors either do not change in some industries and actually increase in others during the post-GFC period. They argue that the heightened scrutiny of regulators in Australia after the GFC is the likely cause of the increase in GCOs in the post-GFC period.

2.4.2 Litigation

In the U.S., Anantharaman, Pittman and Wans (2016) examine differences in state liability regimes and find that auditors are more likely to issue GCOs to clients in a state with relatively high legal liability than in states with low legal liability. Using a difference-in-difference approach to analyzing the effects of auditor conservatism on earnings management, Chy and Hope (2017) find that, compared to neighboring states, auditors in states that increase auditor liability laws are subsequently

associated with more GCOs and more type I errors, but are unrelated to type II errors. In addition, Cao, Fan, Narayanamoorthy and Rowe (2017) find that when there is audit firm litigation in an industry, auditors will be more likely to issue GCOs in the following year to distressed firms in that industry. Their results suggest an industry-wide contagion effect of litigation on GCO decisions.

Mo et al. (2015) examine GCO reporting before and after the first Chinese bankruptcy law in 2006. The adoption of this law essentially allowed government owned and private businesses to fail and file for bankruptcy, significantly increasing company failure risk and the auditor's risk of litigation. Mo et al. (2015) find that the propensities of the smaller local audit firms, as well as those of the Big N affiliated Chinese audit firms to issue GCOs did not significantly change after the enactment of the law. However, the probability significantly increased after the law change for clients of the 10 largest local audit firms, who audited approximately 35 percent of the public companies in their study, so that in the post-law period their GCO propensities were not significantly different from those of the Big N affiliated Chinese audit firms. In sum, these findings are consistent with earlier work (Geiger, Raghunandan and Rama 2006) documenting a change in auditor propensity to issue GCOs corresponding with changes in the auditor's litigation environment. Research in this area consistently finds that auditor's increased litigation exposure leads to an increased propensity to issue a GCO.

2.4.3 Regulatory Influences

2.4.3.1 Auditing Standards

Hossain (2013) examines the effect that Australia's adoption of the Corporate Law Economic Reform Program Act 2004 (CLERP 9) had on auditor GCO decisions.

Similar to SOX in the U.S., CLERP 9 instituted similar types of auditor reforms in Australia intending to improve auditor independence and audit quality, including the restriction of certain types of non-audit services (NAS) to audit clients. Examining the period 2002 to 2007, Hossain (2013) finds that NAS fees were positively associated with GCOs after CLERP 9 reforms, but not before, and that abnormal NAS fees were negatively associated with GCOs in the pre-CLERP 9 period, but not post-CLERP 9. Accordingly, his results provide evidence of improved auditor independence, as proxied by GCO issuance after the CLERP 9 reforms were enacted in Australia.

In an examination of subtle differences in wording used in GCO auditing and financial reporting standards in the U.S. versus international standards, Daugherty, Callaway, Dee, Dickins, and Higgs (2016) survey practicing audit partners and managers in the U.S. They find that using “substantial doubt” under AU 341, these U.S. auditors had an average threshold probability of failure of 67% to issue a GCO, but using “significant doubt” under ISA 570 they had an average threshold probability of failure of only 60%. They also find that the likelihood of issuing a GCO increases monotonically as the time frame related to the going concern assessment becomes less finite, going from “not to exceed a year” (AU 341) to the “foreseeable future” (ISA 570). Auditor responses also indicate that the information most critical for making the GCO decision shifts from one-year projections to 3-year projections and away from the balance sheet as the time frame for the going concern assessment increases. Their results reinforce the importance and need for precise wording in professional standards to accomplishing the intended regulatory outcomes, and that subtle changes in wording can significantly affect auditor behavior and decision-making in practice.

Lennox (2016) examines the effect that the PCAOB's 2006 restrictions on auditor-provided tax NAS had on audit quality, using GCO decisions as one of the proxies for audit quality. He identifies an experimental group of companies in which auditor-provided tax services were reduced by 75 percent or more after the restrictions and compares them to a sample of control companies that did not have such extreme declines in tax NAS. His analyses find no significant change in GCO probabilities for the treatment group relative to the control group after the restrictions on auditors' tax services became effective, suggesting no significant improvement in audit quality as a result of the restrictions on auditor provided NAS.⁶

In an examination of the adoption of a new GCO reporting standard in Sweden in 2004, Sundgren and Svanström (2018) find that non-Top 7 auditors significantly increased their issuance of GCOs to subsequently bankrupt private companies with the passage of time after the new standard was in effect. However, the Top 7 audit firms (i.e., Big 4, Grant Thornton, BDO, and Mazars) do not exhibit an increase in GCO rates due to the passage of time after the implementation of the new standard.

2.4.3.2 Regulatory Oversight

As a result of emerging legal and regulatory requirements in some jurisdictions, audit firms have recently started issuing transparency reports containing information on audit firm characteristics and governance processes. Deumes, Schelleman, Vander Bauwhede, and Vanstraelen (2012) assess the quality of 103 transparency reports from audit firms in the U.K., Austria, Germany and the Netherlands. Using GCOs as a proxy for audit quality, they find no association between the quality of transparency

⁶ Lennox (2016) finds similar results for the two other proxies of audit quality, accounting misstatements and tax account misstatements.

reports and GCO decisions, suggesting that the audit firm transparency reports are not reflective of actual audit quality.

Several recent studies find mixed results for the impact of regulators' auditor inspection systems and outcomes on GCO decision-making. For example, Gunny and Zhang (2013) find that GCO decisions are not linked to PCAOB inspection findings for tri-annually inspected audit firms, or for tri-annually and annually inspected firms combined. However, Litt and Tanyi (2017) find that annually inspected non-Big N firms issue more GCOs compared to tri-annually inspected audit firms after the start of PCAOB inspections but not in the period immediately preceding the creation of the PCAOB. Further, Lamoreaux (2016) examines the effect of inspections on GCO decisions of auditors of foreign companies registered in the US and subject to SEC registrant requirements and to PCAOB inspection access. He finds that, while there is no observable difference between the two sets of auditors prior to the PCAOB inspection regime, foreign auditors subject to PCAOB inspection have a significantly higher probability of issuing a GCO after they become subject to PCAOB inspections.

Cheon, Dhaliwal, Hwang, and Kim (2017) assess South Korean regulator inspections for the association between both an audit firm's quality control system deficiencies and their specific audit engagement deficiencies and GCO reporting. They find that audit firms with fewer quality control system deficiencies are more likely to issue GCOs; however, audit engagement deficiencies are not significantly associated with GCOs. Their findings suggest that quality control system deficiencies are more robust than stand-alone audit engagement deficiencies in assessing audit quality as measured by GCO decisions.

Firth, Mo and Wong (2014) examine Chinese inspections of audit firms and find that sanctioned auditors issue more GCOs to risky clients after enforcement actions than they did before the enforcement action. In contrast, they find no such effect for non-risky clients. Their results provide evidence that regulatory sanctions are effective in shaping Chinese auditors' behavior when auditing risky clients.

DeFond, Francis and Hallman (2017) find that non-Big N audit offices that have greater awareness of SEC enforcement actions are more likely to issue first-time GCOs to distressed clients, where SEC awareness is measured by: (1) audit office proximity to SEC regional offices, and (2) proximity to specific offices of SEC enforcement actions against auditors. They also show that non-Big N audit offices have higher type I error rates, reinforcing the idea that they are more conservative in their GCO decision-making. For Big N offices, they find some evidence that awareness of SEC enforcement may improve reporting accuracy by reducing type II errors, although the number of cases is small.

As noted previously, Carson et al. (2017) find that the probability of a GCO is higher in Australia in the post-global financial crisis (GFC) period than during either the pre-GFC or GFC period. The authors attribute the change in auditor behavior to increased regulatory scrutiny of the audit profession in Australia during the post-GFC period. They also find type I errors increase and type II errors either do not change or in some industry sectors actually increase during the post-GFC period, suggesting increased regulatory scrutiny has had a detrimental effect on GCO reporting accuracy in Australia after the GFC.

Sundgren and Svanström (2018) in their assessment of the new GCO standard in Sweden also find that there is a noticeable trend-break in GCOs in 2009 coinciding

with the year the Supervisory Board of Public Accountants started to sanction auditors for deficient GCO reporting. Further analysis reveals that the sanction/enforcement effect is not significant for the Top 7 audit firms but is especially strong in non-Top 7 audit firms, who also audit smaller clients than Top 7 auditors. They argue that smaller clients, on average, demand lower audit quality. Hence, their results suggest that enforcement has an impact on audit quality, as reflected in GCOs prior to bankruptcy, especially when the intrinsic demand for high quality auditing is lower.

2.4.3.3 Sarbanes-Oxley

In a more recent study of the effects of Sarbanes-Oxley (SOX) on U.S. auditor reporting, Myers et al. (2014) find that SOX had a differential effect on GCO reporting decisions for Big N versus non-Big N firms. In general, they find that in the period immediately following SOX, non-Big N auditors became more conservative and issued more GCOs while Big N auditors became more accurate in their GCO reporting decisions, leading them to conclude that increased auditor scrutiny resulted in GCO performance improvements but primarily for larger Big N auditors.

2.4.3.4 Concluding remarks about regulatory influences

In sum, the recent research has broadened examination of regulatory factors on auditors' GCO decisions. Of particular note are the findings of Kao et al. (2014), discussed previously, that clearly indicate the need to assess regulatory changes over an extended period. Remember, Kao et al. (2014) re-examine Li's (2009) finding that audit clients contributing a large portion of the audit office's total fees were not associated with GCOs in 2001, but were less likely to get a GCMO in 2003. However, Kao et al. (2014) perform the same analyses for the years 2001 and 2003 to 2011 and reproduce the earlier 2003 result, but find no significant association for all other years,

similar to the finding for 2001, suggesting 2003 was an uncharacteristic year. Consistent with these general findings is Carey, Kortum and Moroney (2012) who examine Australian auditor's type I GCO reporting errors in 1995-1996 and compare them to 2004-2005. The authors find that the type I reporting errors for first-time GCOs are very similar during the two periods, suggesting that any changes in GCO decisions due to the heightened regulatory environment following the high profile corporate collapses of 2001 were relatively short-lived. These studies support the premise that the effect of major systemic events or changes in regulation should be examined over an extended period, and not just in the short run. Although examining changes in auditor behavior and outcomes immediately after a systemic shock or change in regulation is often interesting and necessary, establishing the effectiveness or lasting impact of any change must be accomplished in the longer term.

2.4.4 Market Structure and Competition

Blay, Moon and Paterson (2016) examine the effect of U.S. statewide GCO rates on non-Big N audit firm GCO decisions. They find that non-Big N auditors located in states with relatively high first-time GCO rates in the prior year are up to six percent more likely to issue first-time GCOs. However, this higher propensity increases the auditor firm's type I error rates without decreasing their type II error rates. As part of the study, the authors also interview partners about their awareness of local and national GCO rates and conclude that a plausible explanation of their results is the overweighting of readily available information (i.e., the GCO reporting behavior of geographically local auditors) in making GCO decisions.

In an examination of GCOs in the IPO market, Leone, Rice, Weber and Willenberg (2013) assess the effect of overall market sentiment on GCO decision-

making by examining IPOs in the U.S. during the market's "*DOT.com*" hysteria of 1999. As hypothesized, they find significantly fewer GCOs issued to internet-company IPOs in the year 1999 compared to the pre-period and to non-internet company IPOs in the same period. Their results suggest that general market conditions and sentiment can significantly affect auditor GCO decisions on public companies.

2.4.5 National Differences

Research examining cross-border GCO decisions is not common. Most cross-country studies of auditor reporting examine all types of modified audit reports, of which GCOs are included, but often not analyzed separately. For example, Chen, Zhang and Zhou (2017), examine modified audit opinions in 33 countries and find auditors are more likely to issue modified opinions in countries with a strong secrecy culture and with weak investor protection. However, they provide no separate analyses of GCOs. An exception is provided by Sormunen et al. (2013) who examine four Nordic countries and find that auditors in Denmark and Norway render GCOs prior to bankruptcy more frequently than auditors from Finland and Sweden. Results of their study demonstrate that even countries that are seemingly similar, may still manifest differences in auditor GCO decisions.

3 “ACCURACY” OF GCOs

As previously noted, the GCO is not intended to be a definitive prediction of company failure, yet one of the most pressing issues for auditors, regulators, creditors, lawyers, and financial statement users is how a company can fail or go bankrupt shortly after receiving a clean, unmodified opinion from their auditors – i.e., a type II GCO reporting error. In other words, why can't auditors provide a more adequate early warning of impending business failure for companies going bankrupt? In addition to type II reporting errors where auditors “fail to” signal going concern issues prior to company failure, a type I reporting error, where auditors issue a GCO but the client subsequently remains viable, is also of concern to auditors, clients, regulators and capital providers. Even though a GCO may have been warranted at the time of reporting, clients do not relish getting a GCO, particularly if they believe that they will remain viable (Geiger et al. 1998; Carcello and Neal 2003). Accordingly, the accuracy of GCOs has been a topic of considerable research over the years.

Unlike the research reviewed by Carson et al. (2013) that spanned several decades, including distinct changes in the audit report and reporting environment, most of the studies in our review window focus primarily on factors and circumstances that explain the variation of GCO accuracy, such as auditor attributes, client attributes and environmental attributes. In addition, an area that has received some heightened research attention is the comparison of the accuracy of GCOs with statistical models. Accordingly, we discuss research on the accuracy of GCOs in the five broad categories of changes in error rates across auditor attributes, client attributes, environmental attributes, measurement issues, and, finally, comparisons of accuracy between GCOs and statistical models. Table 6 summarizes the research on the accuracy of GCOs.

Insert Table 6 Here

3.1 Explaining Changes in GCO Error Rates Across Auditor Attributes

Continuing the examination of auditor size and GCO reporting, several studies suggest that GCO reporting errors vary across auditor size. For example, while primarily examining the effects of SOX on auditor GCO reporting, Myers et al. (2014) find that Big N auditors decreased their type I misclassifications with no corresponding increase in type II misclassifications following SOX. However, non-Big N auditors reduced their type II misclassifications at the expense of increased type I misclassifications after SOX. Their overall results suggest that Big N firms issue GCOs less frequently than non-Big N auditors. Conversely, Berglund et al. (2018) find that after providing better control for clients' financial conditions, Big N auditors are more likely to issue GCOs to similarly stressed clients. They also find that, for clients who received a GCO, those audited by the Big N were significantly more likely to subsequently fail, resulting in a lower type I error rate compared to non-Big 4 auditors. However, they find no evidence that the Big N are less prone to type II errors compared to non-Big N auditors. Examining a small sample of failed finance companies in New Zealand, Kabir and Rahman (2016) report similar results. Specifically, they find an overall type II error rate of 59 percent and no difference between the Big 4 and non-Big 4 in their likelihood of issuing a GCO prior to bankruptcy.

In a related study, Blay, Moon, Paterson (2016) conclude that non-Big 4 auditors located in states with relatively high first-time going-concern rates in the prior year are up to 6 percent more likely to issue first-time GCOs. However, this higher GCO propensity increases non-Big 4 auditors' type I error rates, but does not result in decreasing their type II error rates. Blay et al.'s (2016) overall results are supported

by Chu, Fogel-Yaari and Zhang (2018), who group auditors by the tendency to issue GCOs. Chu et al. (2018) find that auditors that issue more GCOs generally have higher type I errors but not fewer type II errors compared to auditors with lower GCO tendencies. In sum, these studies indicate that issuing more GCOs by firms of all sizes often increase type I errors but generally have no significant effect on reducing type II errors.

3.2 Explaining Changes in GCO Error Rates Across Client Attributes

Chen, Eshleman, and Soileau (2017) examine the association between client business strategies, defined as either innovative (prospector) or cost-leadership (defender), and GCO reporting accuracy for a sample of financially troubled firms. Their overall results indicate that firms considered to be prospectors are significantly more likely than defenders to receive a GCO. However, further analyses of a sample of clients who subsequently filed for bankruptcy indicates that auditors are less likely to issue going concern opinions to subsequently bankrupt prospector clients. This suggests that auditors commit more type II errors when auditing prospector clients. Business strategy, however, does not affect type I error rates. Thus, it appears that management's plans to mitigate going concern issues in an "innovative" setting are more convincing than management's plans in a "defender" environment.

By integrating business functions and making information about day-to-day activities available, enterprise systems (ES) are intended to enhance operational transparency and improve the internal information environment. Pincus et al. (2017) conclude that implementation of ES results in a greater likelihood of auditors issuing GCOs to firms that go bankrupt (i.e., fewer type II errors). However, they also find

that in the presence of ES, auditors exhibit excessive type I errors, so are overly conservative in their GCO decisions.

3.3 Explaining Changes in GCO Error Rates Across Environmental

Attributes

One area of substantial change that recent research has addressed is the Global Financial Crisis (GFC) from 2007-2009. In fact, due to the lack of research up to that point, Carson et al. (2013) called for research on the effects of the GFC on GCO reporting in their review. Addressing this need for research, Geiger et al. (2014) examine GCO reporting around the GFC and find that type II error rates declined in the US during the GFC for both Big N and non-Big N firms. Examining Australian GCO decisions, Carson et al. (2017) find that GCOs are more prevalent after the GFC, that type I errors increased, and type II errors either did not change for some industries, or actually increased for others in the post-GFC period. They ascribe the increased post-GFC GCO rates and type I errors to increased oversight by Australian regulators leading to more conservative (i.e., more GCOs) reporting. So, the research examining the effects of the GFC on auditor GCO reporting around the world has produced mixed results.

Carey et al. (2012) examine the pre- and post-SOX period in Australia (1994-1995 vs. 2004-2005) and find a pre-SOX first-time GCO type I error rate of 91.1 percent and a post-SOX type I error rate of 92.6 percent. After controlling for client distress factors, they find no significant difference in pre- post-SOX GCO reporting accuracy, such that companies face a consistent type I error rate over an extended period time.

With respect to regulatory effects on GCO accuracy, Litt and Tanyi (2017) find that financially distressed clients were more likely to receive a GCO if they were audited by an audit firm with higher PCAOB inspection frequency, suggesting increased regulatory oversight causes greater GCO reporting conservatism. Their results are supported by the findings by DeFond et al. (2018) who find that non-Big 4 audit offices with greater awareness of SEC enforcement (measured as audit office proximity to (1) SEC regional offices and (2) specific SEC enforcement actions against auditors) are more likely to have type I reporting errors, suggesting a more conservative reporting bias. For Big 4 audit offices they find some evidence that awareness of SEC enforcement leads to lower type II error rates, but no significant effect on type I error rates.

Another emerging area of research is the relation between human capital and auditor GCO reporting accuracy. For example, Beck et al. (2018) examine the quality of a US city's labor market and GCO reporting accuracy and find a positive association between GCO accuracy and average education level in the city in which the lead engagement office is located. This association is generally significant for both Big N and non-Big N offices, but is stronger for non-Big N firms, as they are tied more to local labor markets. Finally, Kallunki et al. (2018), analyzing archival data from Sweden, show that audit partners' IQ scores are positively associated with GCO reporting accuracy.

3.4 Explaining Changes in GCO Error Rates Using Alternative Measures

With the advent of computer assisted research techniques in more recent years, Desai et al. (2017) argue that prior research that relied on coded data available from databases such as *Compustat*, *CRSP* and *Audit Analytics* could be improved by using

more comprehensive datasets. Accordingly, Desai et al. (2017) employ search engine technology and textual analysis to investigate the relationship between first-time GCOs and subsequent firm viability. Their study also employs an expanded notion of company failure that considers company delisting from their stock exchange as the indicator criterion for company failure rather than bankruptcy filing. Contrary to prior research, they find that the survival rate of first-time GCOs is much lower, indicating lower type I errors, when using delisting as a measure of financial failure. In fact, they find that approximately 26 percent of first-time GCOs are delisted within 1 year of the audit opinion date, and 50 percent within 3 years. The comparable one-year bankruptcy rate of first-time GCOs in their sample is approximately 9 percent, which is very similar to prior research (Carson et al. 2013). Consistent with the earlier findings of Noglar (1995, 2004), the updated finding of Desai et al. (2017) suggests that studies that use bankruptcy as a measure of financial viability might overstate type I error rates, leading to an understatement of the accuracy and quality of GCOs and, consequently, understate the value of GCOs to investors.

Prior research has typically examined going concern risk and GCO reporting as a single homogenous class of risks (i.e., is there material uncertainty about going concern or not; is there a GCO or not). In order to expand the literature in this area, Young and Wang (2010) derived a five-level risk classification based on the then existing Australian Auditing Standard (ASA 570 Going Concern) pronouncements in order to examine the appropriateness of auditors' going concern reporting decisions for a sample of construction companies over an extended period of 18 years. They use Altman's Z-score as their proxy measure of business stress and thereby, an indicator of the type of going concern report that would be expected to be issued to

the company based on their overall level of financial stress. Essentially, their approach compares multi-level risk classes indicated in the professional auditing standards with an independent measure of the risk of business failure to determine if the auditors used the “correct” level of reporting disclosure. They take a similar approach using Australian financial reporting requirements to determine if company management discloses going concern risk at the appropriate level. They find a significant underreporting problem for both auditors and company directors. Specifically, the audit results indicate that 82 percent (59 of 72 companies) had significant inappropriate reporting, of which 75 percent were issues of underreporting. Thus, only 18 percent of the audit reports appeared appropriate according to Altman Z-scores. Similarly, company directors were found to have underreported going concern risks 57 percent of the time. The authors conclude that a comparison of performance between auditors and directors indicates auditors may be affected more than company directors by the agency relationship.

The accuracy of GCOs compared to statistical models has long been a subject of research that has produced mixed results (c.f., Altman 1968; Hopwood, McKeown and Mutchler 1994). Continuing this line of research, Alareeni and Branson (2017) find that financial distress models (Statistical Failure Prediction Models, SFPs) like Altman Z and statistical models of bankruptcy prediction are better predictors of company failure in Jordan than GCOs, although non-GCOs “predict” non-failure well. In addition, Foster and Zurada (2013) argue that most bankruptcy prediction models do not include debt default status, something shown by prior research to be related to both GCO decisions and bankruptcy. After hand collecting debt default status for a sample of financially distressed U.S. companies, they show that including loan default status

and a GCO variable into the hazard model significantly improves the model's predictive accuracy, and changes the significance on some of the control variables included in their hazard model. In a related study, Foster and Ward (2012) examine the accuracy of bankruptcy prediction models before and after SOX. By including debt default variables into their models, they find that the GCO variable adds more to the bankruptcy prediction model for the period after SOX than the period before SOX, suggesting a heightened role for GCOs in bankruptcy prediction models in periods after SOX.

Instead of including debt default in the GCO models to predict bankruptcy, Gutierrez, Krupa, Minutti-Meza and Vulcheva (2017) examine how well GCOs predict future debt defaults. They find that GCOs and statistical models have similar predictive power for future defaults, and that combining GCOs and models increase explanatory power, but not much. Interestingly, however, they find that GCOs are better than credit ratings changes in predicting defaults.

According to Gerakos, Hahn, Kovrijnykh and Zhou (2016), although receiving a GCO increases a firm's probability of bankruptcy by .84%, GCOs do not predict bankruptcy more accurately than models based on public data. In addition, SFPs appear more accurate than GCOs even though they do not consider several indicators employed by auditors in evaluating a company's present and potential future position (e.g., management plans, other indicators reported in ISA 570). On the other hand, these indicators could mislead the auditor when evaluating the position of a distressed company, particularly in hindsight when evaluating a bankrupt company. In fact, auditors may consider labelling a company as distressed, but refrain from issuing a GCO after checking and discussing with management their future plans. Irrespective

of these plans, Gerakos et al. (2016) conclude that a well-developed SFPM could serve as an effective decision aid for auditors concerned with making more accurate going-concern judgements.

In a related study, Mayew, Sethuraman and Venkatachalam (2015) examine the textual disclosures in the MD&A section of a firm's 10-K filing for bankrupt and distressed firms. They find that both management's opinion about going concern reported in the MD&A and the linguistic tone of the MD&A together provide significant explanatory power in predicting bankruptcy. They also find the predictive ability of MD&A disclosures is incremental to GCO and other financial ratios, but that adding the GCO to the information from the textual analysis does not enhance the predictive ability of the model. Their results suggest that the GCO adds little bankruptcy model predictability beyond the information included in management's MD&A.

4 CONSEQUENCES OF GCOs

In this section, we review recent research that examines the consequences of GCOs. We generally follow the structure of Carson et al.'s (2013) review, in which they categorize research on the consequences of GCOs into studies of (1) existing stakeholders, (2) future stakeholders, and (3) lenders. In addition, we also include sections on the consequences to the auditor, and to the client company. The majority of research conducted in this area is on the consequences to shareholders in terms of share prices following GCOs. Prior research has typically found adverse consequences to the current shareholders for GCOs in terms of negative market reaction, particularly for GCOs that were unanticipated by the market. However, researchers have broadened and deepened this main thread of inquiry in recent years. Table 7 summarizes the research on consequences of GCOs.

Insert Table 7 Here

4.1 Consequences to Existing Shareholders

There is a long history of research examining the stock market reaction to a first-time GCO, with early research finding mixed results, but later research typically finding a significant negative market reaction. Consistent with this general finding is the recent study by Czerney, Schmidt, and Thompson (2017) who examine market reaction in the U.S. to modified unqualified audit reports. In general, they find no significant market reaction to modified reports, *unless* the report is modified for going concern uncertainties. Recent research has also attempted to explore what are the drivers of these general findings, as well as how other significant market participants interact with GCO firms. In an examination of some of the potential causes of the U.S. market reaction, an earlier study by Menon and Williams (2010) found evidence

suggesting that the level of institutional ownership drives the market's reaction to the GCO. Specifically, they found no detectable adverse reaction at low levels of institutional ownership, and that the reaction gets more negative as the level of institutional ownership increases. In a follow-up study, Kaplan, Mowchan and Weisbrod (2014) match U.S. distressed non-GCO firms with GCO firms and find that greater net selling by institutional investors (i.e., institutional flight) during the fiscal year receiving the GCO increases the magnitude of these associations. In addition, they find an incremental negative abnormal return and increased share turnover for first-time GCOs compared to non-GCOs. They also find that GCOs are associated with an increased likelihood of bankruptcy and weaker operating performance in the subsequent year and that institutional net selling prior to the GCO moderates the severity of these signals. They conclude that their findings provide new evidence that first-time GCOs are incrementally informative beyond other financial statement information, and that the informativeness is moderated by the observed trading decisions of institutional investors.

In another examination of institutional investor trading of GCO firms, Geiger and Kumas (2018) use a proprietary dataset of institutional investor trading activity and find that institutional investors are net sellers of first-time GCOs beginning 6 months before the release of the GCO and remain net sellers through the subsequent 3 months. They also find that the severity of GCOs is associated with increased trading activity, but only after the opinion is publicly available. They conclude that their results support the position that a GCO is influential in the marketplace by documenting that institutional investors anticipate this price-relevant information and react through increased selling. The finding of increased net selling of firms with more severe

reasons for GCOs also provides evidence of the incremental informational value of the wording of the GCO itself.

In an examination of the Israeli markets' response to GCOs, Bar-Hava and Katz (2016) examine returns of both equity and debt holders to auditor reporting on going concern. Israel has a graduated audit reporting system whereby auditors are essentially required to issue a report containing an emphasis of matter paragraph when the company's ability to continue as a going concern is of some concern (first-stage "early warning"), but does not rise to the level needed to trigger a GCO (second-stage). Although they have relatively small sample sizes, they find that returns to both bond and equity holders are significantly negative upon the issuance of the EOM first-stage report. They further find that negative CARS surrounding GCOs (second-stage reports) are significantly moderated if preceded by an EOM "early warning" report. Their results suggest a significant informative role for a two-tiered audit reporting system, along with the benefits that may be afforded report readers in terms of the timing and quality of reporting with respect to going concern when using an early warning report in conjunction with a GCO.

Burke et al. (2015) demonstrate that firms that earn greater proportions of revenue from the U.S. government are less likely to receive a GCO, and are less likely to delist or file for bankruptcy. However, the market reacts more negatively to GCO firms that earn revenues from the government compared to similar firms that do not generate revenue from the government. Their results suggest that firms with substantial governmental work are expected to be financially sound, and if it turns out they are not, the market assesses a greater probability of failure or future financial distress.

Further, Ianniello and Galloppo (2015) examine the Italian stock market reaction to GCOs and, contrary to prior studies, they find that, in general, GCOs have positive CARs during short event windows around the report release. However, the study does not differentiate between first-time and continuing GCOs, which could have significantly affected the aggregate results. Investors may view a distressed company receiving a continuing GCO more favorably than a first-time GCO. A firm getting a continuing GCO demonstrates that they are still viable and able to issue another set of financial statements. Therefore, it is difficult to identify specific generalizable conclusions from their study.

In contrast to earlier research ascribing a negative share price reaction and information content to GCOs, Myers, Shipman, Swanquist and Whited (2017) examine market reaction to a sample of GCO companies and provide better control for contemporaneous information events such as earnings announcement (EA). After considering the timing of EAs, they find that the market reaction surrounding GCOs is significantly more negative when GCOs are disclosed with EAs, but find no significant market response to GCOs disclosed following EAs. In addition, they find no difference in the market response to EAs issued with GCOs versus EAs issued prior to GCOs. Taken together, their findings suggest that the market reaction surrounding a GCO is attributable to other management disclosures in the EA and not the GCO itself.

Exploiting a change in reporting requirements in Canada requiring an emphasis of matter paragraph for going concern uncertainties (GC-EOM), Bédard, Brousseau and Vanstraelen (2018) condition companies on the severity of their going concern financial statement disclosures (GC-FS) disclosures into those with weak and those with severe going concern issues. They then document that investors respond to

severe but not weak GC-FS disclosures in the pre-EOM period. However, in the post-EOM period when weak GC-FS disclosures are accompanied by a GC-EOM, they find incremental negative abnormal returns and lower abnormal trading volume. For severe GC-FS disclosures accompanied by a GC-EOM, they find negative abnormal returns for repeat disclosures only. Their findings suggest that the GC-EOM paragraph can have incremental value to market participants, even when it appears to provide no new information over that in the audited financial statements.

Further, in an examination of GCOs and earnings response coefficients (ERCs), Dong, Robinson and Robinson (2015) investigate the market's response to earnings surprises following first-time GCOs. Their results suggest a significant decrease in ERCs in the quarters following the first-time GCO. In addition, they find no change in ERCs for a propensity-score matched control sample that did not receive a GCO, suggesting that the decline in earnings informativeness is not a response to general economic conditions. Additional partitions reveal that firms for which the GCO is unexpected drive their result. Specifically, financially stronger firms with high Z-scores prior to the GCO experience an immediate and prolonged decline in ERCs over the four quarters after the GCO release, but more distressed firms with low Z-scores exhibit no significant change in ERCs. They also find that ERCs decrease after GCOs for firms with both low and high levels of institutional ownership, but that the decrease is more sustained for high institutional investor firms. In sum, their results provide evidence that the GCO provides information to the market, including even sophisticated market participants like institutional investors.

Khan, Lobo and Nwaeze (2017) investigate the usefulness of GCOs to the market by examining reaction to a company's re-release of the GCO. That is, they

examine cases where stock exchanges have required registrants to disclose their receipt of a GCO in a separate public media announcement, and the announcement is not made until after the 10-K is already released. These researchers find greater abnormal trading volume and return volatility after the GCO re-release announcement compared to trading on non-GCO companies in the same post-10-K period. Further tests indicate that their results are driven by small trades, but not large trades. Prior research has shown that large trades are often made by institutional investors and a lot of small trades are made by less sophisticated retail investors. Thus, the significant reaction to the re-release of the GCO indicates that the GCO itself has information content, but the fact that the reaction is driven by small trades suggests that it may be more informative to less sophisticated investors.

Harris et al. (2015) provide one of the few targeted examinations of the market response to continuing GCOs. Like prior research, they generally find a significant negative share price response to first-time GCOs, but their additional analyses show that the share price response decreases with continuing GCOs and is no longer significant after three consecutive GCOs.

Examining country differences in market response to GCOs, Kausar, Taffler and Tan (2017) examine market response to GCOs in two different legal regimes. They examine a creditor-friendly regime, represented by the UK, and a debtor-friendly regime, represented by the US. They find that market response to GCOs is greater in creditor-friendly regimes (UK) than in debtor-friendly regimes (US), suggesting GCOs are not interpreted the same way in different country legal environments.

Peixinho and Taffler (2015) explore whether sell-side analysts recognize firms' going-concern difficulties, and whether and how they report these difficulties to

investors. The authors demonstrate that analysts are aware of impending firm going-concern problems based on their increased probability of ceasing coverage of the (eventual) GCO firms, and their tendency to downgrade stock recommendations to “hold” for GCO firms compared with matched non-GCO firms as the audit report announcement date approaches. However, only 11% of stock recommendations at the GCO announcement date are unfavorable (as signaled by “underperform” or “sell”) recommendations in contrast to 42% of favorable (“strong buy” or “buy”) recommendations. They then show that analysts react to the release of a GCO mainly by stopping coverage of such firms. In sum, they conclude that analysts recognize firms’ going-concern uncertainties but communicate these negative prospects not by downgrading, but by dropping coverage or using opaque language that likely cannot be easily understood by retail investors who constitute the main clientele of these firms.

Winchel, Vandervelde and Tuttle (2017) use an experimental approach to investigate the effects of GCO diagnosticity (i.e., accuracy) on stock price judgments. They predict that GCO diagnosticity influences stock prices by affecting investor uncertainty about bankruptcy outcomes. Their results suggest that GCO diagnosticity effects prices of GCO and non-GCO firms so that in a market with moderately diagnostic GCOs, investors penalize the prices of firms receiving clean opinions and over value firms receiving GCOs as compared to a market with highly diagnostic opinions. They also find that pricing behavior in a moderately diagnostic market is not significantly different than a market without any GCOs, suggesting a very limited role for GCOs in establishing pricing. Their findings have implications for investors and

regulators interested in understanding how the accuracy of GCOs influences market price behavior.

4.2 Consequences for Future Shareholders

Blay, Bryan and Reynolds (2016) replicate the downward market drift market anomaly for first-time GCO recipients in the U.S. documented in Kausar, Taffler and Tan (2009). However, instead of matching the GCO firms with non-GCO firms based on size and book/market, commonly used in financial market studies, they match on measures used in the going concern literature. Specifically, they use net income, cash flows from operations, Zmijeski's (1984) distress score, and total assets as matching criteria. Using the going concern focused measures to match firms, they find no significant downward drift in security prices of first-time GCO recipients compared to the distressed non-GCO matched firms. In addition, they show that the originally documented drift is concentrated in extremely small firms with relatively low levels of financial distress and firms with low institutional ownership.

In another examination of the downward drift of share prices subsequent to the receipt of a GCO, Kausar, Kumar and Taffler (2013) propose that it is the lottery-like features of GCO stocks that attract a predominantly retail clientele who use those stocks to essentially gamble in the market. Using a sample of first-time GCO firms they show that GCO stocks have extreme lottery-type characteristics and that retail investors have a proclivity to be net-buyers of these stocks around the GCO event, and such contrarian behavior is directly related to the lottery-like nature of GC firms. Using individual investor-level trading, socioeconomic, and demographic data they find that retail investors who are known to have a greater propensity to gamble are more likely to trade GCO stocks. The authors conclude that, in sum, gambling-motivated

trading behavior of retail investors is the most likely driver of the short-term market reaction and the associated longer-term market response following a first-time GCO.

4.3 Consequences for Lenders

Chen, He, Ma and Stice (2016) find that modified audit opinions (MAOs), with GCOs having the strongest effect, are significantly associated with loan spread, loan size, loan maturity, the likelihood of requiring collateral, and the use of covenants in subsequent loan agreements. Following Menon and Williams (2010), the GCOs are partitioned into those related to: (1) firm performance issues, (2) difficulties obtaining financing, and (3) other issues. Their results indicate that GCOs issued because of performance issues and financing difficulty are related to significantly larger loan spreads and reduced loan size. Further, GCOs issued because of performance issues are negatively associated with the use of financial covenants, and those issued because of financing difficulties are associated with significantly greater use of general covenants and collateral requirements. In sum, their results present evidence on the significant role GCOs play in subsequent loan contracts.

Niemi and Sundgren (2012) study the effects of modified audit opinions on the availability of credit from institutional lenders among privately held small and medium-sized enterprises (SMEs) in Finland. Specifically, they examine whether “Red Flag” opinions (similar to GCOs) in Finland are associated with a change in the use of trade credit (i.e., payables) relative to less costly bank debt up to two years subsequent to the report. They find no association between the Red Flag opinions in Finland and the relative use of trade credit as a source of financing in the two years after the report. Unlike findings on public companies in Chen et al (2016), their results suggest that

the GCO has little effect on types of future financing available to small and medium-sized enterprises.

In order to assess whether the two types of GCOs allowed in Spain (i.e., modified unqualified or qualified) affect loan officer perceptions of auditor independence (auditors providing no NAS vs. providing significant NAS), Guiral, Ruiz and Choi (2014) perform an experiment with 80 experienced loan officers. Their analyses indicate that the type of GCO has a marginal effect ($p=.053$) on loan decisions in the modified unqualified GCO scenarios, but not the qualified GCO scenarios. The authors conclude that their results provide evidence that the negative impact of perceived lack of auditor independence on loan officer lending decisions is dependent on the type of GCO rendered.

4.4 Consequences to the Client Company

One consequence to companies receiving a GCO has long been argued to be the “self-fulfilling prophecy.” That is, the receipt of the GCO itself creates negative consequences, thereby essentially causing the already distressed company to fail. There has been relatively little academic inquiry into this issue in the recent literature. However, in their examination of the efficacy and accuracy of GCOs, Gerakos et al. (2016) address this issue and find that receiving a GCO increases the distressed company’s probability of bankruptcy only an average of .84 percent. Accordingly, finding such a small increase in bankruptcy probability would suggest that, in general, auditors and firms do not need to be overly concerned with the prospect of a GCO sending a company into bankruptcy.

Amin, Krishnan and Yang (2014) extend earlier work on the cost of GCOs to equity stakeholders by examining the cost of GCOs to U.S. companies in terms of

increased cost of equity financing. They document that the issuance of a GCO significantly increases the company's cost of equity capital, and that the cost of equity capital increases an average of 3.3 to 5.2 percent for first-time GCO firms. Additionally, in their study of individual partner reporting differences, Knechel et al. (2015) also examine the effect that engagement partner GCO reporting tendencies may have of their client's cost of capital. They find that the Swedish market recognizes and prices differences in engagement partner reporting styles, in that firms audited by partners with a history of aggressive GCO reporting are charged higher implicit interest rates, have lower credit ratings, and a higher assessed insolvency risk. Their results suggest that the market is aware of individual partner reporting biases and that this information is priced into interest rates and insolvency risk and credit ratings.

Feldman and Read (2013) examine distressed bankrupt companies in the U.S. and find that prior to bankruptcy, a GCO is associated with the credit rating issued by Standard and Poor's (S&P) preceding the audit report date. Their study also finds that after issuance of a GCO, S&P's credit rating tends to be downgraded. In a similar study by Strickett and Hay (2015), their results also indicate that the likelihood of an auditor issuing a GCO is related to the credit rating by both S&P and Moody's in the month before the opinion. In addition, their results indicate that S&P reacted to a GCO by downgrading its rating 68% of the time in the subsequent month, while Moody's downgraded their ratings only 24% of the time. These papers begin to shed light on the reciprocal relationship between audit opinions and credit ratings and suggest that while credit ratings may inform GCO decisions, there is also evidence for the informational value of the auditor's opinion as GCO decisions also may inform credit ratings.

In their study of the effect of auditor conservatism and managerial decision-making, Chy and Hope (2017) argue that conservative auditors constrain managerial ability to meet earnings thresholds by limiting their use of income-increasing discretionary accruals, which, in turn, cause managers to resort to real earnings management. Using a difference-in-difference approach for U.S. states that increased legal liability for auditors versus their neighboring non-changing states, they find that an increase in auditor conservatism, as reflected in increased GCO rates, is associated with lower discretionary accruals, reduced R&D and discretionary advertising spending, overproduction, and fewer patents and patent citations. Hence, their collective findings suggest that auditor conservatism, as reflected in increased GCO rates, induces suboptimal changes in real activities for audit clients.

In an examination of the consequences of GCOs on distressed U.S. companies before and after Auditing Standard No. 5 (AS5), Ren and Zhu (2018) find that reductions in large block ownership, level of institutional investor holdings, and CEO compensation following a GCO is greater after AS5 was implemented compared to the pre-AS5 period. Additionally, they find that turnover following a GCO at the CEO position or in either the CEO, Chairman, or President positions are greater after AS5 than in the pre-AS5 period.

With respect to the effect of GCOs on not-for-profit (NFP) organizations, we find only two studies in our review period. The first study by Feng (2014) examines organizations receiving U.S. government grants and finds that first-time GCOs are negatively related to subsequent government grants as well as total organizational contributions received. He also finds that, in general, GCOs are not associated with subsequent public support, suggesting that public contributors are not significantly

affected by the NFP's GCO status. His combined results suggest either that the government uses GCOs as a screening criterion, or that affected NFPs voluntarily withdraw their grant applications causing them to receive fewer grants and receive fewer organizational contributions. The second study by Amin and Harris (2017) examines the reaction to GCOs from donors, service recipients, and managers of NFPs that both provide services and act as charitable organizations. Their findings indicate that large donors respond negatively to a GCO by donating less, while small donors respond positively by contributing more following a GCO. They also find that service recipients spend more at service-oriented organizations than at charitable nonprofits following a GCO. Finally, managers respond to a GCO by increasing organizational efficiency at service-oriented organizations. Collectively these studies present evidence that GCOs are informative in the NFP sector as they significantly affect funding sources and individual behavior both inside and outside the organization.

4.5 Consequences for Auditors

Prior research that has examined GCO consequences for auditors have generally approached it from the perspective of client opinion shopping, or of auditor's type I errors and whether the auditor has a greater likelihood of losing a subsequently viable client if they render a GCO (c.f., Geiger et al. 1998; Carcello and Neal 2003). We find no published studies in on auditor dismissals after GCOs during the period of our review. However, a few working papers have addressed this issue. For example, the Kim (2017) examines the association between overconfident managers and auditor dismissals following GCOs. She finds that companies with overconfident managers are more likely to dismiss their auditor after a GCO. Consistent with Carcello and Neal (2003), Kim (2017) also finds that auditor dismissals following a GCO are

greater when managers are more powerful than the company's audit committee. The study by Ren and Zhu (2018) also finds that auditor turnover after a GCO is more frequent after AS5 was implemented in the U.S. compared to the pre-AS5 period.

Taking a behavioral approach, Christensen, Glover, Omer and Shelley (2016) survey experienced investors, audit partners and senior managers regarding their perception of various possible indicators of audit quality. With respect to GCOs, they find that auditors and investors associate type II errors with lower audit quality, with investor responses being significantly more negative than those of the auditors. However, auditors and investors similarly associate type I errors with higher audit quality. Collectively, their results suggest positive consequences in terms of heightened perceived audit quality for conservative reporting auditors, that is, auditors that issue more GCOs that would result in higher type I errors and lower type II errors.

Another consequence of auditor GCO reporting is the association between the type of audit opinion (GCO or not) and the amount of future litigation against the auditor (Carcello and Palmrose 1994). Using a simultaneous equations approach that controls for the endogeneity between the GCO and future litigation, Kaplan and Williams (2013) find a significant positive association between auditors' *ex ante* litigation risk and GCOs. However, they also find a significant negative association between GCOs and subsequent auditor litigation, suggesting that auditors deter lawsuits by issuing GCOs to their financially stressed clients. In addition, they find that when auditors are named in future lawsuits, having issued a GCO reduces the likelihood of large financial settlements. In contrast, a study of SEC Accounting and Auditing Enforcement releases (AAERs) by Eutsler, Nickell and Robb (2016) finds a significant *positive* association between GCOs and the likelihood of an audit

enforcement action in cases of undetected fraud. Their findings are contrary to earlier research finding auditors issuing GCOs are insulated from lawsuits and large negative consequences if their clients fail or get sued. The authors argue that their findings are consistent with counterfactual reasoning theory, suggesting that regulators are more likely to conclude that the auditor could have done more to detect the fraud when there is evidence to suggest that they were aware of certain fraud risks (e.g., financial distress) by issuing a GCO. Additionally, unlike earlier research on shareholder litigation against auditors, Eutsler et al. (2016) examines the association of GCOs and regulator sanctions, addressing the issue of how regulators may view GCOs differently than the courts.

Wright and Wright (2014) use an experimental approach to examine the possible negative attributes that could be attached to auditors after a client company files for bankruptcy. Their experiment examines the moderating effect that an explanatory paragraph, similar to the forthcoming disclosures on critical audit matters (CAMs), could have on report reader perceptions and attributions. The explanatory paragraph used in their study indicates that the auditor was aware of the financial difficulties of the company and that the auditor did additional work and determined that an unmodified, standard report was appropriate. Participants in the main study were then told that the company went bankrupt nine months after the year-end. The authors find that participants in the role of investors of the bankrupt company attributed significantly more positive attributes to the auditor in four out of five dimensions (e.g., correct decision, competence, diligence, and auditor actions) if they received the explanatory paragraph compared to those that received only an unmodified, standard report without the explanatory paragraph. Their results lend

support for auditors providing additional disclosure in the audit report regarding going concern uncertainties, even if a GCO is not issued, as well as additional disclosure in other audit areas where the auditor may be subject to “second guessing” in the future.

5 FUTURE RESEARCH

5.1 Research Method Issues

This section discusses some of the research method and sample selection issues that are important for future researchers to consider. We find that several of the method-related issues identified in Carson et al. (2013) remain problematic for studies in our period as well.

5.1.1 GCO as a Measure of Audit Quality

A substantial number of studies included in our review have used the issuance of a GCO as a signal of high audit quality.⁷ The rise in use of GCOs as a measure of audit quality is due, in large measure we believe, to the PCAOB's discussion and final inclusion of a GCO as an indicator of audit quality (PCAOB 2015). This has encouraged researchers to use the issuance of a GCO as a signal of a high quality audit and, in fact, Glover et al. (2016) finds that both auditors and investors perceive conservative GCO reporting (i.e., higher type I errors) as consistent with higher audit quality. However, Chu et al. (2018), among others, argue that the issuance of a GCO alone may not be an appropriate measure of audit quality, as their study finds that auditors issuing more GCOs generally have greater type I errors but no fewer type II errors compared to audit firms with lower GCO reporting tendencies. Results from Myers et al. (2014) and Blay et al. (2016) are also consistent with this argument. Hence, while there has been much discussion to link GCO issuance to increased audit quality, at present the issuance of a GCO by itself may be more of a signal of auditor independence or reporting conservatism, what Kaplan and Williams (2012) refer to as

⁷ Studies in this review using GCOs as a signal of audit quality, include, but not limited to, Deumes, et al. (2012), Minutti-Meza (2013), Ratzinger-Sakel (2013), Dhaliwal et al. (2015), Kumar and Lin (2015), Hossain et al. (2016), Lennox (2016), Ahn and Jensen (2017), Cheon et al. (2017), Chi et al. (2017), Choi et al. (2017), Ettredge et al. (2017), Chen et al. (2018), Hossain, et al. (2017), and Sundgren and Svanström (2018).

ex-post conservatism, than of high quality auditing. Accordingly, targeted empirical studies that critically evaluate the association of GCO issuance with other measures of audit quality seem warranted.

5.1.2 Definition of Failure – What is a "Non-Going Concern?"

When performing research on the accuracy of GCOs, and as a means of identifying “failed” firms, researchers have typically only used bankruptcy as the indication of firm failure. Similar to Nogler (1995, 2004) and Desai et al. (2017), we believe that future research should investigate a broadened definition of failure beyond just bankruptcy filing. Expanding the definition of firm “failure” to include, for example, exchange delisting or suspension, entering into receivership, entering into default on debt covenants, or being acquired (rescued) by another firm would provide more robust information regarding the association of GCOs and subsequent outcomes. Such extensions would provide additional, broad-based evidence regarding the appropriateness and accuracy of GCOs. Further, researchers using an expanded definition of failure, and possibly over an extended period, could then provide additional insights by reporting results based on traditional bankruptcy measures of failure along with results based on their expanded definition.

5.1.3 Sample Selection and Analysis Issues

The issues of small sample sizes and interpretation of coefficients on interaction terms when using logit and probit models remain troublesome when examining samples of distressed firms receiving and not receiving GCOs. As Carson et al. (2013) point out, the accuracy of maximum likelihood estimators for small samples is largely unknown. Thus, one should be cautious in interpreting the results of models estimated on small samples, particularly when the samples contain relatively few GCOs. Similarly,

care must be taken when interpreting the coefficients on interaction variables in non-linear models. Although interpreting product terms in linear models is straightforward, the same intuition does not extend to non-linear models such as logit and probit, the models typically used in GCO research. We refer the interested reader to Ai and Norton (2003, 2004) for more on these issues.

In addition, identifying appropriate samples of distressed control firms that did not receive a GCO (i.e., counterfactual observations) remains problematic. Some researchers include control firms with relatively low levels of financial stress (i.e., net loss in the previous year), while others argue that only firms with substantial amounts of financial distress (i.e., having more than one signal of distress in the comparison year) should be used in control groups for comparison with GCO firms (Blay and Geiger 2013). In order to address this issue, researchers have recently increased their use of matched-sample designs in order to obtain more appropriately matched GCO firms with distressed non-GCO firms. More specifically, recent researchers have increased their use of the propensity score matching technique in an attempt to minimize the differences between GCO and control firms (c.f., Berglund et al. 2018; Chen et al. 2016; Dong et al. 2015; Kaplan et al. 2014; Lennox 2016). The use of propensity score matching, however, increases the percentage of GCO firms in the sample, creating a disproportionately large GCO sample compared with the underlying population proportions. Yet, many studies using this technique do not correct for this sampling artifact. Accordingly, and with the wide inconsistency of research findings in several GCO contexts, we continue to believe that more focused work is needed to understand the implications and potential biases associated with different sampling techniques.

Consistent with prior periods, a large portion of studies in our review, particularly studies using U.S. data, rely on commercial databases (e.g., *AuditAnalytics*, *Compustat*, *CRSP*) only containing data on public companies. Use of these public company databases, by definition, would exclude non-public companies, and often even smaller public companies as well from the analyses. Accordingly, conclusions drawn from empirical studies using these types of databases may be applicable only to larger public companies, a relatively small segment of the global audit market.

5.2 Areas of Future Research

In this section, we discuss some avenues for future research identified during our review. We note that many of the opportunities for future research discussed in Carson et al. (2013) remain relevant today. Accordingly, we will not repeat those but will focus our discussion on the more salient ongoing and newly emergent areas identified by our review.

5.2.1 Determinants of GCOs

We concur with Carson et al. (2013) that there has been a substantial amount of research already performed documenting the influence of publicly available financial information on GCO decisions, and that meaningfully extending this literature may be difficult. Nonetheless, research examining other non-financial client factors such as strategic initiatives, mitigating factors, types of financial reporting decisions, and other non-financial information, including textual analyses of disclosures and report fillings, have been studied to a lesser extent and continue to provide substantial future research opportunities. For example, different proxies for contrary and mitigating factors by management, the auditor's assessed credibility of management's forecasts,

or the types of financial reporting decisions (e.g., aggressive vs non-aggressive financial reporting; changes in accounting policies or changes in significant estimates) remain largely unexplored. Such examinations, however, would extend our knowledge regarding important financial and non-financial factors that may be associated with auditor GCO decisions, as well as the accuracy of those decisions.

Blay et al. (2016) examine neighboring states within the U.S. and find a “regional” contagion effect, in that neighboring states appear to influence GCO reporting frequencies and associated error rates of small firm auditors making GCO decisions. Future studies could assess whether the regional GCO contagion effect is found within other countries, as well as across neighboring countries in a country-by-country setting. That is, are auditors in neighboring countries that use the same auditing standards reporting similar GCO rates and type I and II errors?

Future research should also take advantage of new technologies such as artificial intelligence and advanced data mining technics to simultaneously examine varying types and sources of possible GCO related factors (social media posts and individual’s profiles, financial information, media disclosures, etc.) expanding on the work started by Desai et al. (2017) and Lu, Lin and Lin (2016).⁸ In this same vein, another future research issue is whether any difference in GCO decisions and resultant error rates between the Big 4 and non-Big 4 becomes lessened or eliminated if, as suggested by Lowe, Bierstaker, Janvrin, and Jenkins (2018), non-Big 4 firms increasingly use similar information technologies and data analytic techniques as the Big 4. The current unaddressed empirical issue is whether the use of similar data

⁸ We do not formally review Lu et al. (2016) in this study as only the abstract is in English and the rest is in Chinese, but want to acknowledge their research in this new area.

aggregation and analysis techniques by firms of all sizes, particularly for public clients, reduces differences in GCO decisions due to firm size.

5.2.1.1 Research on Personal Characteristics

Several recent studies have examined personal characteristics or individual traits of the lead audit engagement partner. We expect that this line of research will only expand in the future with the increasing availability of more personal data and the recent adoption of Form AP by the PCAOB that indicates the names of lead engagement partners on public company audits in the US. While there has been significant advancement in this area, the results have often been contradictory. For example, whether and how gender may effect GCO decisions is unsettled as some studies have concluded female partners are more likely to issue GCOs (Hardies et al. 2016) while others find they are less likely (Hossain et al. 2018), and still others find no gender effect on GCO decisions (Cameran et al. 2017). Future research could address whether differences in findings may be country specific, or specific to certain situations, industries, or types of client (i.e., public vs. private).

In addition, researchers have begun to assess the association of GCO decisions and general traits of other audit team members. We encourage expansion of research on how individual partner traits, as well as individual partners, and audit team individuals and team characteristics are associated with GCO decisions and the accuracy of those decisions. However, a largely unaddressed research question is what factors or traits need to be in place for *audit teams* to be effective GCO decision-makers. That is, what team characteristics are necessary to render proper GCO reporting decisions to distressed clients, resulting in fewer type I and type II reporting errors. We believe that future field-based and archival research needs to expand into

this critical area in order to help distinguish effective from ineffective audit teams as a means of assisting audit firms in establishing effective audit teams and improve practice in this area.

5.2.2 Auditor-Client Interactions

The general issue with respect to auditor-client interactions and GCOs is whether auditors impair their independence and reduce audit quality by attempting to appease clients by not issuing a warranted GCO. We continue to believe that future research on such a fundamental issue continues to be needed; however, more refined means of identifying when auditor-client interactions may be detrimental to auditor's decision-making are warranted.

5.2.3 Accuracy of GCOs

We continue to expect that there will be ongoing interest in research that examines the accuracy of GCOs and particularly in research on type II errors where client firms fail without a prior GCO. Such incidents have historically attracted the attention of elected officials, media, regulators, standard setters, auditors and market participants. Coinciding with this general interest in GCO reporting accuracy is interest in reporting accuracy over time and the factors associated with reporting accuracy and changes in reporting accuracy. We concur with Carson et al. (2013) and believe that there is value in replication of these studies across time. Future research could extend our knowledge in this area by expanding the nature of the samples, including performing cross-country analyses and analyses of different firm-types (public, private, family-held, non-profit), by varying how and over what time horizon "non-going-concern" firms are identified, as well as examining different decision-making units of analysis (individual, team, or audit firm). We also believe that future research

could benefit from novelty in approach for identifying research samples and reporting contexts in order to deepen our understanding of the auditor decision process leading to accurate GCO decisions.

5.2.4 Consequences of GCOs

As discussed in the Research Method Issues section, a significant area in need of future exploration is how researchers define a “non-going concern” entity, including the examination of various types of resolution to the entity’s uncertainty, as well as extending the resolution time horizon. In addition, we find that recent research is sparse with respect to targeted examination of the actual existence (or lack thereof) of the self-fulfilling prophecy (SFP) in more contemporary periods. Research in this area generally dates back to studies analyzing data in the pre-SOX era of the 1990s and early 2000s, with very little empirical examination of more recent periods. Gerkos et al. (2016) run simulations and conclude that there is very little GCO effect on bankruptcy probability, but more recent direct empirical research seems warranted.

In addition, future research could also examine the *perceptions* of the SFP held by auditors with different levels of experience and from different sized firms (including industry experts), company financial reporting managers, audit committee members of financially distressed and healthy companies, lenders, analysts, and sophisticated and unsophisticated investors. More information regarding the perceptions of these varied groups, coupled with empirical evidence on the existence of the SFP, would enable more robust assessment of the impact of GCOs, and would contribute to our knowledge of GCO decisions and their outcomes.

Similarly, we find no recent research that examines the costs to auditors in terms of client dismissals following type I GCO reporting errors where clients receive

a GCO but continue to remain viable. The general research question is whether clients continue to dismiss auditors following seemingly unwarranted GCOs in the current regulatory environment, and at a similar rate for public and private company audits? And, if there are differences, in what contexts are they found? For example, do we find more dismissals for auditors with long or short tenures, those receiving or not receiving non-audit service fees, or those from specific industries or geographical areas? In addition, no research has addressed this issue behaviorally from the perspective of the auditor making the GCO decision. That is, do auditors want to retain these clients or are they just as content being dismissed? Further, what is the client dismissal rate compared to auditors deciding to no longer continue retaining the company as a client? Research on the interplay between auditors and client management in contested reporting scenarios would also add meaningfully to our knowledge of the GCO decision-making process as well as the potential cost of GCOs to auditors.

Importantly, the extant research could also benefit from additional study of how analysts, sophisticated and unsophisticated investors, lenders, and other market participants incorporate a GCO along with other information in their evaluation of the distressed company.

5.2.5 New Reporting Formats

The new auditor reporting formats recently adopted by the IAASB and the PCAOB provide numerous opportunities for future research. Research could examine, among other things, whether the new formats have had an effect on the propensity of auditors to render a GCO, along with assessing any differential effect of the accuracy of the GCO/non-GCO decision. A critical examination of how auditors report GCO

uncertainties using the new report formats would be of interest. For example, do auditors include any going concern issues as a CAM/KAM? If so, when are they included and when are they not? Is it only when the auditor also issues a GCO, or only when there is no GCO? Are there firm-size, company-type, or cross-country differences in applying the new formats? Similar to Wright and Wright (2014), research could also assess how such audit report disclosures are used and interpreted by auditors, as well as investors, lenders, credit rating agencies, and other financial statement users.

Future research could also experiment with other reporting formats in order to provide needed input to standard-setters. For example, a small sample study by Bar-Hava and Katz (2016) finds that the two-tiered GCO reporting system implemented in Israel provides a beneficial early warning to the securities markets. Experimentally examining similar multi-staged GCO reporting systems in different country contexts would greatly expand our extant knowledge and provide valuable input to auditors making GCO reporting decisions, as well as auditing standard-setters.

In addition, the FASB in the U.S. has also enacted a new financial reporting requirement as part of Generally Accepted Accounting Principles that requires company management to explicitly assess the going concern assumption and disclose their conclusion in the financial statement disclosures (FASB 2014). Thus, future research could examine the effect (immediate and long term) of the new financial reporting requirements on auditor's GCO decisions, as well as the interplay between financial statement disclosures and the disclosures in audit reports (both GCO and non-GCO). Furthermore, the new financial reporting standard uses "more likely than not" as the threshold of doubt that would indicate the assumption of going concern may be violated, and therefore, initiate the required going concern uncertainty

disclosures by management. Since this threshold is different from the threshold of “substantial” doubt employed in the auditing standards, future research could examine the possible effect of this shift in threshold on GCO decisions. For example, research could examine whether auditors issue GCOs more frequently, or to companies that might not have received a GCO, under the new standards compared to the former standards. In addition, research on the association between management’s financial reporting disclosures, the role of the audit committee, and auditor’s going-concern-related disclosures, in varying contexts, would significantly advance the extant GCO literature and also aid global standard-setters in future evaluations of GCO reporting standards.

5.2.6 Research on Non-public Companies

We continue to find that while not-for-profit organizations account for a significant proportion of the economy, these types of organizations have received almost no GCO research attention and, therefore, continue to represent fruitful avenues for future research. In addition, as noted previously, the vast majority of GCO studies, and almost all U.S. studies, have been performed on public companies. Fortunately, non-U.S. studies are more likely to examine samples of private companies, and smaller public companies, extending our knowledge of GCO reporting into these important audit market segments. However, the number of studies on non-public companies is limited (Langli and Svanström 2014), particularly those examining GCOs,, leaving open the empirical question as to whether the findings derived from GCO studies on large public companies are equally applicable in other audit markets. Moreover, if they are applicable, in what circumstances do they hold and in what contexts not? In other words, the general issue of whether the GCO research findings

with respect to large public companies function the same way in small public companies and in the non-public company markets has been an under-researched issue. We also note that GCO studies rarely examine more than one company-type in the same study. In fact, we identify only one study (Geiger and Van der Laan Smith 2017) during our research window that examines GCO decisions on both public and private companies. Therefore, the literature would benefit from GCO studies that concurrently examine multiple company-types (i.e., large public, small public, private, family-owned, non-profit, etc.). Such studies would be of interest to auditors, clients and regulators and would significantly extend our knowledge of auditor GCO decision-making across these different and important audit market segments and contexts.

5.2.7 Banks and Financial Institutions

While Carson et al. (2013) pointed out the scarcity of GCO research on banks and financial institutions leading up to the systemic crisis in world financial markets in 2007 and 2008, we find no new direct studies of GCO decision-making with respect to banks or financial institutions in our review period. Thus, the research opportunities in this area continue to remain largely unaddressed.

5.3 Research Insights from Other Areas of Accounting and Auditing

Making GCO reporting decisions is a complex process involving the evaluation of evidence obtained throughout the audit that both support and refute the assertion that the client is able to continue as a going concern into the foreseeable future. Accordingly, GCO decision-making research should also rely, and build on, the findings of decision-making research both in an auditing context as well as in the area of general human judgement and decision-making. Thus, GCO research, as well as

decision-making in practice may also benefit from research in other accounting and auditing areas.

For example, as part of evaluating the continuing viability of a company, auditors are likely to assess the risks and robustness of the client's supply chain. Johnstone, Li and Luo (2014) examine auditors that audit multiple companies in a single supply chain and find that auditor supply chain knowledge at the city-level is associated with higher financial reporting quality and lower audit fees for the supplier companies compared to auditors with supply chain knowledge at the national level or with no supply chain knowledge. Their results suggest that adequate knowledge of the client's supply chain is an additional aspect of an auditor's assessment of client risk. In the context of GCO decision-making, then, the findings of Johnstone et al. (2014) indicate that auditors should more formally incorporate knowledge of the client's supply chain, including the possibility and severity of supply chain disruptions, in their assessment of the client's ability to continue as a going concern. However, extant research on GCO decision-making has yet to explore how auditor's knowledge of their client's supply chain effects their GCO decisions.

5.4 Behavioral GCO Research

Our review of the literature identifies surprisingly little behavioral research on auditors' GCO decisions. We recommend more extensive research efforts employing experimental (but also survey and interview) methods to answer research questions impossible to address with publicly available archival data. For example, as in other auditing contexts, auditors are susceptible to various kinds of biases when it comes to GCO decisions. Since GCO decisions are summative evaluations made after auditors process large amounts of evidence both supporting and refuting the assumption that

the client will continue as a going concern, they may be subject to GCO decision-specific biases, but are also subject to general decision-making biases identified in other auditing contexts. For example, in our review we note that Lambert and Peytcheva (2017) use a GCO decision-making setting and find evidence that auditors are prone to the fallacy of evidence averaging. That is, auditors averaged the diagnosticity of all relevant evidence at the end of a task instead of aggregating and summing the diagnosticity of evidence. Likewise, the general decision-making biases of hindsight, client preference, memory conjunction errors, order effects, framing effects, overconfidence, confirmation bias, motivated reasoning, and decision acceptability bias, among others, identified by prior research in various auditing contexts may play a role in GCO decisions as well.⁹ Accordingly, future research could evaluate these biases, in addition to others identified in the cognitive psychology literature examining human decision-making processes, in an effort to determine which biases may be more salient, and problematic, in the context of GCO decisions. More broadly, behavioral methods can be employed to further explore the information factors that affect the auditor's GCO decision process.

⁹ Individual evaluation these decision-making biases in a GCO decision-making context is beyond the scope of this study. However, for excellent reviews of judgment and decision-making research in auditing see Nelson and Tan (2005) and Trotman, Tan, and Ang (2011).

6 PRACTITIONER FOCUS GROUP DISCUSSION

The overall objective of the Foundation for Auditing Research (FAR) is to enhance the knowledge base in the auditing sector. As detailed above, we respond to this objective by extensively reviewing and synthesizing the recent research literature on auditors' going concern reporting. However, to fully achieve the objective of knowledge enhancement, relevant stakeholders in practice should be actively involved in the research process. Hence, FAR stimulates the sharing and discussion of research findings with the practice community, typically by the means of practice notes and/or masterclasses. As an important part of our project, we organized a focus group discussion with experienced audit practitioners to both contribute to FAR's objective of stakeholder outreach and to further enhance the value of our literature synthesis. Our three overall goals for this interactive practitioner session were:

1. Gather feedback from practitioners on key recent research findings, i.e., do they recognize these observations from research and observations in their own practice, and how could they translate these research findings to practice.
2. Gather practitioner responses to some specific questions to develop avenues for future research.
3. Gather insights about what currently happens in audit practice with respect to GCO and what issues practitioners believe are "burning questions".

6.1 Methodological considerations

In the summer 2018, we contacted practitioners at the seven largest auditing firms in the Netherlands to point us to the person at their firm that would be most

knowledgeable about current developments in the GCO arena. We then invited those persons to participate in a focus group discussion session held in October 2018 at the Vrije Universiteit Amsterdam. At this point, we had finalized the identification of the 147 articles to be included in our review. For the sake of the discussion session, we made a more focused selection of 22 key research findings (seven research areas; 33 research articles, see Appendix 2) from our overall literature review that we considered most interesting and relevant for audit practice. In preparation for the session, a few weeks before the session the discussion group participants were asked to (1) read our summary of these 22 research topics, (2) choose the three research findings that they “consider most thought-provoking,” along with a brief indication of their motivation for selection, and (3) share with us a brief description of the three most burning questions/issues in their audit practice regarding GCOs. On the basis of participants’ responses to our 22 topics, we determined a sub-selection which we focused on in the first part of the discussion session.

The focus group session itself was structured in the following manner: After a roundtable introduction of all participants the researchers provided an overall introduction to academic research on GCO, its importance, and the major topics addressed. Then, we focused the discussion on five of the 22 research topics. After a brief presentation of each of the five topics, we invited practitioners to respond to the findings in an interactive discussion. The next phase of the session consisted of a number of specific questions that we raised to get practitioner responses. Finally, practitioners were asked to share their “burning questions” about what was currently happening in practice in the GCO arena.

6.2 Participants

Seven audit practitioners participated in the discussion session:

- Four Dutch Big-4 practitioners of different firms, who are involved in GCO decisions, of which one in a transactions and business recovery services-role;
- Two practitioners from two different large non-Big-4 firms, who are involved in GCO decisions;
- One employee of the Royal Dutch Professional Institute (NBA), involved with policy and auditing standards.

The participants were typically part of a going concern panel or technical department within their respective audit firm. Accordingly, they had been consulted on a large number of going concern issues faced by their firm. In addition to the three researchers, FAR was also represented by Tjibbe Bosman who served as secretary during the session.

6.3 Results

We structure our observations and insights from the discussion session by reporting the various themes that came up, and – where applicable – introducing future research questions that resulted from the focus group discussion.

6.3.1 Type I and Type II Errors

Academic research consistently applies the labels “type I errors” and “type II errors” to characterize reporting misclassifications. Participants strongly objected to the notion of viewing a type I misclassification as an error. Rather, issuing a GCO was seen as signal of higher audit quality, regardless of the subsequent outcome in terms of company survival. This view was partially driven by the fact that the decision to

issue a GCO is determined given the circumstances known to the auditor at one point in time, and these circumstances may change (improve or decline) over time. Additionally, the participants did not consider the issuance of a GCO as an assured prediction of future continuity of the company.

In fact, one participant suggested that the mere issuance of a GCO may in fact mitigate subsequent problems because stakeholders (e.g., creditors) are made aware of the potential problems and can act upon those in a timely manner. Another participant pointed out that research on the type I misclassifications might be limited because the main outcome under scrutiny is whether a company subsequently goes bankrupt or not, while there are many other future developments that need to be considered. Overall, however, participants did recognize that excessive issuance of GCOs would result in the loss of the opinion's value.

It was also noted that auditors are clearly and consistently concerned about type II errors because they can cause enormous exposure for audit firms in terms of costs and reputation loss.

6.3.2 Disclosure of Going Concern Uncertainties

International GCO research typically makes a binary distinction between the presence or absence of a GCO. However, as one participant emphasized, in case there is an uncertainty considered important albeit not material, the ISAs allow auditors to emphasize this going concern uncertainty with a different wording in a voluntary explanatory paragraph to the auditor's opinion (ISA 706) or in a related KAM (ISA 701). The financial statement users can then pursue further insights from reading the financial statements themselves. Although, according to the NBA Steering Group Public Interest, confusion among readers about the differences between an

explanatory paragraph, KAM and GCO opinion, is not to be expected (NBA Stuurgroep Publiek Belang 2018, p. 8), it became clear that not all audit firms were convinced of this conjecture. It was noted that several firms do not follow the practice of disclosing GCO matters in KAMs or voluntary explanatory paragraphs unless a GCO opinion is issued, because they consider it unreasonable to expect financial statement users to understand the difference between a material going concern uncertainty and a non-material uncertainty. While this practice of employing new channels and potentially differential wording may be currently limited in the Netherlands, it offers future research opportunities into the different manners of communicating going concern issues to the public and their perceived information value.

An interesting research question to be explored by future experimental research could be how financial statement users might respond to such variations in disclosure. For example, would various users (e.g., bankers, investors, jurors, etc.) be able to distinguish between continuity-related disclosures with versus without the assessment of material uncertainties? Additionally, would going-concern-related KAMs be perceived the same as other non-going-concern-related KAMS, or perceived the same if included with an emphasis of matter paragraph, GCO, or unmodified opinion? Examining the informational value of differing going-concern-related disclosure formats would enable more informed disclosure choices by audit firms as well as equip standard-setters and regulators with more robust information regarding the benefits and trade-offs of the possible disclosure mechanisms.

6.3.3 National differences regarding GCO

One question raised by participants was whether there are national differences in GCO issuance. For example, one participant suggested that the hurdle for issuing a

GCO in the United States may be higher due to the difference in legal environment and auditing standards. It was also noted that differences in accuracy or consequences of GCO's may be caused by differences in law and regulation and therefore would be a relevant future research area.

Another point mentioned was national differences in management's responsibility to report material uncertainties regarding their company's continuity, which may change how the auditor approaches the issue. In this respect, the NBA Whitepaper (2018, p. 4) suggests management should always prepare a so called "future proof paragraph" that explains, from management's perspective, the ability of their company to remain viable into the future, and that this paragraph should be reviewed by the auditor and become part of the auditor's workpapers. The inclusion of future proof paragraphs in the workpapers presents a number of future research opportunities. For example, what issues are raised, and not raised, in these paragraphs that are related to GCOs or to non-GCOs?

6.3.4 Differences Between Public and Private Firms

Most research on GCO reporting tends to focus on publicly listed companies, given greater public availability of related data. However, given the abundance of audits of private firms, participants acknowledge that this may be a limitation of prior research. The participants noted that there is a clear difference in the approach auditors use in the GCO determination for public versus private client firms, mainly due to the variation in external stakeholders and subsequent exposure should a GCO opinion be issued. Unfortunately, the difference in GCO reporting between public and private companies has not been widely acknowledged in academic research, and even fewer studies have concurrently examined GCO decisions for both public and private

companies.¹⁰ However, such cross company-type research may trigger a number of related research questions. For example, future empirical and qualitative research could focus in more detail on how auditors tackle their GCO decision differently between public and private firms. For example, how does the difference materialize in differences in information search, or reliance on managements' projections, or in the GCO determination process? Also, what are the specific auditor and client factors that are associated with these differences, and, importantly, what are its consequences in terms of, for example, GCO reporting accuracy?

6.3.5 Judgment Bias

Prior experimental research has found that during the GCO assessment, auditors are subject to a variety of judgment biases. For example, as discussed earlier in this report, Lambert and Peytcheva (2017) examine the fallacy of "information averaging" where auditors average strong negative information regarding a company's ability to continue as a going concern with less negative information and arrive at a more positive assessment than if the strong negative information was the only information available. During the discussion, practitioners acknowledged that while there is a general awareness of human judgment bias and they recognize the risks caused by information averaging, they don't believe auditors are specifically aware of this particular bias. One participant mentioned that the problem could be aggravated by the fact that auditors tend to actively look for (forward-looking) mitigating or offsetting information after they have been made aware of a potential (historical) risk indicator. Of course, this may raise potential problems caused by confirmation bias.

¹⁰ We are aware of only two studies that concurrently examine GCO decisions for both public and private companies, Ireland (2003) and Geiger and Van der Laan Smith (2017). Both of these studies utilize U.K. auditors, but only Geiger and van der Laan Smith (2017) separate the public and private companies for a more accurate assessment of the differences in GCO decisions between these two groups.

Participants acknowledge that the challenge is properly balancing positive and negative information and adequately weighing different pieces of evidence in auditors' professional judgment. Future research could further exploit this line of investigation. One question could focus on different weighing of historical vs forward-looking evidence. Also, a root cause analysis of judgement biases in general (such as lack of awareness, (intentional) breach of objectivity or lack of expertise) would be relevant. In addition, future research could incorporate varying personal aspects of auditor predisposition to GCO evidence evaluation (such as level of professional skepticism, perceptions of client locus of control) would also inform our knowledge of GCO decision-making.

One participant further suggested that involving multiple team members or going concern experts at an early stage in the process (i.e., during the assessment of risk indicators) might mitigate this and other judgment biases. It was noted that currently, there is a tendency of auditors to want to only communicate with management resulting in delaying escalation of the issue internally until clearly unavoidable. However, the practitioners realized that involving experts or other team members earlier in the process might lead to more objective consideration of risk factors, mitigating some of the judgment biases. Future research could examine the added value of involving a GCO expert panel and/or other team members on the quality of GCO assessments, as well as investigate the impact of the timing (early versus late) of involving other professionals in the judgment process.

Another potential take-away from this discussion (applying not only to GCO research but also other contexts) is that there may be need for better translation and

more effective communication of research findings relating to auditor judgment biases and how to mitigate their impact to the practice community.

6.3.6 Learning from Peers

Research by Ahn and Jensen (2017) suggests that audit practitioners seem to learn from their peers' reporting errors, such that audit offices that experience an increase (decrease) in type I errors in a given period systematically decrease (increase) their propensity to issue GCOs in the subsequent period for the firm's other clients. Participants confirm that partners in a given office are highly aware of their peers' reporting behavior. For instance, audit partners talk and consult with their direct colleagues (office location) about how to deal with certain going concern problems of their clients and with respect to the decision of which opinion to issue. One participant also confirmed that learning takes place as a result of such knowledge sharing in the sense that auditors weigh information differently based on the experiences of their peers. However, importantly, participants did not recognize the trend reported by Ahn and Jensen (2017) to exist in their firms. In contrast, they note that they observed a strengthening effect of overly conservative reporting behavior. In other words, issuance of GCOs will trigger an increased probability of more GCOs, consistent with the findings by Blay et al. (2016). One participant also observed that audit partners tend to keep issuing GCOs for one company even if the financial position of the company improves during the next year.

Participants also discussed learning effects based on type II errors and agreed that there is openness and sharing of experiences from such instances even across audit offices, providing room for learning from such incidents. Thus, future research could therefore focus on learning and sharing mechanisms currently undertaken at

firms and offices when it comes to the evaluation of going concern and the evaluation of type II reporting errors. A next interesting research question that arises is how to increase effectiveness of such formal respectively informal knowledge sharing?

6.3.7 The Role of Inspection

Recent research generally finds that the probability of firms' issuing a GCO significantly increases after the introduction of regulator inspection, or the heightened threat of audit regulator inspection (Firth, Mo and Wong 2014; Cheon, Dhaliwal, Hwang, and Kim 2017; Tanyi and Litt 2017). The literature typically interprets this trend as an increase in audit quality, which one of the participants objected to, suggesting that just because GCO rates increase that does not necessarily mean that audit quality improves.

Practitioners recognized the tendency of becoming more conservative and exerting more effort (in terms of audit hours) not only in response to anticipated external inspections and negative inspections outcomes, but also resulting from (or anticipating) their firm's internal reviews or inspections. Participants also generally believed that more effort would more likely result in greater chance of discovering going concern risk factors that would have otherwise been overlooked. However, the participants agreed that financial statement auditors should be intrinsically rather than extrinsically motivated, and audit quality should not be affected by inspection risk, frequency or outcomes. In response to our question of whether stricter regulation would effectively also increase GCO rates (potentially increasing accuracy but also type I errors), several participants argued that such behavior may occur but is likely counter-balanced by the client's concerns about the self-fulfilling prophecy.

6.3.8 Switching After GCO

Prior research (Geiger et al. 1998) suggests that companies receiving a GCO and subsequently surviving are 250% more likely to change auditors. We then asked participants whether they observed that clients are lost after a GCO is issued. Indeed, participants observe such occurrences in practice; however, interestingly, they believed that the auditor switch is more likely driven by the painful process of completing the audit, the timing when the audit team brought up the GCO issue (early versus late in the audit) and the resulting higher audit fee, rather than due to the GCO issuance itself. According to participants, the risk of losing an audit client is not an issue that practitioners consider explicitly when deciding whether to issue a GCO. In fact, some participants mentioned that given the current auditor shortage and the painful audit completion processes associated with a GCO, that they are not necessarily opposed to the idea of clients switching auditors following the issuance of a GCO.

Future research of the relationship between auditor switches and issuance of a GCO could focus on factors such as the nature or complexity of the GC issue, the (in)efficiency of the “GCO process”, the tone of communication between the audit team and client, the openness of the relationship, and the change in audit fee rather than if a binary GCO decision could demonstrate such an effect. To enable this kind of research, FAR could contribute by enabling researchers access to so-called “GCO memos,” according to the practitioners, and specifically prepared by audit teams in case of a GCO issue.

6.4 Statistical Failure Prediction Models

Recent research suggests that financial distress models such as the Altman Z or specifically developed logit models (Alareeni et al. 2017) are sometimes better predictors of company failure than auditors' GCOs. From the discussions, it can be concluded that practitioners are interested in supporting materials and guidelines for decision making. In this respect, some practitioners mentioned that they were in the process of building their own advanced prediction models to ultimately improve going concern risk assessment, making use of various big data techniques (e.g., their own historical database of firm clients, current pre-audit client data, web-crawling technologies, social media, etc.). While such techniques are not in use today (particularly using non-financial data), participants agreed that these approaches offer tremendous opportunities for this domain of the audit, especially when it comes to the identification of liquidity issues. Gepp et al. (2018) make similar suggestions of applying big data techniques to the GCO domain. Future research could continue to explore such opportunities, which, making use of the possibilities offered by FAR, could potentially be done in collaboration between (audit and data science) academics and audit practitioners. Meanwhile, participants also acknowledged that GCO decisions are in many cases made on the basis of private, client-specific information, specifically when it comes to the availability of adequate contractual obligations, letters of support, etc. The evaluation of all of this information is where a lot of auditor judgment comes in. Hence, while participants were clearly excited about future possibilities of more advanced data analytic predictions, they also stress the importance of "client-specific" evidence. Ideally, the two approaches would operate in tandem. Generally, the discussion triggered research questions related to how auditors use and weigh

different sources of evidence for their GCO reporting decisions. It was generally believed that information in so-called GCO file memo's, publicly available data and considerations of auditor private information could be used to develop more sophisticated (predictive) models and algorithms that could accurately aggregate private and public data.

6.4.1 GCO Consultation

One of our interests was whether audit firms tend to have procedures in place to consult with GCO specialists or panels and how such procedures are organized. We learned that indeed firms typically work with specialists/consultation departments that are involved in response to certain triggers throughout the engagement. These triggers may come up early in the process. For example, performing client engagement/continuation decisions, where rather extensive risk assessments regarding going concern are made, may uncover important going concern triggers. However, in some cases consultation is sometimes triggered rather late in the process. Such is the case when issues become clearly identified when completing checklists that are filled in rather late in the audit, leading to significant delays. Interestingly, one participant suggested that the timing of consultation may be driven by the age or experience of an audit partner. Their observation was that younger partners tend to consult earlier in the process than older partners. Timing could also be driven by partner tenure with a client. Another observation mentioned was that some triggers are highly judgmental, as a result of which the same red flag may lead to clear consultation indications for one partner but not another. A participant who himself was a member of a GCO panel added that it is hard to offer audit teams recommendations on when they should come forward and consult about GCO issues.

Identifying the ideal timing for consultation is very difficult. A related question that one of the participants raised was whether audit teams should consult with the national office or engage an expert, who would be more involved in that engagement. Another participant indicated that their firm does both and has observed that the number of consultations has increased tremendously as a result of involving experts in the team.

Based on the discussion, we recommend future research examine the determinants and eventual effectiveness of GCO consultation, as well as its timing, along with its effect on the audit and GCO decisions. In this regard, we asked participants whether the events that will trigger consultation would be observable with publicly available data. The participants indicated that some of the triggers would indeed be publicly available, such as the presence of a going concern opinion in the previous year. However, participants confirmed that many triggers are not publicly observable, raising interesting research opportunities in collaboration with the FAR, through which audit firm workpaper data can be accessed. Further research could also focus on the effectiveness of consulting a local office colleague, the national office and or an expert, taking into account the different nature and complexity of GCO issues. Research could also investigate the impact of time or budget pressure and the complexity of the GCO situation on the willingness to consult about going concern issues (see Knechel, Gold, and Wallage 2012).

6.4.2 Client's GC Assessment

When asked about their burning issues, one participant brought up the notion that the GCO process and outcomes (including auditor switching) greatly depends on whether the client is adequately prepared in the case of financial distress. The process

becomes relatively more complicated if management has not made a proper going concern assessment, in which case the auditor has to do much more extensive audit work leading to higher audit fee, potentially straining client relations. For example, as one participant elaborated, clients may not have made sufficiently detailed cash flow analyses available to the auditor, or management may not have prepared adequate scenario analyses about their own mitigating actions to address the going concern issue. Also, some clients may simply not have the professional ability to adequately perform such activities, or they may be overconfident in their abilities, affecting their perceived credibility by the auditor. These notions, in combination with the ability of accessing proprietary working paper data through FAR, opens up promising future research avenues about the role of the management's proactiveness and the GCO determination process.

6.4.3 Reporting Lag

Lastly, a participant observed that clients in financial distress sometimes postpone the publication of their financial statements, with the goal of avoiding its negative information effect for as long as possible. Their belief was that such long reporting delays might be an important determinant of GCOs, and would be an indicator of the interesting companies to study. While GCO research has examined or controlled for audit report lags, future research could provide further analyses of these companies in an effort to understand the auditor-client relationship in such cases, as well as the characteristics of late filing companies.

7 CONCLUDING REMARKS

At the request of the Foundation for Audit Research, we have summarized the findings in the academic literature related to GCOs since Carson et al. (2013) published the last significant review. Following Carson et al. (2013), our review covers the determinants of GCOs as well as the “accuracy” of GCOs, and their impact on auditors, investors, and recipient companies. As a significant part of our work, we have also engaged audit practitioners in order to ascertain their perceptions of not only some of the recent research findings, but also the significant areas of GCO decision-making that they believe could benefit from additional research investigation. In addition, as part of our synthesis and discussions with practitioners, we also identify methodological considerations for researchers and identify numerous potential avenues for future research.

While our synthesis reveals a plethora of interesting insights, we appreciated the opportunity to learn from practitioners’ hands-on experience during our focus group session. The session also provided us the opportunity to share our insights with practitioners, meeting the FAR’s mission of knowledge dissemination. In this respect, we recommend FAR and fellow academics to organize such practitioners focus group sessions on other topics, to stimulate mutual understanding and enhance further practical relevance of academic research.

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Appendix 1: List of Journals Searched

Abacus
Accounting & Finance
Accounting and Business Research
Accounting and the Public Interest
Accounting Horizons
Accounting, Auditing and Accountability Journal
Accounting, Organizations & Society
Advances in Accounting
Asia Pacific Journal of Accounting and Economics
Auditing: A Journal of Practice and Theory
Australian Accounting Review
Behavioral Research in Accounting
British Accounting Review
Contemporary Accounting Research
Critical Perspectives on Accounting
Current Issues in Auditing
Decision Sciences
European Accounting Review
International Journal of Auditing
Journal of Accountancy
Journal of Accounting & Public Policy
Journal of Accounting & Economics
Journal of Accounting Literature
Journal of Accounting Research
Journal of Accounting, Auditing & Finance
Journal of Business, Finance & Accounting
Journal of Contemporary Accounting & Economics
Journal of Governmental & Nonprofit Accounting
Journal of International Accounting Research
Journal of International Accounting, Auditing & Taxation
Maandblad voor Accountancy en Bedrijfseconomie
Managerial Auditing Journal
Procedia Economics and Finance
Research in Accounting Regulation
Review of Accounting and Finance
Review of Accounting Studies
The Accounting Review
The International Journal of Accounting

Appendix 2: Selection of GCO Research Findings Shared With Practitioners Prior To Discussion Session

This summary provides a first overview of the results of our ongoing research project “Going Concern Opinions Research Synthesis”, which is sponsored by the Foundation for Auditing Research. The summary focuses on the areas that we consider most relevant for audit practice. It was written with the purpose of stimulating discussion at the focus group organized on 17 October at Vrije Universiteit Amsterdam, where audit practitioners from eight different audit firms will participate.

GCO Judgments

1. Experimental research has found that during the GCO assessment, auditors are subject to the fallacy of “information averaging” where auditors average strong negative information regarding a company’s ability to continue as a going concern with less negative information and arrive at a more positive assessment than if the strong negative information was the only information available (Lambert and Peytcheva 2017).
2. Further, Guiral, Rodgers, Ruiz and Gonzalo-Angulo (2015) find that Spanish auditors with higher levels of GCO task knowledge and experience were less seduced by ethical conflicts of interest (i.e., perceptions of the self-fulfilling prophesy) and more likely to issue a GCO to a highly stressed client. Hence, experience can help mitigate unconscious bias in some GCO decision-making contexts.

Research also finds that GCO decisions are influenced by audit offices’, as well as nearby auditors’ recent experience with GCO reporting decisions.

3. For example, Ahn and Jensen (2017) find that audit offices that experience an increase (decrease) in type I errors¹¹ (issuing a GCO without the firm going bankrupt subsequently) in a given period systematically decrease (increase) their propensity to issue GCOs in the subsequent period.
4. Similarly, Blay, Moon and Paterson (2016) find that non-Big 4 auditors located in states with relatively high first-time GCO rates in the prior year are up to 6 percent more likely to issue first-time GCOs. This higher propensity increases auditors’ type I error rates without decreasing their type II error rates (failing to issue a GCO for a company that subsequently goes bankrupt).

Workload Issues

5. Lopez and Peters (2012) examine audit firm busy season workloads and find no association with workload compression and likelihood of issuing a GCO.

¹¹ To be consistent with the academic literature, we use the term “error” when referring to situations where the auditor issues a GCO and the client company does not fail (i.e., a type I error) or where the auditor does not issue a GCO and the client company fails shortly thereafter (i.e., a type II error). A proper application of auditing standards would not suggest that these situations are cases where the auditor was in error, either in judgement or otherwise.

6. Goodwin and Wu (2016) examine Australian audit partner busyness, proxied by the number of audits performed during the year, and find busyness is not significantly associated with overall GCO rates, issuance of first-time GCOs or with type II GCO reporting error rates.
7. Conversely, Gul, Ma and Lai (2017) find that busy Chinese partners are less likely to issue a GCO. However, the effect is only present when partner tenure is short (3 years or less).

Partner and Staff Characteristics

Research has accelerated over the past few years that examines the association of individual audit partner characteristics and GCOs.

8. For example, Knechel, Vanstraelen and Zerni (2015) examine Swedish engagement partner GCO rates over multiple years and find that aggressive and conservative reporting persists for individual partners over time.
9. With respect to gender, the research has been mixed, with some studies finding female partners issue more GCOs (Hardies, Breesch and Branson 2016) and others concluding they issue fewer GCOs (Hossian, Chapple and Monroe 2016).
10. An interesting study by Kallunki, Kallunki, Niemi and Nilsson (2018) examines the association of Swedish male¹² audit partner IQ and GCO reporting and find that audit partners' IQ scores are positively associated with GCO accuracy.
11. Stice et al. (2017) aggregate audit employee-level (below partner level) performance evaluations to create a measure of auditor quality at the office level. They find that the going concern results are driven by high quality low-level employees (seniors).
12. Beck, Francis and Gunn (2018) find a positive association between GCO accuracy and average education level in the city in which the lead engagement office is located implicating expertise as an important factor of audit quality as well.

Audit Firm Tenure

13. In general, recent research concludes that audit firm tenure has either a positive association or no significant association with GCO decisions (Garcia-Blandon and Argiles 2015; Chi, Myers, Omer and Xie 2017), except in the first few years of tenure where the association is negative (Read and Yezegel 2016). These results reinforce earlier research on the benefits of longer audit firm tenures for GCO decisions.

Regulatory Oversight

14. Most recent research finds that the probability of firms' issuing a GCO significantly increases after inspection, or the heightened threat of inspection,

¹² They examine only male partners as their IQ data is obtained from a military database kept for all males that must register with the Swedish military. Females in Sweden are not mandated to register with the military, and are excluded from the study.

from national audit regulators (Firth, Mo and Wong 2014; Cheon, Dhaliwal, Hwang, and Kim 2017; Tanyi and Litt 2017).¹³

15. Non-Big 4 audit offices with greater awareness of SEC enforcement are more likely to issue first-time going-concern reports to distressed clients that do not go bankrupt (DeFond, Francis, and Hallman 2017). For big 4 audit offices they find some evidence that awareness of SEC enforcement leads to lower type 2 error rates.

Management-related factors

Recent research finds that auditors' GCO decision is sensitive to several management actions and strategic decisions.

16. For example, Feng and Li (2014) find that when management's earnings forecasts are overly optimistic, auditors are more likely to issue a GCO.
17. Certain strategic choices are further related to GCO issuance, such as clients' broader business strategy (innovator vs. cost-leader; Chen et al. 2017), clients' level of government revenues received (Burke et al. 2015), clients' strategic alliance behavior (Demirkan and Zhou 2016), clients' compensation structure (Fargher et al. 2014), and clients' IT investments (Han et al. 2016; Pincus et al. 2017).
18. Recent research also suggests that GCO rates increase as a result of CFO turnover (Zaher 2015; Beams et al. 2016).
19. Finally, auditors appear to consider their client's workplace climate (Huang et al. 2017) and tone at the top (Kim 2017) in their GCO decision.

Statistical Failure Prediction Models

20. Recent research suggests that proxies of financial distress models (Statistical Failure Prediction Models) like Altman Z and specifically developed logit models (Alareeni et al. 2017) are better predictors of company failure than GCOs, although the latter do "predict" non-failure well. They find that the average percentage of companies that received going concern opinions is highest, at 78 percent, when all three distress factors (negative cash flows, recurring losses, and negative working capital) are present.
21. Although receiving a GCO increases a firm's probability of bankruptcy up to 84%, GCOs do not predict bankruptcy more accurately than models based on public data (Gerakos, Hahn, Kovrijnykh and Zhou, 2016).
22. Prior research examined going concern risk disclosures as a homogenous class of risks (material uncertainty about going concern). Young and Wang (2010) derived a five-level risk class from Australian Auditing Standard (570 Going Concern) pronouncements to examine the appropriateness of auditors' going concern reporting relating specifically to the likelihood of firm failure. The proxy to measure the appropriateness (Altman's Z-score) indicates a significant underreporting of the going concern risk of both auditors and

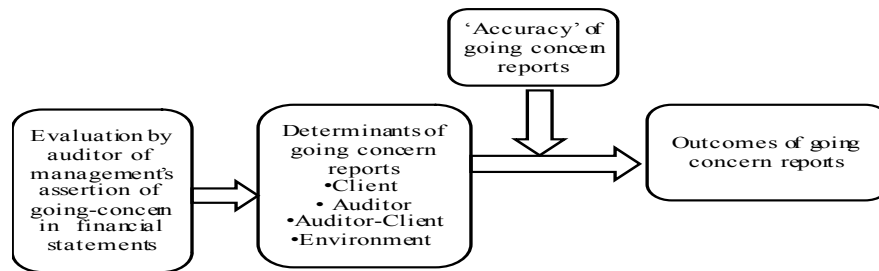
¹³ However, importantly, an increase in the number of GCOs does not necessarily mean that audit quality is improved (Carey, Kortum, Moroney, 2012, Myers et al. 2014, Carson, Fargher and Zhang, 2017).

directors. The results indicate significant inappropriate reporting (82 percent) of which 75 percent are underreported.¹⁴

¹⁴ This could also suggest that the Altman-Z score is relatively conservative.

Figure 1: Audit Reporting of Going-Concern Uncertainty Research

Framework



As reported in Carson et al. (2013).

Table 1: Distribution of GCO Studies by Year and Research Method

| <u>Year of Publication*</u> | <u>No. of studies</u> | <u>Research Method</u> | | | |
|---------------------------------|---------------------------|------------------------|---------------------|---------------|-------------------|
| | | <u>Archival</u> | <u>Experimental</u> | <u>Survey</u> | <u>Analytical</u> |
| 2010 | 1 | 1 | - | - | - |
| 2011 | 2 | 1 | 1 | - | - |
| 2012 | 9 | 9 | - | - | - |
| 2013 | 22 | 20 | 1 | 1 | - |
| 2014 | 13 | 11 | 2 | - | - |
| 2015 | 23 | 21 | 2 | - | - |
| 2016 | 28 | 24 | - | 4 | - |
| 2017 | 40 | 35 | 4 | - | 1 |
| 2018 | 9 | 7 | 2 | - | - |
| Total | 147 | 129 | 12 | 5 | 1 |

* Based on year of publication or latest posted version for working papers.

Table 2: Client Characteristics

| Study [Method] | Sample (Years) [Country] | Dependent Variable(s) | Independent Variable(s) | Key Finding(s) |
|--|---|---|--|---|
| Abad, Sanchez-Ballesta, and Yague (2015) [Archival] | 562 firm years, of which 19 received a GCO qualification (2001-2008) [Spain] | Issuance of a GCO and other qualifications | Information asymmetry proxied by relative effective spread, a price impact measure, probability of informed trading, and a composite index of all three measures | Firms with qualified GCOs are associated with the highest levels of information asymmetry, suggesting these firms have the most future uncertainty and hence the highest adverse selection risk. |
| Beams, Yan, Boonyanet, and Chartraphorn (2016) [Archival] | 4,240 distressed firm-years, incl. 439 GCOs (2008-2010) [US] | Issuance of a GCO | CEO and CFO resignations | There is a significant positive association between CFO resignations and subsequent GCOs; but no significant relationship with CEO resignations and GCOs. |
| Berglund, Eshleman and Guo (2018) [Archival] | 9,267 distressed firm-years; and a propensity score matched sample of 2,586 Big 4 clients with 2,586 non-Big 4 clients (2000-2013) [US] | Issuance of a GCO; type I & II errors | Big 4 | Authors propose and test a more adequate way of controlling for client financial health, and find that Big 4 auditors are more likely than mid-tier auditors to issue GCOs, and that compared to other auditors, the Big 4 are less likely to have type I errors and have the same type II error rates. |
| Bhaskar, Krishnan, and Yu (2017) [Archival] | 28,318 firm years (distressed and non-distressed) with 4,267 debt covenant violations (2000-2008) [US] | Issuance of a GCO; audit fees; resignations | Occurrence of debt covenant violation | Firms with debt covenant violations have a greater likelihood of receiving a GCO. This relation is stronger for non-distressed versus distressed firms. |

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| Bruynseels and Cardinaels (2014) [Archival] | 3,219 firm year observations [2004-2008] (US) | Issuance of a GCO | Friendship ties between audit committee and CEO | Auditors are less likely to issue GCOs or to report internal control weaknesses when friendship ties between the audit committee and CEO are present. |
| Bruynseels, Knechel, and Willekens (2013) [Experimental] | 49 experienced auditors (N/A) [Western Europe] | Issuance of a GCO | Possible management actions in response to financial distress (Operating, Strategic, Control) | Operating turnaround initiatives are associated with auditor's lower relative recall of positive financial evidence and a higher likelihood of receiving a GCO. |
| Burke, Convery, and Skaife (2015) [Archival] | 19,912 (2,757 associated with government contracting; remainder without) [2006-2012] (US) | Issuance of a GCO | Government contracting | Firms that earn more revenues from the government are less likely to receive going concern opinions, delist from a major stock exchange, or file for bankruptcy. Also, the loss of government contracts in the subsequent year affects auditors' assessment of going concern risk in the current year. |
| Cao, Chen, and Higgs (2016) [Archival] | 4,946 matched NTF and TF firm-year observations (2000-2010) [US] | Financial reporting quality (discretionary accruals); restatement in a following period; moderator: Big4; control variable: Issuance of GCO | 10K filing timeliness | GCO mainly used as control variable. Main results hold when including it. Find, non-timely filers report higher GCO rates than timely filers. |
| Carson, Fargher, and Zhang (2016) [Lit review and descriptive] | 15,855 audit reports (2005-2013) [Australia] | N/A | N/A | GCO opinions have been on the rise, even after the global financial crisis. Non-Big 4 appear to give more GCOs. Smaller firms receive more GCOs than larger ones, and the use of "unmodified EOM" reports for GCOs have substantially increased over the period compared to other report modification forms. |

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| Chen, Eshleman, and Soileau (2017) [Archival] | 4,322 distressed, firm-year observations (2000-2013) [US] | Issuance of a GCO; type I & II errors | Client business strategy (innovative "prospector" vs cost-leadership "defender") | Prospectors are significantly more likely than defenders to receive a going concern opinion. For a subsample of clients who subsequently filed for bankruptcy, auditors are less likely to issue going concern opinions to prospector clients, suggesting that auditors commit more Type II errors when auditing prospector clients. Business strategy does not affect type I error rates. |
| DeFond, Lim, and Zang (2016) [Archival] | GCO sample: 9,284/12,462 distressed firm-years (2000-2010) [US] | Several auditor-related variables, including GCO | Client conditional conservatism | Auditors issue fewer going concern opinions to more conservative clients. |
| Demirkan and Zhou (2016) [Archival] | 29,809 firm year observations (2001-2011) [US] | Audit fees; secondary DVs: GCO issuance, financial misstatements, IC weakness opinions | Incomplete contracts, as measured by (i) strategic alliances and (ii) contractual alliances vs. joint ventures | Auditors are less likely to issue GCOs when there is an increase in strategic alliances. |
| Desai, Kim, Srivastava and Desai (2017) [Archival] | All annual report filings in Edgar (10-K, 10-K/A; 10-KSB; 10-KT, etc.) Paper only reports percentages, no raw numbers. (1995-2015) [US] | Issuance of GCO / Delist (given a GCO) | GCOs and negative cash flows/recurring losses/negative working capital | Authors employ search engine technology to investigate the relationship between first-time GCOs and subsequent firm viability using delisting as the indicator criterion rather than bankruptcy filing. The paper also investigates the impact of client distress factors on the propensity to issue GCOs. Using 10-K filings and delisting as evidence of failure, they find that the survival rate of first-time GCOs is much lower than previous studies report. They find that around 26 percent of first-time GCOs are delisted within 1 year and 50 percent within 3 years. The bankruptcy rate of first-time GCOs within 1 year is around 9 percent. In addition, they find that the % of GCOs varies for each of the distress factors examined. |

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| Dhaliwal, Lamoreaux, Lennox, and Mauler (2015) [Archival] | 2,145 Big 4 auditor appointments (1995-2009) [US] | Independence impairment as proxied by issuance of GCO | Client hiring affiliated auditors; audit committee quality | Hired affiliates are negatively associated with the propensity to issue a GCO, even in the presence of higher quality audit committees. |
| Fargher, Jiang, and Yu (2014) [Archival] | 13,125 firm-year observations (2000-2010) [US] | Issuance of a GCO | CEO portfolio delta (CEO equity wealth to stock prices) and vega (CEO equity to stock-return volatility) | Authors find a negative association between CEO portfolio deltas and the issuance of going-concern audit opinions (GCO). |
| Feldman and Read (2013) [Archival] | 152 financially distressed companies that filed bankruptcy (2000-2009) [US] | Issuance of a GCO | Standard and Poors (S &P) credit ratings | Likelihood of an auditor issuing a GCO is associated with the credit rating issued by S&P preceding the audit report date. In results supporting the idea that the auditor's opinion has informational value, the paper also finds that after issuance of a GCO, S&P's credit rating tends to be downgraded. |
| Feng and Li (2014) [Archival] | 1,054 firm-year observations with 39 GCOs and 33 filing for bankruptcy (2000-2010) [US] | Issuance of a GCO; subsequent bankruptcy | management earnings forecasts | Management earnings forecasts are negatively associated with both auditors' going-concern opinions and subsequent bankruptcy, suggesting that auditors consider this information in their decision making. |
| Foster and Shastri (2016) [Archival] | 1025 former development stage enterprises (2001-2013) [US] | Issuance of a GCO; audit fees | Multiple determinants of GCO | Significant client-related determinants of GCO: asset size of firms and negative working capital. |
| Goh, Krishnan, and Li (2013) [Archival] | 1,111 distressed firms (2004-2009) [US] | Issuance of a GCO | Weakness in Internal Controls - per new report on ICFR | Weakness in ICFR is associated with an increase in probability of GCO opinions |
| Hallman (2017) [Archival] | 15,296 distressed firm-years (2000-2014) [US] | Issuance of a GCO | "Risk Contrast" which is the difference between a client's ZSCORE and the avg. ZSCORE of clients of the same auditor | The higher the Risk Contrast the more likely a GCO is rendered - but only for the Office-level analyses |

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| Hammersley, Myers, and Zhou (2012) [Archival] | 255 firms with MW in internal controls that clearly report remediation or no remediation in the next year (2006) [US] | Issuance of a GCO | Have remediated ICW from previous year | Firms that do not remediate ICW are more likely to get GCO than those that remediate ICWs |
| Han, Rezaee, Xue, and Zhang (2016) [Archival] | 2,025 public firm-years with IT investment data (2000-2009) [US] | Issuance of a GCO; type I & II errors | IT investment | IT investment is positively associated with GCOs and type II errors but not type I errors. |
| Heflin and Wallace (2015) [Archival] | 39,411 public company-year observations (2000-2010) [US] | Contribution size or whether the firm contributed to a political action committee (PAC), or how many candidates were contributed to | GCO, restatements, accruals quality, audit fees, ICW | Political contributions were not associated with GCOs, even if restrict analyses to just distressed firms |
| Huang, Masli, Meschke, and Guthrie (2017) [Archival] | 337 large public firms with employee satisfaction ratings data from Glassdoor (2008-2012) [US] | Issuance of GCO | satisfaction ratings of the client firm employees | GCOs more likely when satisfaction ratings are low for the firm/senior Mgt/Career opportunities |
| Ittonen, Tronnes, and Wong (2017) [Analytical] | 31,332 public firm-years on 5,146 firms (2003-2015) [US] | Aggregate information content of GCOs calculated from Shannon entropy's measure of the amount of info content of an event | Substantial doubt thresholds of probability of bankruptcy | They apply the concept of Shannon entropy to evaluate the informational value of going concern audit reports at various hypothetical bankruptcy probability thresholds for "substantial doubt" and find that entropy is maximized at a bankruptcy probability of .08 (8%), meaning optimal point for GCOs is 8% probability of bankruptcy. |

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| Kausar and Lennox (2017) [Archival] | 120 bankrupt UK firms to estimate the REALIZATION model and 15,616 distressed US firms and 6,641 distressed UK firms for the GCO probability model (1994-2008 UK firms; 2000-2009 US firms) | Issuance of GCO / Realization % | Realization % / GCO | Auditors are more likely to issue GCO if realization rates are low; bankruptcy firms with GCOs have lower realization rates. So auditor GCO reporting compensates for lack of balance sheet conservatism (still reporting assets at BV not liquidation values) |
| Kim (2017) [Archival] | 2,293 distressed firms (2000-2013) [US] | Issuance of GCO / Dismissal | Managerial overconfidence | Firms with overconfident managers are more likely to get GCOs and once they get a GCO are more likely to dismiss the auditor. |
| Koh and Tong (2013) [Archival] | 20,687 firm-years in KLD database of corporate behavior/governance (2000-2010) [US] | Issuance of a GCO | Did they engage in controversial activities. | Firms engaging in controversial activities are more likely to get GCOs |
| Krishnan and Sengupta (2011) [Archival] | 12,381 firm-years incl. 861 distressed firm-years (2000-2011) [US] | Issuance of a GCO | Level of Operating (off balance sheet) Leases and Pension obligations | GCOs are positively related to operating leases -- i.e., auditors regard off-balance leases as real liabilities. GCOs are not associated with pension obligations (both on- and off-balance sheet). Find qualitatively same results for subsample of 861 distressed firms. |
| Krishnan and Wang (2015) [Archival] | 11,257 distressed firm-years (neg NI or CFO), incl. 776 GCOs (2000-2011) [US] | Issuance of a GCO | Managerial ability | Managerial ability is negatively related to the probability of getting a GCO |
| Lennox and Kausar (2017) [Archival] | 1,878 public firm-years (2000-2013) [US] | Issuance of a GCO | Bankruptcy prediction model outcomes | Auditors are more likely to issue GCOs when BKT probability increases AND when their risk of incorrectly estimating bankruptcy probability increases. |

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| Menon and Williams (2016) [Archival] | 7,749 Private debt placements by 3,304 firms; 470 placements with GCO restrictions and 470 PSM firms on credit risk (2003-2009) [US] | Issuance of a GCO | GCO covenant | Firms with GCO covenants are more likely to receive a GCO. |
| Paananen (2016) [Archival] | 137 Joint Municipal Authorities - representing 87% of all JMAs in Finland (2011) [Finland] | Modified or Qualified audit report | Measures of financial stress, JMA size and auditor | Modified audit opinions are more likely in the case of a long audit report lag, a large audit firm, large client, poor leverage, and a male principal auditor |
| Pincus, Tian, Wellmeyer, and Xu (2017) [Archival] | 4,950 firm-years -- incl. 51 bankruptcy observations (2001-2007) [US] | Type I & II errors | Presence and extent of client firms' Enterprise System (ES) implementations | They find implementation and the extent of ES systems reduce type II errors, but find no association of implementation or extent of ES systems with type I errors |
| Sormunen, Jeppesen, Sundgren, and Svanström (2013) [Archival] | 2941 bankrupt firms in Nordic countries (2007-2011) [Denmark, Sweden, Norway, Finland] | Type II errors | Denmark and Norway vs Sweden and Finland and big 4/ non big 4 | Danish and Norwegian companies get a going-concern opinion prior to bankruptcy more frequently than companies in Sweden and Finland. Big 4 issue more GCO than non-Big 4. GCO is significantly associated with probability of bankruptcy, loss, and client size for all countries. |
| Strickett and Hay (2015) [Archival] | 1,620 bankrupt firms and final totals for S&P of 166, for Moody's 160 and firms followed by both S&P and Moody's of 138 (2002-2013) [US] | Likelihood of a GCO / downgrade of firm's credit rating | 1. Firm's credit rating. 2. Likelihood of a GCO | Likelihood of an auditor issuing a GCO opinion is related to the credit rating issued the month before by both S&P and Moody's. Results also show that S&P reacted in the month after an auditor issued a GCO opinion by downgrading its ratings 68% of the time. However, Moody's did not react in the same way, downgrading their ratings only 24% of the time. |

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| Vichitsarawong and Pornupatham (2015) [Archival] | 1,791 firm-year observations, consisting of 409 listed firms (2004-2008) [Thailand] | Type of opinion (unqualified, qualified, EOM) | Earning persistence | Firms receiving modified opinions have lower earnings persistence than firms receiving unqualified opinions, and the degree of earnings persistence varies among types of modifications. Firms receiving a scope limitation qualification and a going concern disclaimer have lower earnings persistence than firms receiving an UEM due to going concern issues. |
| Wu, Hsu, and Haslam (2016) [Archival] | 116 failed companies (entered liquidation, receivership, administration or delisted their stock (1997-2010) [UK] | Issuance of a GCO | NAS Fees, Audit Committee Independent directors, financial experts | Failed firms with higher proportions of independent non-executive directors (NEDs) and financial experts on the audit committee are more likely to receive prior GCOs, but there is no significant relationship between NAS fees and the likelihood of receiving a GC. The association between NAS and auditors' reporting decisions is subject to audit committee characteristics. Where the audit committee is more independent and includes a greater proportion of financial experts, auditors providing the client with NAS are less likely to issue a standard unmodified going-concern report prior to failure. The findings support corporate governance regulators' concerns. |
| Zaher (2015) [Archival] | 2,089 distressed companies; 642 bankrupt manufacturing companies (2005) [US] | Issuance of a GCO | NewCEO/NewCFO/CEOGender/CFOGender | GCOs in general and prior to bankruptcy are more likely for new CFOs but not CEOs, and no sig. difference in GCO probability for gender of CEO or CFO. |

Table 3: Auditor Characteristics

| Study [Method] | Sample (Years) [Country] | Dependent Variable(s) | Independent Variable(s) | Key finding(s) |
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| Ahn and Jensen (2017) [Archival] | 14,700 type I errors and 6,385 type II errors (2003-2014) [US] | Abnormal accruals; type I & II errors | Indicator for increase or decrease in type I or II error rates for the office; Count of the change in number of type I & II errors; Count scaled by number of office clients. | Find auditors systematically decrease (increase) their office-wide GCO reporting conservatism levels subsequent to increases (decreases) in type I errors, and that auditors systematically increase (decrease) their office-wide conservatism levels subsequent to increases (decreases) in type II errors. Increases in type I errors lead to a lower probability of subsequent GCOs, but increases in type II errors do not significantly alter subsequent overall GCO probabilities. However, changes in both type I and type II errors in a given period are negatively associated with changes in errors in the subsequent period. |
| Basioudis, Gul and Ng (2012) [Archival] | 13,111 distressed (neg NI or CFO) firms incl. 511 first-time GCOs (2000-2009) [US] | Issuance of GCO | NAS fees, Total fees, NAS fee ratio | Find a negative association between NAS and GCOs for companies that pay high NAS fees, but only when auditor tenure is long (defined as 4 or more years). Results hold for both Big N and non-Big N auditors and industry specialists and non-specialists. |
| Beck, Francis and Gunn (2018) [Archival] | 8,553 Big 4 and 4,825 non-Big 4 public firm-years of distressed (either negative NI, CFO, Curr Ratio, or Ret Earn) companies (2001-2013) [US] | GCO error rates | Average education of the city's labor pool / size of the labor pool / Big 4 | They look at the quality of a city's labor market and GCO reporting accuracy and find a positive association between GCO accuracy and average education level in the city in which the lead engagement office is located. This association is generally significant for both Big 4 and non-Big 4 offices, but is stronger for non-Big 4 firms, as they are more tied to local labor markets. |
| Berglund, Eshleman and Guo (2018) [Archival] | 9,267 distressed (both neg NI and neg CFO) public firm-years; and a propensity score matched sample of 2,586 Big 4 clients with 2,586 non-Big | Issuance of a GCO; type I & II errors | Big 4 | They find that after more adequately controlling for client financial stress, that Big 4 firms render more GCOs than non-Big 4, have fewer type I errors and no change in Type II errors compared to non-Big 4. When looking at Big 4 vs BDO & GT (2nd tier), Big 4 render GCOs more and have fewer type I & II errors. |

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| | 4 clients (2000-2013) [US] | | | |
| Bills, Jeter and Stein (2015) [Archival] | 23,578 firm-years incl. 5,534 for GCO sub-analysis (2004-2009) [US] | Audit fees, discretionary accruals, GCOs, restatements | Auditor industry specialization, industry homogeneity, industry complexity | Find a positive and significant coefficient for SPECIALIZATION in the GCO model without the industry variables of interest. When they include variables for homogenous and complex industries, the two-way and three-way interactions of interest are insignificant, suggesting that the likelihood of issuing a GCO does not differ for auditors specializing in homogenous, or homogenous and complex, industries relative to specialists in other industries. So, industry specialization increases GCOs, regardless of the industry. |
| Cameran, Campa and Francis (2017) [Archival] | 450 Big 4 partners over 3,579 yearly observations and 216 non-Big 4 partners over 1,834 observations (2009-2015) [UK] | GCO, restatements, discretionary accruals | Individual partner, firm size, local office; gender, university rank, years of experience, busyness (# of public clients), LinkedIn a/c | Individual partner differences account for more explained variance in GCO decisions than the combined effects of audit firm type (Big 4 vs non-Big 4) and individual audit office effects. With respect to individual partner characteristics, they find support that partners from higher ranked universities, those with more years of experience and those with LinkedIn accounts are more likely to issue GCOs, and busy partners and partners from Big 4 firms are less likely to issue GCOs. |
| Carson, Fargher, and Zhang (2016) [Lit review and descriptive] | 15,855 audit reports (2005-2013) [Australia] | N/A | N/A | GCO opinions have been on the rise, even after the global financial crisis. Non-Big4 appear to give more GCOs. Smaller firms receive more GCOs than larger ones, and the use of "unmodified EOM" reports for GCOs have substantially increased over the period compared to other report modification forms. |
| Che, Langli and Svanström (2018) [Archival] | 1,738 audit partners on 88,849 distressed public and private client-year observations (2006-2010) [Norway] | Type I & II errors | Level of partner education; amount of CPE courses taken; years of experience | GCOs are more accurate from partners that have masters degrees, take more CPE, are more experienced, and have more industry expertise. Their results indicate that education and training of signing partners effects the accuracy of GCOs. |

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| Chi, Myers, Omer and Xie (2017) [Archival] | 1,377 public company observations for GCO sample (1990-2001) [Taiwan] | Several audit quality proxies, including GCO issuance | Audit partner pre-client and client-specific experience | Both pre-client and client-specific experience improve audit quality (issuance of GCOs). Partner pre-client experience is positively associated with audit quality early in the engagement, but not when the partner has been with the client for at least five years, suggesting pre-client experience cannot completely mitigate the loss of client-specific knowledge for new engagement partners |
| Choi, Kim and Raman (2017) [Archival] | 5,626 and 5,713 Big N public client years (1996-1997 and 1999-2000) [US] | Several audit quality proxies, including GCO issuance | 1998 merger of PW and CL | After merger, PwC had higher GCO rates than other Big N, at the office level, with merged offices being more likely to issue GCOs than separate offices before the merger, suggesting an improvement in reporting quality after the merger. |
| Duh, Kuo and Yan (2018) [Experimental] | 59 Big 4 auditors and five managers serving as audit superiors (years?) [Taiwan] | Performance in a going-concern evaluation task | Review format (face-to-face vs. e-mail); task complexity (high vs. low) | When performing tasks with low complexity, auditors in the face-to-face review group have higher workpaper quality than those in the e-mail review group. When performing tasks with high complexity, workpaper quality is not significantly different between auditors in the face-to-face and e-mail review groups. Results suggest that review format only has an impact in low complexity tasks. |
| Dunn, Tan and Venuti (2012) [Archival] | 249 bankrupt companies (1991-1998) [US] | Type II errors | Big 6; industry specialist | Find no difference in type II errors between Big 6 industry specialists and non-Big 6 non-specialists, suggesting no overall reporting quality differences between auditors expected to be better at issuing GCOs prior to bankruptcy and those expected to be less able to do so. |
| Foster and Shastri (2016) [Archival] | 1025 development stage enterprises (2001-2013) [US] | Issuance of a GCO | Big 4 auditor | Size of the audit firm did not influence the GCO decision, suggesting no audit firm size difference in reporting quality. |
| Gipper, Hail and Leuz (2017) [Archival] | 17,653 audits performed by the largest 6 audit firms and audit data obtained by the PCAOB (2008-2014) [US] | Several audit quality proxies, including GCO issuance | Audit partner tenure | Audit partner tenure on a client is not significantly associated with issuing a GCO. |

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| Goodwin and Wu (2016) [Archival] | 8,767 distressed (neg NI and CFO) public firms (1999-2010) [Australia] | Issuance of a GCO; type II errors | Busyness of the audit partner measured as the number of public clients during the year. | Partner busyness not associated with issuing 1st GCOs, subsequent GCOs or type II errors. However, it is negatively associated with 1st time GCOs in period 2002-2004, a period of "dis-equilibrium" in the Australian audit market. Results suggest no overall effect of partner busyness on GCO reporting. They also find that partner age is negatively associated with GCOs (1st time and subsequent) and with accurate GCOs based on viability up to 2 years out. |
| Grossman and Welker (2011) [Experimental] | 72 auditors or former auditors (2010) [US] | Proneness for Memory Conjunction Errors (MCEs); GCO opinion decisions and evidence recognition indications | Order of GCO-related data presentation, e.g., causally related, workpaper order, or randomly ordered | Participants in the causal configuration condition were more prone to MCEs than participants in either the working paper or random configuration conditions. The rationale underlying auditors' enhanced proneness to MCEs in the causal configuration condition was that auditors could more easily apply schematic representations to causally arranged evidence, thereby reducing the strength with which individual items of evidence were encoded into memory. The results suggest that order of information presentation effects GCO decisions. |
| Guiral, Rodger, Ruiz, Gonzalo-Angulo (2015) [Experimental] | 80 partners and managers from 2 international accounting firms | Auditor's GCO decision; perception of the need to timely report GCO issues to public; perception of self-fulfilling prophecy hypothesis | Experience, expertise (# of years signing audits) | They blend their earlier model of ethical decision-making in a GCO context (Guiral et al 2010) and Libby and Lufts (1993) model of expertise effects on decision making. They find that auditors with higher task-specific knowledge/expertise were less seduced by ethical conflicts of interest (i.e., perceptions of the self-fulfilling prophecy) in their decision-making processes and are more likely to render a GCO to a very stressed client. |
| Gul, Ma and Lai (2017) [Archival] | 1,893 distressed (neg operating income) firm-years (2000-2009) [China] | Issuance of a GCO | Log(number of current clients) | They find a negative association between GCO opinions and the number of public clients audited by the audit partner in charge of the audit, consistent with the busyness effect. However, the effect is only present when the audit partner tenure is short (3 years or less). |
| Habib (2013) [Meta-Analysis] | Various (1982-2011) [various] | Issuance of a GCO | Auditor and client factors; NAS fees | The effect of audit and auditor-related variables on GCO decisions is far from conclusive. In general, Big N affiliation and audit report lag variables are found to be positively related with GCOs, while the association between NAS fees and modified audit opinion decisions is negative. However, the significant effect of NAS fees is found only in non-US studies. |

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| Hallman (2017) [Archival] | 15,296 distressed (i.e., neg NI or CFO) public firm-years (2000-2014) [US] | Issuance of a GCO | "Risk contrast" which is the difference between the clients ZSCORE and the avg ZSCORE of clients of the same auditor, using firm, office, and office-industry levels of analysis. | Higher the BKT risk contrast the more likely a GCO is rendered - but only for the office-level analyses. |
| Hardies, Breesch and Branson (2016) [Archival] | 7,105 distressed private companies, using a broad measure of distress (2008) [Belgium] | Issuance of a GCO | Gender of lead partner | Females are more likely to issue a GCO than males, suggesting partner gender matters and females report more conservatively than males |
| Harris, Omer and Wong (2015) [Archival] | 14,062 firm-years including 305 with consecutive GCOs (2004-2013) [US] | Consecutive GCOs; market reaction to GCOs | Audit firm size, industry expertise; consecutive GCOs | Larger audit firms issue fewer consecutive GCOs, and smaller audit firms issue consecutive going concern opinions to a greater proportion of clients at higher risk of bankruptcy and misstatements. Industry expertise is not significantly associated with consecutive GCOs in their multivariate analyses. They also find the initial market reactions to GCOs decrease with consecutive issuances of a GCO and disappear when consecutive GCOs exceed three. |
| He, Pan and Tian (2017b) [Archival] | 91 public firms with ties to corrupt bureaucrats & 91 matched on industry, ownership & assets to non-connected firms (2004-2014) [China] | Issuance of a GCO | Prior connection to corrupt bureaucrats, interacted with a post event dummy; State Owned Enterprise (SOEs) | They find that in the period after the corrupt bureaucrat is removed, formerly connected state-owned enterprises (SOEs) receive more favorable audit opinions than their non-connected counterparts, whereas connected non-SOEs obtain less favorable opinions. |
| He, Pan and Tian (2017) [Archival] | 1,230 distressed firms (2008-2013) [China] | Issuance of a GCO; modified opinions | Time period after China made audit firms switch from LLCs to LLPs - increasing their liability exposure | More GCOs after switch to LLPs, esp. for local auditors of State Owned Enterprises. Increases in liability exposure increase the probability of a GCO |

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| Hossain, Chapple and Monroe (2018) [Archival] | 7,361 distressed firm-years (neg NI or neg CFO) | Issuance of a GCO | Lead partner gender | Female partners are less likely to issue GCOs; they are also negatively correlated with type I errors, but not associated with type II errors |
| Hossain, Yazawa and Monroe (2017) [Archival] | 1,137 distressed (neg NI or CFO) firm-years (2007-2011) [Japan] | Issuance of a GCO; 1st time GCOs | #auditors/#seniors/#staff/#non-audit professionals | GCOs are positively related to #auditors and #seniors. First-time GCOs are positively related to #auditors only |
| Junior, Cornacchione, Rocha and Rocha (2017) [Experimental] | 12 auditors and 13 accountants all members of AICPA (2015) [Brazil] | GCO decision and brain processes leading to it | auditor/accountant | Perform brain-wave mapping during a GCO task. Find that auditors are more similar than accountants in their processing steps and final decisions, but auditors were not significantly different from accountants in cognitive steps. However, accountants exerted significantly more cognitive effort and had more difficulty with the task. |
| Kabir and Rahman (2016) [Archival] | 37 bankrupt finance companies (2006-2012) [New Zealand] | Issuance of a GCO prior to bankruptcy | Big 4 | Find an overall type II error rate of 59% and no difference between Big 4 and non-Big 4 on likelihood of issuing a GCO prior to bankruptcy. |
| Kallunki, Kallunki, Niemi and Nilsson (2018) [Archival] | 407 male audit partners; 31,969 private companies and 277 public companies (2000-2009) [Sweden] | Type I and type II and total GCO errors | Signing partner IQ | The type I, type II and combined "total" GCO error rates are negatively associated with partner IQ, suggesting smarter partners have more accurate GCO reporting. |
| Kim and Harding (2017) [Experimental] | 181 audit seniors (?) [Australia and South Korea] | Assessment of GCO probability | Audit superior's belief | They examine the effect of a superior's beliefs on subordinates GCO evaluations. Find greater levels of pre-decisional distortion consistent with a reference held by a superior perceived to have relatively higher levels of expertise than those with low perceived expertise. To the extent that auditors accurately perceive their superior's expertise, pre-decisional distortion of evidence may contribute to, rather than detract from, audit quality. |
| Knechel, Vanstraelen and Zerni (2015) [Archival] | 22,971 firm-years audited by Big 4 with min. of 4 consecutive yrs of data, incl. 922 BKT | Issuance of a GCO; type I & II errors | Individual audit partners | They find evidence that aggressive and conservative audit reporting persists for individual partners over time. They also find that current accruals are less predictive of future cash flows for individual audit partners who exhibit a high incidence of prior GCO reporting errors. |

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| | firms (2001-2008) [Sweden] | | | |
| Kumar and Lim (2015) [Archival] | 9,977 public firm-years audited by BIG5 ; incl. 2,121 AA firm-years - also used performance matched group of 2,121 non-AA firm-years (1996-2000) [US] | Issuance of a GCO | Arthur Andersen client or other Big 5 client | Find other measures of audit quality are similar between AA clients and other Big 5 firms, except AA was less likely to issue a GCO than other Big 5 firms in 1999. In other years, AA is similar to the other Big 5 firms. |
| Lai (2013) [Archival] | 782 firm-years (432 Big 4/ 350 non-Big 4) for distressed firms with auditor tenure of 3 yrs or less (2001-2002) [US] | Issuance of a GCO | Ex-AA client / Big 4 auditor | The results show that Big 4 auditors are more likely than non-Big 4 auditors to issue GCOs to ex-Andersen clients compared with other clients. Further, ex-Andersen clients of Big 4 auditors would have had a lower likelihood of receiving GCOs had reporting practices for other clients been applied. Ex-AA clients of non-Big 4 auditors would have had a higher likelihood of a GCO if the reporting practices used for other clients been applied. |
| Lambert and Peytcheva (2017) [Experimental] | 107 AICPA members - 43 partners; 46 managers/senior managers; others (NA) [US] | Issuance of a GCO | Strong negative evidence regarding ability to continue given separately or bundled with other weak evidence of continuance | They examine whether the averaging of evidence (instead of adding evidence together) occurs in a GCO decision setting (as well as IC and fraud setting). They find robust evidence that experienced auditors succumb to the averaging effect by making more strongly unfavorable judgments when getting a single strong piece of evidence than when that evidence is accompanied with other weaker evidence, and that this bias is reduced in the presence of evidence that disconfirms an initially favorable impression. Their findings imply that the aggregation of evidence significantly effects outcome decisions. |

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| Litt and Tanyi (2017) [Archival] | 24,319 firm-years of non-Big 4 audit clients (2000-2011) [US] | Issuance of a GCO | PCAOB inspection frequency (annual vs triennial) | In the pre-PCAOB inspection period (fiscal years 2000–2003), clients of public accounting firms with less than or equal to 100 public clients were not significantly different from clients of public accounting firms with more than 100 public clients with respect to receipt of a GCO. In the post-PCAOB inspection period (fiscal years 2004–2011), when this distinction determines inspection frequency, and when assessing only financially distressed clients, annually inspected audit firms are more likely to issue a GCO, suggesting a difference in audit quality as a result of inspection frequency. |
| Lopez and Peters (2012) [Archival] | 8,384 public firm-years (2006-2009) [US] | Issuance of a GCO | Firm workload compression (% of companies in client portfolio with same Y-E) | Find no significant work-load compression effect on GCO reporting. |
| Minutti-Meza (2013) [Archival] | 35,177 firm-years for national industry specialists and 22,961 for city industry specialists (2000-2008) [US] | Issuance of a GCO | National or city industry specialist (based on % mkt share of number of clients in industry) | Find that industry specialization at national level and city level is not associated with GCOs, esp. compared with PSM samples. Find city specialists are positively associated with GCO in the full-sample model, but not in matched sample tests. |
| Mo, Rui and Wu (2015) [Archival] | 5,131 public companies (2001-2005 & 2006-2010) [China] | Issuance of a GCO | Audit firm size; enactment of the bankruptcy law in 2005 | Chinese affiliates of Big 4 auditors were more likely than local auditors to issue a GCO to financially-distressed clients in the pre-law period. Both the Chinese Big 4 and local top-10 auditors were more likely than smaller local auditors to issue a GCO in the post-law period, suggesting more GCO reporting changes for the local top-10 auditors than other sized audit firms. |
| Myers, Schmidt and Wilkins (2014) [Archival] | 17,259 public firm-years (2000-2006) [US] | Type I & type II errors | Big N, non-Big N | Non-Big N auditors reduced their type II misclassifications at the expense of increased type I misclassifications after 2001. Big N auditors decreased their type I misclassifications with no corresponding increase in type II misclassifications. |

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| Ratzinger-Sakel (2013) [Archival] | 60 GCOs and 648 stressed nonfinancial companies, and a strict control sample of 107 companies with both a net loss and neg CFO in prior year (2005-2009) [Germany] | Issuance of a GCO | NAS fees, audit fees, Big 4, audit firm tenure | Results do not suggest that auditors are less independent when the level of NAS is high. Some evidence that Big 4 audit firms are less likely to issue a GCO for engagements characterized by both relatively high levels of NAS and financial stress. They find no significant effect of audit firm tenure on GCO decisions. |
| Read and Yezeget (2016) [Archival] | 401 listed companies that filed for bankruptcy (2001-2008) [US] | Type II errors | Audit firm tenure | No significant association between auditor tenure and Type II errors for Big 4 audit firms. For non-Big 4 audit firms they find a nonlinear association. Auditor tenure appears to adversely influence non-Big 4 firms' reporting for bankrupt clients in the initial years of an audit engagement but then has no discernible effect in the later years. |
| Stice, Stice and White (2017) [Archival] | 2993 Deloitte audit staff (below partner) evaluation records from 2005, including 486 firm-year observations for the GCO tests, of which only 22 received a GCO. (2005) [US] | GCOs, restatements, accruals, audit fees | Average individual quality ratings for the office - by senior, manager, senior manager and total office | Although not significant in their regression model, offices with higher quality seniors issue more going concern opinions. Offices with high quality seniors are 3 times more likely to issue a GCO than offices with low quality seniors. They find no relation between the quality of audit managers or senior managers and the probability of a client receiving a GCO. Results raise the interesting possibility that low-level employees can affect the likelihood of a client receiving a going concern opinion. |
| Sundgren and Svanström (2014) [Archival] | 1145 companies that filed for bankruptcy (2008-2009) [Sweden] | Type II errors | Number of auditor-in-charge assignments; auditor's age | Find a negative association between the number of audit assignments and the likelihood of a GCO prior to bankruptcy for Big N auditors but not non-Big N auditors. Also negative association between auditor age and the propensity to issue a GCO. |
| Xu, Carson, Fargher and Jiang (2013) [Archival] | 5491 public company years, incl. 3587 distressed with either neg NI or | Issuance of a GCO | GFC & BIG4 | They find an increase in the propensity to issue GCOs in 2008–2009 (GFC period) compared with 2005–2007 and that Big N auditors responded to the GFC earlier than non-Big N auditors. |

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| | CFO (2005-2009) [Australia] | | | |
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Table 4: Auditor-Client Relationships

| Study [Method] | Sample (Years) [Country] | Dependent Variable(s) | Independent Variable(s) | Key finding(s) |
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| Barnes and Renart (2013) [Archival] | 2,113 GCOs and 13,514 non-GCOs on public companies (2000-2008) [Spain] | Type I & type II errors | Auditor bargaining power defined 3 ways using ratios of auditor/client employees, Total Assets and Net Sales | Mixed results. Some support for increased Type I errors positively associated with auditor bargaining power -- reflecting auditor reporting conservatism - but no reduction in type II errors. |
| Basioudis, Gul and Ng (2012) [Archival] | 13,111 distressed (neg NI or CFO) firms incl. 511 first-time GCOs (2000-2009) [US] | Issuance of GCO | NAS fees, Total fees, NAS fee ratio | Find a negative association between NAS and GCOs for companies that pay high NAS fees, but only when auditor tenure is long (defined as 4 or more years). Results hold for both Big N and non-Big N auditors and industry specialists and non-specialists. |
| Bauer (2015) [Experimental] | 92 Big 4 audit seniors (?) [Canada] | Agreement with clients going concern assessment | Level of auditor identification with the client; Prompt for auditor's professional identity | Auditors agree more with the client GCO assessment when they identify more with the client, unless they receive a prompt to remind them of their professional responsibility |
| Blay and Geiger (2013) [Archival] | 1,479 distressed (neg NI and CFO) public companies and 180 first time GCOs (2004-2006) [US] | Issuance of a GCO | Current and future NAS fees | Auditors issue significantly fewer GCOM opinions in the current period to clients that pay higher subsequent total fees. Specifically, auditor reporting decisions in the current period are more favorable for clients that pay higher future fees than for similarly distressed clients that remain viable and stay with their incumbent auditor but pay lower levels of fees in subsequent years. This evidence is consistent with the argument that auditors may appease clients in the current period in order to maintain future revenue streams from their incumbent clients. |
| Causholli, Chambers and Payne (2014) [Archival] | 3,361 firm year observations of Big 4 clients (2000-2001) [US] | Two proxies of earnings management - GCO is an additional analysis | High fee growth companies that also increase NAS in the subsequent year | Main results suggest that high growth companies with future increases of NAS are associated with lower audit quality and earnings management. However, they find no association of future NAS fees with current year GCOs. |

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| Chen, Krishnan and Yu (2016) [Archival] | 3,145 public firm-year observations for the GCO analyses (2005-2006 and 2008-2009) [US] | Likelihood of a GCO; financial restatements; discretionary accruals | Audit fee cut; global financial crisis | Find no significant difference in likelihood of GCO between firms that received a fee cut during the GFC and control firms, suggesting fee pressure did not effect GCO reporting decisions during the GFC. |
| Chen, Martin and Wang (2013) [Archival] | 12,329 distressed (neg net income or neg CFO) firm-years (2000-2007) [US] | Issuance of first-time GCO | Insider selling | Find a negative association between probability of GCO and level of insider selling. Association is stronger for firms that are economically significant to their auditor but less pronounced when (1) auditors have concerns about litigation exposure and reputation loss, (2) audit committees are more independent, and (3) in period after SOX. |
| Chi, Myers, Omer and Xie (2017) [Archival] | 1,377 public company observations for GCO sample (1990-2001) [Taiwan] | Several audit quality proxies, including GCO issuance | Audit partner pre-client and client-specific experience | Both pre-client and client-specific experience improve audit quality (issuance of GCOs). Partner pre-client experience is positively associated with audit quality early in the engagement, but not when the partner has been with the client for at least five years, suggesting pre-client experience cannot completely mitigate the loss of client-specific knowledge for new engagement partners. |
| Dhaliwal, Lamoreaux, Lennox and Mauler (2015) [Archival] | 2,145 Big 4 auditor appointments (1995-2009) [US] | Issuance of a GCO | Client hiring affiliated auditors and audit committee quality | Companies that hire affiliates are negatively associated with the receipt of a GCO, even in the presence of higher quality audit committees. Results indicate that affiliate associations may not be adequately moderated even by strong audit committees. |
| Ettredge, Fuerherm, Guo and Li (2017) [Archival] | 8,581 distressed firm-years including 588 first-time GCOs (2005-2011) [US] | Issuance of a GCO | Client audit fee pressure; compensating payments | Auditors are less likely to issue first-time GCOs to clients that exert fee pressure in 2008, but not in the years before or after, suggesting independence may have been impaired for a brief period. Also, this negative association was strengthened by compensating payments, proxied as expected total fee increases in the next year or high current-year NAS fees. |
| Garcia-Blandon and Argiles (2015) [Archival] | 652 firm-years (2002-2009) [Spain] | Issuance of a GCO | Audit firm tenure | Audit firm tenure not associated with GCOs. |

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| Geiger and van der Laan Smith (2017) [Archival] | 13,642 private companies and 569 public companies (2011-2012) [UK] | Issuance of a GCO | Level of NAS fees | NAS fees are negatively associated with GCOs for public company audits regardless of auditor size, and for private companies audited by non-Big N auditors; NAS is positively related to GCOs for private companies audited by Big N auditors. Also find significant reductions in the likelihood of a GCO when NAS fees exceed 70 percent of audit fees, regardless of listing status or audit firm size. |
| Guan, Su, Wu and Yang (2016) [Archival] | 5,040 firm-years for non-financial companies (2006-2011) [China] | Issuance of a GCO | Auditors and company management having the same university affiliation | Signing auditors with university affiliations w/ senior managers are less likely to issue a GCO to a stressed company |
| Habib (2013) [Meta-Analysis] | Various (1982-2011) [various] | Issuance of a GCO | Auditor and client factors; NAS fees | The effect of audit and auditor-related variables on GCO decisions is far from conclusive. In general, Big N affiliation and audit report lag variables are found to be positively related with GCOs, while the association between NAS fees and modified audit opinion decisions is negative. However, the significant effect of NAS fees is found only in non-US studies. |
| Hossain, Monroe, Wilson and Jubb (2016) [Archival] | 2,252 distressed public firms having both negative NI and CFO (2003-2012) [Australia] | Issuance of a GCO | Audit partner-AC member interlocks and the partners audit fee % associated with the interlock engagements (% of these fees to total client fee revenue by partner) | GCOs are negatively assoc with interlock revenues for high % clients, but not for low % clients. So, interlocks appear to reduce auditor independence and result in fewer GCOs |
| Kao, Li and Zhang (2014) [Archival] | 17,154 distressed (neg NI or CFO) firm-years for 5,758 public firms (2001, 2003-2011) [US] | Issuance of a GCO | Client Fee Dependence (the ratio of total client fees to total office fees) | They perform yearly regressions for all study years and find that the positive fee dependence reported in Li (2009) only holds for 2003 and for any other year. |
| Kaplan and Williams (2012) [Archival] | 199,921 public firm-years incl. 48,077 stressed company firm-years and 11,665 GCO firm-years (1989-2010) [US] | Issuance of a GCO; audit firm size; bankruptcy | Audit firm size (Big4/National/Regional) | Over time, financially stressed public companies are shifting to regional audit firms, partly due to the actions of larger audit firms shedding these clients. They then show that over time, for their financially stressed public clients, regional audit firms are increasingly more likely to issue GCOs, and BigN audit firms are increasingly less likely to issue going concern reports. They also show that in more recent periods, regional audit firms |

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| | | | | have been more likely than BigN and national audit firms to issue a GCO to financially stressed public clients. |
| Kim (2017) [Archival] | 2,293 distressed firms (2000-2013) [US] | Issuance of GCO / Dismissal | Managerial overconfidence | Firms with overconfident managers are more likely to get GCOs and once they get a GCO are more likely to dismiss the auditor. |
| Ratzinger-Sakel (2013) [Archival] | 60 GCOs and 648 financially stressed nonfinancial companies, and a strict control sample of 107 companies with both a net loss and neg CFO in the prior year (2005-2009) [Germany] | Issuance of a GCO | NAS fees, audit fees, Big 4, audit firm tenure | Results do not suggest that auditors are less independent when the level of NAS is high. Some evidence that Big 4 audit firms are less likely to issue a GCO for engagements characterized by both relatively high levels of NAS and financial stress. They find no significant effect of audit firm tenure on GCO decisions. |
| Read (2015) [Archival] | 203 financially distressed bankrupt public companies (2002-2013) [US] | Type II errors | Nonaudit fees; Audit fees | Find no significant relation between GCO decisions and NAS fees and audit fees. |
| Read and Yezeget (2016) [Archival] | 401 listed companies that filed for bankruptcy (2001-2008) [US] | Type II errors | audit firm tenure | No significant association between auditor tenure and Type II errors for Big 4 audit firms. For non-Big 4 audit firms they find a nonlinear association. Auditor tenure appears to adversely influence non-Big 4 firms' reporting for bankrupt clients in the initial years of an audit engagement but then has no discernible effect in the later years. |

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| Wu, Hsu, and Haslam (2016) [Archival] | 116 failed companies, i.e., entered liquidation, receivership, administration or delisted (1997-2010) [UK] | Issuance of a GCO | NAS Fees, Audit Comm. Indep directors, financial experts | Failed firms with higher proportions of independent non-executive directors (NEDs) and financial experts on the audit committee are more likely to receive prior GCOs, but there is no significant relationship between NAS fees and the likelihood of receiving a GCO. The evidence further suggests that where the audit committee is more independent and includes a greater proportion of financial experts, auditors providing the client with NAS are less likely to issue a GCO prior to failure. The findings support corporate governance regulators' concerns. |
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Table 5: Environmental Factors

| Study [Method] | Sample (Years) [Country] | Dependent Variable(s) | Independent Variable(s) | Key finding(s) |
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| Anantharaman, Pittman and Wans (2016) [Archival] | 1220 GCOs and 13,693 stressed non-GCOs for public companies (2001-2009) [US] | Issuance of a GCO | State liability regimes in the US | Auditors are more likely to issue a GCO to a firm in a high liability state than a low liability state |
| Blay, Moon, Paterson (2016) [Archival] | 6,566 audit reports of financially distressed (neg NI and CFO) public clients of non-Big 4 auditors (2001- 2011) [US] | Issuance of GCO; type 1 error; type 2 error | Rate of first time GCOs being issued in proximate area (state) of the auditor | Non-Big 4 auditors located in states with relatively high first-time GCO rates in the prior year are up to 6 percent more likely to issue first-time GCOs. This higher propensity increases auditors' type I error rates without decreasing their type II error rates |
| Cao, Fan, Naravanamoorhty, Rowe (2017) [Archival] | 523 litigation events (2000- 2013) [US] | Subsequent misstatement frequency, audit fees, GCOs | Other within-industry audit litigation | They find a contagion effect, in that if there is within-industry audit firm litigation, audit firms will be more likely to issue a GCO in the following year. So, within industry litigation causes auditors to become more conservative in their GCO reporting. |
| Carey, Kortum and Moroney (2012) [Archival] | 142 public companies (1995- 1996 and 2004- 2005) [Australia] | Type I GCO reporting errors | pre/post financial crisis | Auditors maintain GCO reporting accuracy, such that companies face a consistent type 1 error rate (rate of survival among companies issued a GCO) |
| Carson, Fargher and Zhang (2017) [Archival] | 8,776 financially distressed (neg NI or CFO) firm-years (2005-2014) [Australia] | Issuance of a GCO; type I & type II errors | Time period: Pre-GFC, GFC and Post-GFC | They find that the probability of a GCO is higher in the post-GFC period than during either the pre-GFC or GFC period. The increase in GCO probability is not explained by changes in client risk during this period. They attribute the change in auditor reporting behaviour to increased regulatory scrutiny of the audit profession in the post-GFC period. They also find type I errors increase and type II errors either do not change (non-resource industries) or actually increase as well (resource industries) during the post-GFC |

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| | | | | period, suggesting lower quality auditor reporting in the pos-GFC period. |
| Chen, Zhang and Zhou (2017) [Archival] | 49,697 firm-year observations of Big 4 firms (1994-2012) [33 countries] | Issuance of MAO (including GCO) | Secrecy culture of the country where client is domiciled; Investor protection | Auditors are more likely to issue MAOs in countries with a strong secrecy culture and countries with weak investor protection |
| Cheon, Dhaliwal, Hwang and Kim (2017) [Archival] | 1,834 public audit engagements inspected by national regulator (2007-2010) [South Korea] | Several audit quality proxies, including GCO issuance | Results of audit firm inspection (firm and engagement level) - number and type of deficiencies | Quality control deficiencies are negatively associated with GCOs but audit engagement deficiencies are not. Deficiencies related to firm-wide quality control appear to better reflect audit quality than specific engagement deficiencies. |
| Chy and Hope (2017) [Archival] | 41,424 firm-year observations / 21,030 firm-year observations for GCOs tests (1970-1998) [US] | Change in auditor's state legal liability | Issuance of GCO - as a signal of auditor conservatism; type I and II errors | Increases in an auditor's home state liability laws are associated with increased auditor conservatism leading to more GCOs and more type I errors, but are unrelated to type II errors. Also find that increased GCO rates are associated with lower discretionary accruals, reduced R&D and advertising spending, and fewer patents and patent citations. Their findings suggest that auditor conservatism induces suboptimal changes in real activities. |
| Daugherty, Callaway Dee, Dickins and Higgs (2016) [Survey/Experimental] | 90 practicing audit partners and managers (?) [US] | Likelihood of GCO | Time frame that auditors must use to make their decisions ("not to exceed one year," "at least one year," "foreseeable future, at least one year," "foreseeable future") | The likelihood of issuing a GCO increases monotonically as the time frame related to the going concern assessment becomes less finite, going from "not to exceed a year" (AU 341) to the "foreseeable future" (ISA 570). Auditor responses also indicate that the information most critical for making the GCO decision shifts from one-year projections to 3-year projections and away from the balance sheet as the time frame for the going concern assessment increases. Auditors further quantified the levels of uncertainty they believed constitutes "substantial doubt" (67%) and "significant doubt" (60%), suggesting auditors may be less |

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| | | | | likely to modify their opinions for going concern under AU section 41 than under IAS 1. |
| DeFond, Francis and Hallman (2017) [Archival] | 14,354 distressed company firm-years (2000-2014) [US] | Issuance of GCO; type 1 and 2 errors | SEC awareness measured using (i) audit office proximity to SEC regional offices, and (ii) proximity to specific SEC enforcement actions against auditors | Non-Big 4 offices, but not Big 4, with greater awareness of SEC enforcement are more likely to issue first-time GCOs to distressed clients. They also have higher type I error rates, suggesting a conservative reporting bias. Some evidence that Big 4 firms with greater awareness of SEC enforcement have lower type II errors, but the number of cases is small. Hence, awareness of SEC increases GCO frequencies, particularly in non-Big 4 firms. |
| Deumes, Schelleman, Vander Bauwhede and Vanstraelen (2012) [Archival] | 103 audit firms and 1,373 public clients (2008) [Austria, Germany, UK and the Netherlands] | Issuance of a GCO | Quality of audit firm's transparency disclosures | Audit firm governance disclosures are not associated with GCO issuance. |
| Firth, Mo and Wong (2014) [Archival] | 11,252 audits of listed companies (1996-2007) [China] | Issuance of a GCO | Regulatory sanctions for failure to detect and report financial statement fraud; client risk | Sanctioned auditors issue more GCOs for risky clients after an enforcement action than they did before the enforcement action. In contrast, we find no such effect for non-risky clients. Evidence suggests that regulatory sanctions are effective in shaping auditors' behavior when they audit risky clients. |
| Geiger, Raghunandan and Riccardi (2014) [Archival] | 414 bankrupt firms (2004 - 2010) [US] | Issuance of a GCO | Global financial crisis, measures of distress | Probability of getting GCO increased after the onset of the GFC for both Big 4 and non-Big 4 auditors. Results suggest generally improved reporting quality during the financial crisis. |
| Gunny and Zhang (2013) [Archival] | 527 PCAOB inspected firms (2005-2009) [US] | Issuance of a GCO | Inspection findings: Clean/Deficient/Seriously Deficient | GCOs are not related to severity of inspection findings for triennially inspected audit firms or all audit firms combined. |

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| He, Pan and Tian (2017) [Archival] | 1,230 distressed firms (2008-2013) [China] | GCO; Modified Opinion | Time period after China made audit firms switch from LLCs to LLPs - increasing their liability exposure | More GCOs after switch to LLPs, esp. for local auditors of State Owned Enterprises. Increases in liability exposure increase the probability of a GCO |
| Hossain (2013) [Archival] | 4,961 distressed (neg NI or CFO) firms (2002-2007) [Australia] | Issuance of a GCO | NAS fees; abnormal NAS fees | NAS fees are positively associated with GCO after CLERP 9 reforms, but not before. Abnormal NAS fees negatively associated with GCOs before CLERP 9, but not after. So evidence of improved audit reporting quality after the CLERP reforms in Australia. |
| Kao, Li and Zhang (2014) [Archival] | 17,154 distressed (neg NI or CFO) firm-years for 5,758 public firms (2001, 2003-2011) [US] | Issuance of a GCO | Client Fee Dependence (the ratio of total client fees to total office fees) | They perform yearly regressions for all study years and find that the positive fee dependence reported in Li (2009) only holds for 2003 but not for any other year. |
| Lamoreaux (2016) [Archival] | 9,137 firm-years of foreign firms listed on US exchanges (1999-2012) [US] | Issuance of a GCO | Foreign firm/Country allows PCAOB inspections | Auditors of foreign SEC registrants subject to PCAOB inspection access provide higher quality audits as measured by more GCOs, relative to auditors not subject to PCAOB inspection access. There is no observable difference between the two sets of auditors prior to the PCAOB inspection regime. |
| Lennox (2016) [Archival] | 41,535 firm-years with NAS data (2002-2009) [US] | Issuance of a GCO | Pre/post restriction on TAX NAS in 2005 | Find no evidence that GCO rates improved after the NAS restriction. |
| Leone, Rice, Weber and Willenborg (2013) [Archival] | 4,086 Internet IPOs and 9,089 distressed public firms all with Big N auditors (1996-2000) [US] | Issuance of a GCO | Internet company or not / euphoric period or not | They find significantly fewer internet IPO GCOs in the euphoric DOT.COM bubble in 1999 compared to the pre-period and to non-internet IPOs in the same period. |

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| Litt And Tanyi (2017) [Archival] | 24,319 firm-years of non big 4 audit clients (2000-2011) [US] | Issuance of a GCO | PCAOB inspection frequency (annual vs triennial) | In the pre-PCAOB inspection period (fiscal years 2000–2003), audit firms with less than or equal to 100 public clients were not significantly different with respect to issuing GCOs compared to firms with more than 100 public clients. In the post-PCAOB inspection period (fiscal years 2004–2011), when analyzing financially distressed clients, annually inspected audit firms are more likely to issue a GCO, suggesting a difference in audit quality as a result of inspection frequency. |
| Mo, Rui and Wu (2015) [Archival] | 5,131 public companies (2001-2005 & 2006-2010) [China] | Issuance of a GCO | Audit firm size; enactment of the bankruptcy law in 2005 | Chinese affiliates of Big 4 auditors were more likely than local auditors to issue a GCO to financially-distressed clients in the pre-law period. Both the Chinese Big 4 and local top-10 auditors were more likely than smaller local auditors to issue a GCO in the post-law period, suggesting more GCO reporting changes for the local top-10 auditors than other sized audit firms. |
| Myers, Schmidt and Wilkins (2014) [Archival] | 17,259 public firm-years (2000-2006) [US] | Type I and Type II errors | Big N, non-Big N | Non-Big N auditors reduced their Type II misclassifications at the expense of increased Type I misclassifications after 2001. Big N auditors decreased their Type I misclassifications with no corresponding increase in Type II misclassifications. |
| Sormunen, Jeppesen, Sundgren, and Svanström (2013) [Archival] | 2,941 bankrupt firms in Nordic countries (2007-2011) [Denmark, Sweden, Norway, Finland] | Type II errors | Denmark and Norway vs Sweden and Finland and Big 4/ non-Big 4 | Danish and Norwegian companies get a GCO prior to bankruptcy more frequently than companies in Sweden and Finland. Big 4 issue more GCOs than non Big 4. GCO is significantly associated with probability of bankruptcy, loss, and client size for all countries. |
| Sundgren and Svanström (2018) [Archival] | 7,221 private companies that filed for bankruptcy within 12 months of the balance-sheet date (2004-2013) [Sweden] | Type II errors | 1. Time passage after a GCO standard takes effect (2004). 2. Audit firm type. 3. Disciplinary threat after 2009 | Find auditors at Top 7 audit firms improve the precision of GCOs prior to 2009 more than non-Top 7 auditors, the sanction/enforcement effect is especially strong in non-Top 7 audit firms who audit smaller clients. Findings suggest that time had an impact on the Top 7 firms who improved their GCO accuracy and increased threat of enforcement had an impact on non-Top 7 auditors who audit firms where the intrinsic demand for high quality auditing is lower. |

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| Xu, Carson, Fargher and Jiang (2013) [Archival] | 5491 public companies, incl. 3587 distressed (neg NI or CFO) | Issuance of a GCO | GFC & BIG 4 | They find an increase in the propensity to issue GCOs in 2008–2009 (GFC period) compared with 2005–2007 and that Big N auditors responded to the GFC earlier than non-BigN auditors. |
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Table 6: Accuracy of GCOs

| Study [Method] | Sample (Years) [Country] | Dependent Variable(s) | Independent Variable(s) | Key finding(s) |
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| Alareeni and Branson (2017) [Archival] | 142 companies, incl. 71 bankrupt (1989-2008) [Jordan] | Issuance of GCO and different bankruptcy prediction models | Bankruptcy | Bankruptcy prediction models were more accurate predictors of failure than GCOs. |
| Beck, Francis and Gunn (2018) [Archival] | 8,553 Big 4 and 4,825 non-Big 4 public firm-years of distressed (either negative NI, CFO, Curr Ratio, or Ret Earn) companies (2001-2013) [US] | GCO error rates | Average education of the city's labor pool / size of the labor pool | They look at the quality of a city's labor market and GCO reporting accuracy and find a positive association between GCO accuracy and average education level in the city in which the lead engagement office is located. This association is generally significant for both Big 4 and non-Big 4 offices, but is stronger for non-Big 4 firms, as they are more tied to local labor markets. |
| Berglund, Eshleman and Guo (2018) [Archival] | 9,267 distressed (both neg NI and neg CFO) public firm-years; and a propensity score matched sample of 2,586 Big 4 clients with 2,586 non-Big 4 clients (2000-2013) [US] | GCO / Type I & Type II errors | Big 4 | They find that after more adequately controlling for client financial stress, that Big 4 firms render more GCOs than non-Big 4, have fewer type I errors and no change in Type II errors compared to non-Big 4. When looking at Big 4 vs BDO & GT (2nd tier), Big 4 render more GCOs and have fewer type I & II errors. |
| Blay, Moon, Paterson (2016) [Archival] | 6,566 audit reports of financially distressed (neg NI and CFO) public clients of non-Big 4 auditors (2001-2011) [US] | GCO / Type I & Type II errors | Rate of first time GCOs being issued in proximate area (state) of the auditor | Non-Big 4 auditors located in states with relatively high first-time GCO rates in the prior year are up to 6 percent more likely to issue first-time GCOs. This higher propensity increases auditors' type I error rates without decreasing their type II error rates |

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| Carey, Kortum and Moroney (2012) [Archival] | 142 public companies (1995-1996 and 2004-2005) [Australia] | Type I errors | pre/post financial crisis | Auditors maintain GCO reporting accuracy, such that companies face a consistent type I error rate (rate of survival among companies issued a GCO) |
| Carson, Fargher and Zhang (2017) [Archival] | 8,776 financially distressed (neg NI or CFO) firm-years (2005-2014) [Australia] | Issuance of a GCO; type I & type II errors | Time period: Pre-GFC, GFC and Post-GFC | They find that the probability of a GCO is higher in the post-GFC period than during either the pre-GFC or GFC period. The increase in GCO probability is not explained by changes in client risk during this period. They attribute the change in auditor reporting behaviour to increased regulatory scrutiny of the audit profession in the post-GFC period. They also find type I errors increase and type II errors either do not change (non-resource industries) or actually increase as well (resource industries) during the post-GFC period, suggesting lower quality auditor reporting in the post-GFC period. |
| Chen, Eshleman and Soileau (2017) [Archival] | 4,322 distressed, firm-year observations (2000-2013) [US] | Issuance of GCO; type I and type II errors | Client business strategy (innovative "prospector" vs cost-leadership "defender") | Prospector firms are significantly more likely than defender firms to receive a GCO. However, for the sample of clients who subsequently filed for bankruptcy, auditors are less likely to issue GCOs to prospector firms. This indicates that auditors commit more type II errors when auditing prospector clients. Business strategy does not affect type I error rates. |
| Chu, Fogel-Yaari and Zhang (2013) [Archival] | 8,369 distressed (i.e., 2 years of losses and neg. CFFO) firm-years; incl. 835 1st time GCOs and 195 bankruptcies (2000-2014) [US] | Type I and type II reporting errors | Prevalence of audit firm to issue GCOs (based on the first stage to determine overall firm GCO probabilities) - grouped into High, Neutral and Low GCO firms | Using their two-stage approach, they find that auditors that issue more GCOs have higher type I errors but not fewer type II errors compared to auditors with lower GCO tendencies. So issuing more GCOs does not appear to be a good measure of audit quality. |
| DeFond, Francis and Hallman (2017) [Archival] | 14,354 distressed company firm-years (2000-2014) [US] | Issuance of a GCO; type I & type II errors | SEC awareness measured using (i) audit office proximity to SEC regional offices, and (ii) proximity to specific SEC enforcement | Non-Big 4 offices, but not Big 4, with greater awareness of SEC enforcement are more likely to issue first-time GCOs to distressed clients. They also have higher type I error rates, suggesting a conservative reporting bias. Some evidence that Big 4 firms with greater awareness of SEC enforcement have lower type II errors, but the number of cases is small. Hence, awareness of SEC increases GCO frequencies, particularly in non-Big 4 firms. |

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| | | | actions against auditors | |
| Desai, Kim, and Srivastava (2017) [Archival] | All annual report filings in Edgar (10-K, 10-K/A; 10-KSB; 10-KT, etc.) Paper only reports percentages, no raw numbers. (1995-2015) [US] | Issuance of GCO / Delist (given a GCO) | GCOs and negative cash flows/recurring losses/negative working capital | They employ search engine technology and use delisting as the indicator of failure. They also investigate the impact of 3 prevalent client distress factors on the propensity to issue GCOs. They search the entire population of 10-K filings from 1995 to 2015 and also use the search to obtain delisting data. Contrary to prior research using bankruptcy filings, they find that the survival rate of first-time GCOs is much lower when using delisting as a measure of financial viability. Around 26 percent of first-time GCOs are delisted within 1 year of the audit opinion date, and 50 percent within 3 years. In addition, they find that the percent of GCOs varies for each significant distress indicator |
| Foster and Ward (2012) [Archival] | 963 distressed firm-years (1997-2000; 2002-2006) [US] | Bankrupt or not | GCO; Period before and after SOX | Find that the GCO variable adds more to the bankruptcy prediction model for the period after SOX than the period before SOX. |
| Foster and Zurada (2013) [Archival] | 111 bankrupt companies and 1,017 non-bankrupt distressed firm-year observations (2003-2007) [US] | Bankrupt or not | Loan default status; GCO receipt | Including loan default status and GCO variables improve the predictive accuracy of hazard models for financially distressed samples, and change the significance on some variables included in previous hazard models. |
| Geiger, Raghunandan and Riccardi (2014) [Archival] | 414 bankrupt firms (2004 - 2010) [US] | Issuance of a GCO | Global financial crisis, measures of distress | Prob of getting GCO increased after the onset of the GFC for both Big 4 and non-Big 4 auditors. Results suggest generally improved reporting quality during the financial crisis. |

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| Gerakos, Hahn, Kovrijnykh and Zhou (2016) [Archival] | 88,545 firm-years with 12,589 GCOs and 1,201 subsequently bankrupt firms (2000-2014) [US] | GCO and BKT - use a bivariate probit model | GCO and financial stress variables | Getting a GCO increases a company's prob of bankruptcy .84%; GCs do not predict bankruptcy any more accurately then models based on public data |
| Gutierrez, Krupa Minutti-Meza and Vulcheva (2017) [Archival] | 1,836 firm-year observations for distressed firms - with neg. NI or neg. CFO. (2000-2012) [US] | Default on debt | GCO / other distress models | GCOs and models have similar predictive power for future defaults (incl. bankruptcy). Combining GCOs and models increase explanatory power, but not much. GCOs are better than credit ratings changes in predicting defaults. |
| Kallunki, Kallunki, Niemi and Nilsson (2018) [Archival] | 407 male audit partners; 31,969 private companies and 277 public companies (2000-2009) [Sweden] | Type I and type II and total GCO reporting errors | Signing partner IQ | The type I, type II and combined "total" GCO error rates are negatively associated with partner IQ, suggesting smarter partners have more accurate GCO reporting. |
| Litt And Tanyi (2017) [Archival] | 24,319 firm-years of non-Big 4 audit clients (2000-2011) [US] | Issuance of a GCO | PCAOB inspection frequency (annual vs triennial) | In the pre-PCAOB inspection period (fiscal years 2000–2003), audit firms with less than or equal to 100 public clients were not significantly different with respect to issuing GCMOs compared to firms with more than 100 public clients. In the post-PCAOB inspection period (fiscal years 2004–2011), when analyzing financially distressed clients, annually inspected audit firms are more likely to issue a GCMO, suggesting a difference in audit quality as a result of inspection frequency. |
| Mayew, Sethuraman and Venkatachalam (2015) [Archival] | 460 BKT firms and 45,265 non-BKT firm-year observations (1995-2012) [US] | Bankrupt or not | MDA tone, GC, ratios | Study examines the textual disclosures in the MD&A section of a firm's SEC 10-K filing finds that both management's opinion about going concern reported in the MD&A and the linguistic tone of the MD&A together provide significant explanatory power in predicting Bankruptcy. They find the predictive ability of MD&A disclosures is incremental to GC opinions and other financial ratios. |

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| Myers, Schmidt and Wilkins (2014) [Archival] | 17,259 public firm-years (2000-2006) [US] | Type I & II errors | BigN, non-Big N | Non-Big N auditors reduced their Type II misclassifications at the expense of increased Type I misclassifications after 2001. Big N auditors decreased their Type I misclassifications with no corresponding increase in Type II misclassifications. |
| Pincus, Tian, Wellmeyer, and Xu (2017) [Archival] | 4,950 firm-years -- incl. 51 bankruptcy observations (2001-2007) [US] | Type I & II errors | Presence and extent of client firms' Enterprise System (ES) implementations | They find implementation and the extent of ES systems reduce type II errors, but find no association of implementation or extent of ES systems with type I errors |
| Young and Wang (2010) [Archival] | 72 distressed firms from the construction industry (1989-2007) [Australia] | Level of disclosure of GC risk in audit reports | Altman Z-score bankruptcy probability | They use the multiple levels of possible GC reports in Australia and find that, based on Altman Z-scores, 75% of auditors underreport GC risk in their reports compared to the risk reflected in the Z-scores. |

Table 7: Consequences of GCOs

| Study [Method] | Sample (Years) [Country] | Dependent Variable(s) | Independent Variable(s) | Key finding(s) |
|---|--|--|--|---|
| Amin and Harris (2017) [Archival] | 129 non-profit organizations getting a GCO and 129 matched stressed organizations not getting a GCO (2004-2009) [US] | Issuance of a GCO | Donations; program service revenues; organizational efficiency | Large (sophisticated) donors donate less and small (unsophisticated) donors donate more following a GCO; service recipients spend more at service-oriented organizations than at charitable nonprofits following a GCO; and managers increase organizational efficiency at service-oriented organizations following a GCO |
| Amin, Krishnan and Yang (2014) [Archival] | 114 GCO firms and 5,343 distressed non-GCO firms, and 106 GCOs and 106 propensity score matched non-GCO firms (2000-2010) [US] | Cost of Equity capital | Issuance of a GCO | Issuance of a GCO significantly increases the cost of equity capital; cost of equity capital increases an average of 3.3 to 5.2% for first-time GCO firms |
| Bar-Hava and Katz (2016) [Archival] | 143 GCO and other distressed firms (2008-2013) [Israel] | Market reaction / CARS for equity and debt investors | Either "early uncertainty warning report" similar to an EOM (first stage) or GCO (second stage) -- Israel has 2 audit reporting mechanisms for GC issues | Early warning reports (1st stage of warning) viewed negatively by bond and equity markets; but early warning reports reduced the severity of negative reaction to GCs (2nd stage of warning) by auditor |

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| Bedard, Brousseau and Vanstraelen (2018) [Archival] | 8,145 firm year observations (2005-2013) [Canada] | Abnormal stock returns; abnormal trading volume | Location of GCO uncertainty (either in the financial statement notes or in the audit report) and severity disclosures (weak vs strong) | Conditioning on the severity of firms' going concern financial statement (GC-FS) disclosures (weak vs. severe) they find that when weak GC-FS disclosures are accompanied by a GC-EOM, firms incur incremental negative abnormal returns and have lower abnormal trading volume. For severe GC-FS disclosures accompanied by a GC-EOM they find negative abnormal returns for repeat disclosures only. Their findings suggest that the GC-EOM paragraph can have incremental value to market participants, even when it appears to provide no new information over that in the audited financial statements. |
| Blay, Bryan and Reynolds (2016) [Archival] | 829 first-time GCO firms and a matched sample of 829 distressed non-GCO firms (2000-2012) [US] | Abnormal mean stock price drift | Issuance of a GCO | Replicate Kauser et al.'s (2009) study on first-time GCO downward market drift and then show that matching on firm-level financial characteristics (net income, cash flows from operations, Zmijeski's (1984) distress score, and total assets), the mean drift disappears in all event windows. |
| Burke, Convery and Skaife (2015) [Archival] | 19,912 firm-years, incl. 2,757 associated with government contracting (2006-2012) [USA] | Issuance of GC; market reaction | Government contracting; receiving a GCO, delisting | They find that firms that earn more revenues from the government are less likely to receive a GCO, and less likely to delist or file for bankruptcy. However, the market reacts more negatively to firms that earn revenues from the government and get a GCO or that delist compared to firms that do not get revenue from the government. |
| Chen, He, Ma and Stice (2016) [Archival] | 8473 loans issued to 5377 borrowers (1992-2009 [USA] | Loan spread; use of covenants; loan size; likelihood of requiring collateral; loan maturity | Issuance of modified audit opinions, including GCOs. GCO is further split up into being related to firm performance, financing concerns and other issues | MAOs (with GCOs having the strongest effect) are significantly associated with all DVs. Authors also identify differential effects across GCO type. |
| Christensen, Glover, Omer, and Shelley (2016) [Survey] | 93 audit partners and senior managers and 102 experienced investors (2012) [US] | Perception of audit quality for various indicators, incl. type I & type II errors | Respondent type: Auditor/Investor | Auditors and investors associate type II errors with lower audit quality, with investors' responses significantly stronger than audit professionals'. Auditors and investors similarly associate type I errors with higher audit quality, suggesting that conservative reporting auditors are viewed positively by both groups. |

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| Chy and Hope (2017) [Archival] | 41,424 firm-year observations / 21,030 firm-year observations for GCOs tests (1970-1998) [US] | Issuance of GCOs, type I & II errors, discretionary accruals, R&D, advertising expense, number of patents and patent citations | Change in state's auditor liability laws; GCOs | Increases in an auditor's home state liability laws are associated with increased auditor conservatism leading to more GCOs and more type I errors, but are unrelated to type II errors. Also find that increased GCO rates are associated with lower discretionary accruals, reduced R&D and advertising spending, and fewer patents and patent citations. Their findings suggest that auditor conservatism induces suboptimal changes in real activities. |
| Czerney, Schmidt, and Thompson (2017) [Archival] | 37,147 distressed firm-years including 431 GCO firm-years (2000-2014) [US] | CARS and abnormal trading volume | Modified reports, including GCOs | They find little evidence of investor reaction to modified reports except for GCOs. They find negative 3-day CARS around the GCO release date. |
| Dong, Robinson and Robinson (2015) [Archival] | 581 first-time GCOs and a propensity score matched sample of 344 non-GCOs (1999-2011) [US] | Earnings Response Coefficient; change in Earnings Response Coefficients | GCO; quarters pre- and post-GCO | Find a significant decrease in the strength of earnings response coefficients (ERCs) in quarters after the GCO, especially for "unexpected" GCOs (GCOs given to firms with above median Altman Z scores). Also find ERCs for high institutional investor firms show greater decreases in ERCs than low institutional investor firms. |
| Eutsler, Nickell and Robb (2016) [Archival] | 314 alleged frauds, including 54 SEC AAER enforcement actions and 34 GCOs (1995-2012) [US] | Likelihood of enforcement action against the auditor | AAER for alleged financial report frauds; GCO | Results suggest that GCOs accompanying alleged fraudulent financial statements are associated with a greater likelihood of enforcement action against the auditor. |
| Feldman and Read (2013) [Archival] | 152 financially distressed companies that filed bankruptcy (2000-2009) [US] | Issuance of GCO | Standard and Poors (S &P) credit ratings | Likelihood of an auditor issuing a GCO is associated with the credit rating issued by S&P preceding the audit report date. In results supporting the idea that the auditor's opinion has informational value, the paper also finds that after issuance of a GCO, S&P's credit rating tends to be downgraded. |

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| Feng (2014) [Archival] | 405 nonprofit charitable organizations (NPOs) receiving first time GCO, plus matched control group (1998-2003) [US] | Issuance of a GCO | Award of government grants; contributions; public support | GCOs are negatively correlated with subsequent government grants and subsequent contributions (but not with subsequent public support), suggesting either that government uses GCO as a screening criterion, or that affected NPOs voluntarily withdraw their grant applications. |
| Geiger and Kumas (2018) [Archival] | Institutional investor trading on 421 first-time GCOs (2002-2010) [US] | Abnormal net selling surrounding GCO announcement | Timing of the trades - 6 months before to 3 months after GCO | Find that institutional investors are abnormal net sellers of first-time GCOs beginning 6 months before the release of the report and remain net sellers through the subsequent 3 months. They also find that the severity of GCOs is associated with increased trading activity, but only after the opinion is publicly available. |
| Gerakos, Hahn, Kovrijnykh and Zhou (2016) [Archival] | 88,545 firm-years with 12,589 GCOs and 1,201 subsequently bankrupt firms (2000-2014) [US] | GCO and BKT - use a bivariate probit model | GCO and financial stress variables | Getting a GCO increases a company's prob of bankruptcy .84%; GCOs do not predict bankruptcy any more accurately than models based on public data |
| Guiral, Ruiz and Choi (2014) [Experimental] | 80 experienced loan officers (NA) [Spain] | Loan decision/perceptions of credit risk, profitability and leverage capacity | Modified unqualified GCOs vs. Qualified GCOs; NAS or no NAS | Loan officer assessments of profitability, leverage capacity, and loan decisions are effected by NAS provisions, but only in cases of modified GCO reports - not qualified GCOs. |

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| Harris, Omer and Wong (2015) [Archival] | 14,062 firm-years including 305 with consecutive GCOs (2004-2013) [US] | Consecutive GCOs; market reaction to GCOs | Audit firm size, industry expertise; consecutive GCOs | Larger audit firms issue fewer consecutive GCOs, and smaller audit firms issue consecutive going concern opinions to a greater proportion of clients at higher risk of bankruptcy and misstatements. Industry expertise is not significantly associated with consecutive GCOs in their multivariate analyses. They also find the initial market reactions to GCOs decrease with consecutive issuances of a GCO and disappear when consecutive GCOs exceed three. |
| Ianniello and Galloppo (2015) [Archival] | 97 public firm-years on 41 different firms (2007-2010) [Italy] | CARs | GCs and qualified opinions (do not differentiate first-time from other GCs) | Qualified opinions receive negative event CARs but GCs have positive CARs in the event period. |
| Kaplan, Mowchan and Weisbrod (2014) [Archival] | 728 distressed GCO companies and 728 PSM distressed non-GCO firms (2001-2011) [US] | CARs | GCO; Level of Institutional Ownership | They use a propensity score matched pairs design and investigate the market reaction to first-time GCOs and find an incremental negative abnormal return and increases in share turnover at the annual report date for GCO firms. In addition, they find that greater net selling by institutional investors during the fiscal year increases the magnitude of these associations. They also find that GCOs signal an increased likelihood of bankruptcy and weaker operating performance in the subsequent year and that institutional flight prior to the GCO moderates the severity of these signals. |
| Kaplan and Williams (2013) [Archival] | 147 distressed firms involved in class action litigation and a matched sample of 147 non-litigation firms (1986-2009) [US] | lawsuits/payout & settlements | GCO | They find a significant positive association between auditors' ex ante litigation risk and GCOs, and a negative association between GCOs and future auditor litigation. When auditors are sued, they find that having issued a GCO reduces the likelihood of large financial settlements. |
| Kausar, Kumar and Taffler (2013) [Archival] | 1,214 first-time GCOs & individual investor trading | CARS / trading behavior | GCO | They investigate the market's under-reaction to first-time GCOs and the subsequent downward price drift. They conclude that GCO firms are a lot like lottery stocks and that individuals most likely to gamble are most likely to buy first-time GCO firms (as a security gamble). |

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| | data (1993-2007) [US] | | | |
| Kausar, Taffler and Tan (2017) [Archival] | 823 US & 127 UK first-time GCOs (1995-2002) [UK, US] | CARs | Legal Regime (i.e. country - US/UK) | Market response to GCOs is greater in creditor-friendly regimes (UK) than in debtor-friendly regimes (US). |
| Khan, Lobo and Nwaeze (2017) [Archival] | 81 firms that re-released GCO announcements in the news media and 81 matched non-GCO firms (2006-2010) [US] | Abnormal trading volume & abnormal return volatility | Re-release of GCO announcement in a media outlet after the 10-K has already been released | They find greater abnormal trading volume and return volatility after the GCO re-release announcement compared to trading on non-GCO companies in the same post-10-K period. Find their results are driven by small trades, but not large trades, suggesting the re-release is more informative to less sophisticated investors. |
| Kim (2017) [Archival] | 2,293 distressed firms - net loss or neg cash flow (2000-2013) [US] | GCO / Auditor Dismissal | Managerial Overconfidence | Firms with overconfident managers are more likely to get GCOs and once they get a GCO are more likely to dismiss the auditor. |
| Knechel, Vanstraelen and Zerni (2015) [Archival] | 22,971 firm-years audited by Big 4 with min. of 4 consecutive yrs of data, incl. 922 BKT firms (2001-2008) [Sweden] | Issuance of a GCO; type I & II errors | Individual audit partners | They find evidence that aggressive and conservative audit reporting persists for individual partners over time. They also find that current accruals are less predictive of future cash flows for individual audit partners who exhibit a high incidence of prior GCO reporting errors. |
| Myers, Shipman, Swanquist and Whited (2017) [Archival] | 635 First-time GCO companies and 897 "New" GCO companies (2004-2013) [US] | CARs | GCOs with or without earnings announcements (EAs) | Market reaction surrounding GCOs is significantly more negative when GCOs are disclosed with EAs, but find no significant market response to GCOs disclosed following EAs. In addition, they find no difference in the market response to EAs issued with GCOs versus EAs issued prior to GCOs. Taken together, their findings suggest that the market reaction surrounding a GCO is attributable to other management disclosures in the EA and not the GCO itself. |

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| Niemi and Sundgren (2012) [Archival] | 52,321 SME firm-years; incl. 2,016 Red Flag opinions (i.e., GCOs) (1996-2001) [Finland] | Change in the firm's use of trade credit relative to bank loans | GCO/Red Flag opinion for liquidation | No significant association between first-time GCOs and changes in a firm's use of trade credit |
| Peixinho and Taffer (2015) [Archival] | 619 listed companies | Analyst's stock recommendation (pre and post) and coverage decisions (post) | GCO | Analysts are aware of impending going-concern problems by downgrading their recommendations, and increased probability of ceasing coverage of, GC firms compared with matched non-GC firms as the GC announcement date approaches. 11% of recommendations at the GC announcement date are unfavorable in contrast to 42% of favorable recommendations . Analysts react to the publication of the GC audit report by stopping covering such firms. |
| Ren and Zhu (2018) [Archival] | 8,614 GCO firm-years and 83,543 non-GCO firm years, but sample sizes in the regressions range from 26,695 to 41,986 | Institutional ownership; Large ownership blocks; CEO turnover; Executive turnover; Audit firm turnover | GCO/AS5/GCO*AS5 interaction | Subsequent to the issuance of AS5, auditor GCO opinions are associated with greater: 1. reductions in ownership of top blockholders, 2. reductions in holdings of institutional investors, 3. decreases in executive compensation, 4. increases in likelihood of current top 3 managers and CEO turnover, 5. increases in the probability of audit firm turnover. |
| Strickett and Hay (2015) [Archival] | 166 bankrupt firms followed by S&P; 160 bankrupt firms followed by Moody's; 138 firms followed by both S&P and Moody's (2002-2013) [US] | 1. likelihood of a GCO. 2. downgrade of firm's credit rating | 1. firm's credit rating. 2. likelihood of a GCO | Likelihood of an auditor issuing a GCO is related to the credit rating issued the month before by both S&P and Moody's. Results also show that in the month after a GCO, S&P downgrading its ratings 68% of the time and Moody's downgraded 24% of the time. |

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| Winchel, Vandervelde and Tuttle (2017) [Experimental] | 117 junior, senior, and masters of accounting students at a large state university (NA) [US] | 1. stock price bids. 2. investor earnings | Level of GCO diagnosticity - i.e., the predictive accuracy of the GCO, along with no GCOs as the base case. | In a market with moderately diagnostic GCOs, investors penalize the prices of firms receiving clean opinions and overvalue firms receiving GCOs as compared to a market with highly diagnostic opinions. Pricing behavior in a market where audit opinions are moderately diagnostic is not significantly different than a market without any GCOs. |
| Wright and Wright (2014) [Experimental] | 72 non-professional investors (MBAs) and control group of 34 participants (NA) [US] | Attributions of bad outcomes due to bankruptcy filing - incl. reporting decision quality, diligence, competence, auditor contribution to the bankruptcy filing | Getting an audit report with explanatory paragraph indicating auditor was aware of GC issues, but issued an unqualified opinion / Or no explanatory paragraph and just unqualified report / No audit report at all for control group | Participants getting explanatory paragraph had less negative attributions on 4 out of 5 dimensions than participants getting just the unmodified report. Control group w/o any information on subsequent bankruptcy had significantly higher positive attributions of the auditor on all 5 dimensions than the group with just the unmodified report. |